

# IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE ISAF 2017

3-5 July - Hotel AQUALINA - Ohrid/MACEDONIA



**IV. INTERNATIONAL  
SYMPOSIUM ON  
ACCOUNTING AND FINANCE  
ISAF 2017**

**OHRID/MACEDONIA  
3-5 JULY 2017**



## **OPENING SPEECH**

Dear Protocol and Colleagues,

Ladies and Gentlemen,

Welcome to the fourth International Symposium on Accounting Finance cohosted by the Association of Accounting and Finance Academicians (AAFA), The Ss. Cyril and Methodius University and Uludağ University. I am very happy to be with you in this symposium on behalf of AAFA.

The aim of education and training in order to create the conditions necessary for an advanced society. Globalization has changed the objectives of higher education. Therefore revisions are carried out in the training programs of Academic studies that serving the commercial life are discussed and sharing information on current issues is carried out in symposiums and congresses. I would like to bring solutions of the problems encountered in the field of education and integration in this symposium.

In the process of training to perform the duty AAFA is published "Journal of Accounting and Finance" every three months since 1999. By AAFA as well as its various national panels, international congresses, conferences and symposia were organized. Our international activities can be listed as follows.

- The Balkan Countries' 1st International Conference On Accounting and Auditing was held 2007 in İstanbul Cohosted by Trakya University And AAFA.

-12 th World Congress Of Accounting Historians was held 2008 in İstanbul Cohosted by Afyon Kocatepe University and Marmara University.

-"2nd Balkans and Middle East Countries Conference on Accounting and Auditing History" was held 2010 in İstanbul

-"The First International Symposium on Accounting and Finance" was held 2012 in Gaziantep cohosted by Gaziantep University and AAFA.

-"The Second International Symposium on Accounting and Finance" was held May 2014 in Bursa cohosted by Uludağ University and AAFA.

- The Third International Symposium on Accounting and Finance" was held September 2014 in Tokyo cohosted by Keizai University and AAFA.

This year that allows us to be here today, " Ss Cyril and Methodius University, Institute of Economics, Skopje, I offer my thanks.

For this Symposium, papers from 26 different universities in different countries that such as Macedonia, Serbia, Libya and Turkey, were passed through the blind review process and 48 papers accepted for the oral presentation.

DEAR COLLEAGUES,

Accounting practices, social responsibility, and with the principle of public disclosure must be made. Primary responsibility of business and accounting managers is to prepare and report true and fair information.

In the new and rapidly-globalized economic order in which competitive conditions have become heavier, accounting, financial reporting and auditing have important functions in the development of both enterprises and economies.

Capital market investments which have increased due to technological development further emphasized the importance of accounting and financial information. Transparent, understandable, reliable, comparable and timely organization of financial information is very important for enlightening the public.

I believe that this conference will make important contributions to the development of the recording and auditing culture, and to the scientific research. I would like to extend my thanks to all of those who have contributed to this conference which I believe will be beneficial and appropriate in terms of both its content and timing.

This Symposium give us opportunity to derive benefit from the papers presented by different countries' academics. I hope to achieve the objectives of this Symposium.

Thanks very much again to allowing the organization of the Symposium, Rector of St Cyril and Methodius University, Director Institute of Economics, Skopje, Rektor of Uludag University, Organization And Scientific Committee, Prof. Biljana Angelova, Prof. Neda Petroska , Prof. Tatjana PETKOVSKA MIRCEVSKA and the President of Turkish Accounting and Auditing Standards Institution who honored us.

I would like to offer my respects personally and on behalf of AAFA

03 July 2017

Prof. Ümit GÜCENME GENÇOĞLU

Chair of Association of Accounting and Finance Academicians

Uludag University, Faculty of Economics and Administrative Sciences

**DETAILED SEMPOSIUM TECHNICAL PROGRAM**

JULY 3, 2017–Monday

**AQUALINA HOTEL CONFERENCE ROOMS**

**09:30 – 11:00 Registration**

**MAIN HALL:**

**11:00 – 12:00 Opening Ceremony**

**Prof. Ümit GÜCENME GENÇOĞLU**

Head of Association Of Accounting And Finance Academician

**Prof. Tatjana PETKOVSKA MIRCEVSKA**

Director Institute of Economics, UKIM, Skopje, Republic of Macedonia

**Prof. Biljana ANGELOVA**

Vice rector for Finance, Investments and Development, Ss. Cyril and Methodius University

**Prof. Nikola JANKULOVSKI**

Rector of the University Ss Cyril and Methodius in Skopje

**Ph.D. Genç Osman YARAŞLI**

President of Turkey's Public Oversight, Accounting and Auditing Standards Authority

**12:00 – 13:00 Opening Session**

**Keynote Speaker:**

**INDEPENDENT AUDIT AND ACCOUNTING STANDARDS IN TURKEY AND HISTORICAL IMPROVEMENTS**

**Hasan GÜL**

*Public Oversight, Accounting and Auditing Standards Authority*

**Keynote Speaker:**

**PENSION SYSTEM REFORM IN THE REPUBLIC OF MACEDONIA: ESTABLISHMENT OF MULTIFUND SYSTEM**

**Ph.D. Habil MUSTAFAI**

Agency for Foreign Investments and Export Promotion of the Republic of Macedonia

**Keynote Speaker:**

**STRUCTURE OF PORTFOLIO AND INVESTMENT POLICY OF PENSION FUNDS IN REPUBLIC OF MACEDONIAN**

**Bulent DERVISHII**

Director of Macedonian Agency for Supervision of Pension Fonda

**13:00 – 14:30 Lunch**

**14:30 – 16:00 PARALLEL SESSIONS**

**MAIN HALL: FINANCIAL MARKETS**

**Chair: Prof. Seval KARDEŞ SELİMOĞLU/Anadolu University**

- 1. HOW DO STOCK MARKETS REACT AGAINST TAX REGULATIONS?:  
EXAMPLE FROM BIST FINANCIAL SECTOR INDICES**  
**Asst. Prof. Merve TUNCAY**  
*Cumhuriyet University*
- 2. FACTORS AFFECTING CAPITAL MARKET DEVELOPMENT IN THE  
REPUBLIC OF MACEDONIA**  
**Ph.D. Snezana KOSTADINOSKA-MILOSESKA**  
*Ss. Cyril and Methodius University*  
**Ph.D. Diana BOSHKOVSKA**  
*Ss. Cyril and Methodius University*  
**Ph.D. Elizabeta DJAMBASKA**  
*Ss. Cyril and Methodius University*  
**Ph.D. Vladimir PETKOVSKI**  
*Ss. Cyril and Methodius University*
- 3. EFFECTS OF EXPECTATIONS AND CONFIDENCE INDICES ON  
FINANCIAL MARKETS**  
**Prof. Vedat SARIKOVANLIK**  
*Istanbul University*  
**Res. Asst. Ph.D. Semra T. ALTUNTAŞ**  
*Istanbul University*  
**PhD. Candidate Nertil MERA**  
*Istanbul University*

**MUFAD HALL: SUSTAINABILITY**

**Chair: Prof. Irina Majovski / Ss. Cyril and Methodius University**

- 1. ECONOMIC SUSTAINABILITY OF ORGANIC FOOD PRODUCTION:  
RESEARCH ON ORGANIC FOOD CONSUMER BEHAVIOR IN THE  
REPUBLIC OF MACEDONIA**  
**Assoc.Prof. Natasha DANILOSKA**  
*Ss. Cyril and Methodius University*  
**Prof. Tatjana PETKOVSKA-MIRCHEVSKA**  
*Ss. Cyril and Methodius University*  
**Res.Asst. Katerina Hadzi NAUMOVA-MIHAILOVSKA**  
*Ss. Cyril and Methodius University*
- 2. THE CORPORATE SUSTAINABILITY SOLUTION: TRIPLE BOTTOM  
LINE**  
**Asst. Prof. Mihriban COŞKUN ARSLAN**  
*Gaziosmanpaşa University*  
**Lecturer Harun KISACIK**  
*Hitit University*

**3. INFLUENCE OF BUDGET DEFICIT ON ECONOMIC GROWTH - THE  
CASE OF THE REPUBLIC OF MACEDONIA**

***Ph.D. Candidate Aleksandar Nikoloski***

*Ss. Cyril and Methodius University*

***Prof. Pece Nedanovski***

*Ss. Cyril and Methodius University*

**SS. CYRIL HALL: ACCOUNTING EDUCATION**

**Chair: Prof. Aylin POROY ARSOY/Uludağ University**

**1. THE EFFECTS OF ENVIRONMENTAL ACCOUNTING  
EDUCATION ON STUDENTS' ENVIRONMENTAL  
CONSCIOUSNESS**

***Prof. Fatih Coşkun ERTAŞ***

*Gaziosmanpaşa University*

***Res.Asst. Oktay ÖZKAN***

*Gaziosmanpaşa University*

**2. THE SUCCESS ON COST ACCOUNTING COURSE OF STUDENTS  
REGISTERED TO OPEN EDUCATION IN ATATURK  
UNIVERSITY**

***Prof. Reşat KARCIOĞLU***

*Atatürk University*

***Asst. Prof. Meryem ÖZTÜRK***

*Atatürk University*

***Ph.D. Durmuş YILDIRIM***

*Atatürk University*

**3. PERCEPTION OF FORENSIC ACCOUNTING EDUCATION AS A  
TOOL FOR ANTI-FRAUD IN LIBYA**

***Asst. Prof. Ali Altuğ BİÇER***

*İstanbul Commerce University*

***Lecturer Mohamed ISSA***

*University of Benghazi*

**16:00 – 16:30 Coffee Break**

**16:30 – 18:00 PARALLEL SESSIONS**

**MAIN HALL: PORTFOLIO ANALYSIS AND RISK MANAGEMENT**

**Chair: Prof. Seval KARDEŞ SELİMOĞLU / Anadolu University**

**1. THE REDUCTION MODEL PROPOSAL FOR PARAMETER  
NUMBER REQUIRED FOR PORTFOLIO OPTIMIZATION**

***Lecturer Recep ÇAKAR***

*Hitit University*

***Lecturer Eyyüp E. ŞAHİN***

*Hitit University*

***Res.Asst. Oktay ÖZKAN***

*Gaziosmanpaşa University*

**2. A NEW EFFICIENT FRONTIER EXPERIMENT IN INVESTMENT ANALYSIS**

*Res. Asst. Oktay ÖZKAN*  
*Gaziosmanpaşa University*  
*Lecturer Recep ÇAKAR*  
*Hitit University*  
*Lecturer Eyyüp E. ŞAHİN*  
*Hitit University*  
*Lecturer Harun KISACIK*  
*Hitit University*

**3. THE RISKS THAT WILL THREATEN GOING CONCERN AND CONTROL RECOMMENDATIONS**

*Asst. Prof. H. Pınar KAYA*  
*Ahi Evran University*  
*Prof. Şaban UZAY*  
*Erciyes University*

**4. DETERMINATION OF THE RELATIONSHIP BETWEEN OPERATING CYCLE RISKS AND OTHER RISKS: AN APPLICATION ON THE BIST TEXTILE INDEX**

*Assoc.Prof. Semra AKSOYLU*  
*Erciyes University*  
*Assoc.Prof. Derviş BOZTOSUN*  
*Erciyes University*  
*Res.Asst. Fatih ALTINIŞIK*  
*Erciyes University*  
*Lecturer Emre Hayri BARAZ*  
*Cumhuriyet University*

**MUFAD HALL: PERFORMANCE REPORTING**

**Chair:** Neda PETROSKA ANGELOSKA, *Ss. Cyril and Methodius University*

**1. INVESTIGATION OF PURCHASING LICENSED MERCHANDISE BEHAVIORS OF SPORTS TEAMS FANS: Students of İnönü University Example**

*Assoc. Prof. Mahmut AÇAK*  
*İnönü University*  
*Assoc.Prof. Recep KARABULUT*  
*İnönü University*

**2. EFFECT OF BOARD MEMBERS' GENDER ON FINANCIAL PERFORMANCE**

*Res. Asst. Ceyda KAVURMACI*  
*Uludağ University*  
*Assoc. Prof. Füsün ÇINAR ALTINTAŞ*  
*Uludağ University*



**3. THE AFFECTS OF ENTERPRISE RISK MANAGEMENT MATURITY  
LEVEL ON OPERATIONAL PERFORMANCE**

*Asst. Prof. Yasemin ERTAN*

*Uludağ University*

**SS. CYRIL HALL: COST AND MANAGERIAL ACCOUNTING**

*Chair: Asst. Prof. Eşref Savaş BAŞCI /Hitit University*

**1. CLOUD ACCOUNTING SYSTEMS AND A SWOT ANALYSIS**

*Lecturer Metin ALLAHVERDİ*

*Selçuk University*

**2. INFORMATION TECHNOLOGIES AND E-ACCOUNTING  
EDUCATION**

*Asst. Prof. Murat KARAHAN*

*Gaziantep University*

*Res. Asst. Medet İĞDE*

*Gaziantep University*

**3. TRANSFER PRICING IN THE BALKANS**

*Assoc. Prof. Batuhan GÜVEMLİ*

*Trakya University*

*Assoc. Prof. Halil İbrahim ALPASLAN*

*Marmara University*

*Tax Manager Mehmet Emre ŞUŞOĞLU*

*Deloitte, TURKEY*

JULY 4, 2017 – Tuesday

**AQUALINA HOTEL CONFERENCE ROOMS**

**09:30 – 11:00 PARALLEL SESSIONS**

**MAIN HALL: BEHAVIORAL FINANCE**

*Chair: Assoc. Prof. Batuhan GÜVEMLİ / Trakya University*

**1. THE NEXUS BETWEEN BIST INDEX AND NET DIRECT,  
INDIRECT INVESTMENTS AND REAL EXCHANGE RATE AS  
THE BAROMETER OF ECONOMY**

*Prof. Reşat KARCIOĞLU*

*Atatürk University*

*Prof. Ömer Selçuk EMSEN*

*Atatürk University*

*Asst. Prof. Ensar AĞIRMAN*

*Atatürk University*

*Assoc. Prof. İhsan YILDIZTEKİN*

*Atatürk University*

**2. THE EFFECTS OF MACROECONOMIC VARIABLES ON BIST**

*Prof. Reşat KARCIOĞLU*

*Atatürk University*

*Asst. Prof. Ensar AĞIRMAN*

*Atatürk University*

*Res. Asst. Muhammet ÖZCAN*

*Atatürk University*

**3. DETERIORATING PROFITS of BROKERAGE FIRMS POST-IFRS:  
EMPIRICAL EVIDENCE**

***Prof. Önder KAYMAZ***

*Clarion University*

***CPA Ph.D. Özgür KAYMAZ***

*Manager of Financial and Administrative Affairs at the Education  
Directorate in Turkish Airlines*

**MUFAD HALL: AUDITING**

**Chair: Prof. Ümit GÜCENME GENÇOĞLU/ Uludag University**

**1. STANDARD OF THE EVENTS AFTER ISA (INDEPENDENT STANDARD  
ON AUDITING) 560 BALANCE SHEET DATE: A RESEARCH ON  
INDEPENDENT AUDITORS**

***Prof. Fatih Coşkun ERTAŞ***

*Gaziosmanpaşa University*

***Lecturer Selim GÜNGÖR***

*Gaziosmanpaşa University*

**2. CALCULATION OF CONTROL RISK IN ACCOUNTING AUDIT  
AND APPLICATIONS IN TURKEY**

***PhD. Candidate Aynur IŞIK***

*Uludağ University*

**3. AUDITING AND ASSURANCE SERVICES**

***Asst. Prof. Mihriban COŞKUN ARSLAN***

*Gaziosmanpaşa University*

***PhD. Candidate Serkan DEMİRKAN***

**4. GENERAL STRUCTURE OF INDEPENDENT AUDIT FIRMS IN  
TURKEY**

***Res. Asst. Tuba BORA***

*Uludağ University*

***Asst. Prof. Fikri PALA***

*Uludağ University*

**SS. CYRIL HALL: ACCOUNTING EDUCATION AND AUDITING**

**Chair: Prof. Tatjana PETKOVSKA MIRCEVSKA/Director Institute of  
Economics, UKIM, Skopje**

**1. THE EVALUATION OF THE SUCCESS IN ACCOUNTING I  
CLASSES WITHIN THE CONTEXT OF MULTIPLE  
INTELLIGENCE THEORY**

***Prof. Aylin POROY ARSOY***

*Uludağ University*

***Res. Asst. Tuba BORA***

*Uludağ University*

***Postgraduate Esra ÖZDEMİR***

*Anadolu University*

**2. THE RELATIONSHIP BETWEEN CONTINUOUS AUDITING AND  
INTERNAL CONTROL**

**Prof. Adem ÇABUK**

*Uludağ University*

**Res. Asst. Alp AYTAÇ**

*Uludağ University*

**Res. Asst. Can Efecan AKHAN**

*Uludağ University*

**3. AUDIT WITH BENFORD ANALYSIS: AN APPLICATION ON  
PUBLIC HOSPITALS**

**Lecturer Onur ÖZEVİN**

*Abant İzzet Baysal University*

**4. THE POSSIBLE OUTPUTS OF INTERNATIONAL INTERNSHIPS  
IN ACCOUNTING EDUCATION**

**Ph.D. Nusret Yazıcı**

*Republic Of Turkey Ministry Of Food, Agriculture And Livestock*

**Prof. Ganite Kurt**

*Gazi University*

**10:00 – 11:30** Coffee Break

**11:30 – 13:00** PARALLEL SESSIONS

**MAIN HALL: CORPORATE MANAGEMENT**

**Chair: Prof. Tatjana PETKOVSKA MIRCEVSKA** / *Director Institute of  
Economics, UKIM, Skopje*

**1. THE RELATIONSHIP BETWEEN CORPORATE GOVERNANCE  
AND CORPORATE FINANCIAL PERFORMANCE – EVIDENCE  
FROM EMPIRICAL STUDIES**

**Assoc. Prof. Zoran JANEVSKI**

*Ss. Cyril and Methodius University*

**Assoc. Prof. Elena DAVITKOVSKA**

*Ss. Cyril and Methodius University*

**Asst. Prof. Irina MAJOSVKI**

*Ss. Cyril and Methodius University*

**Asst. Prof. Vladimir PETROVSKI**

*Ss. Cyril and Methodius University*

**2. DETERMINATION OF THE LOCATION OF ESTABLISHMENT  
WITH ELECTRE METHOD: BURSA PROVINCE AUTOMOTIVE  
INDUSTRY CASE**

**Assoc. Prof. Değer ALPER**

*Uludağ University*

**Res. Asst. Ebru AYDOĞAN**

*Uludağ University*

**Lecturer Canan BAŞDAR**

*Uludağ University*

3. **MUTUAL INTERACTION BETWEEN CORPORATE GOVERNANCE AND ENTERPRISE RISK MANAGEMENT: A CASE STUDY IN BORSA ISTANBUL STOCK EXCHANGE**  
*Assoc. Prof. Süleyman Serdar KARACA*  
*Gaziosmanpaşa University*  
*Lecturer Zekai ŞENOL*  
*Cumhuriyet University*  
*Asst. Prof. Özge KORKMAZ*  
*Bayburt University*
  
4. **RELATIONSHIP BETWEEN THE COUNTRY RISK AND THE DIRECT FOREIGN CAPITAL INVESTMENT: TURKEY CASE**  
**Res. Asst. Ahmet ZELKA**  
*Istanbul University*  
**Res. Asst. Ph.D. Semra TAŞPUNAR ALTUNTAŞ**  
*Istanbul University*  
**Res. Asst. Abdullah BAYRAM**  
*Istanbul University*

**MUFAD HALL: ISTANBUL STOCK EXCHANGE (BIST) BASED RESEARCHES**

**Chair: Prof. Seval KARDEŞ SELİMOĞLU/ Anadolu University**

1. **MOMENTUM ANOMALY: RESEARCH IN BIST 100 INDEX**  
*Ph.D. Yusuf KALDIRIM*
  
2. **MEASURING SUSTAINABILITY PERFORMANCE OF FIRMS IN MANUFACTURING INDUSTRY IN TURKEY BY USING A MULTI CRITERIA DECISION MAKING METHOD**  
*Asst. Prof. Funda ÖZÇELİK*  
*Uludag University*  
*Asst. Prof. Burcu AVCI ÖZTÜRK*  
*Uludag University*
  
3. **THE RELATIONSHIP BETWEEN AGGREGATE INVESTMENT, INVESTOR SENTIMENT AND STOCK RETURNS: THE CASE OF BIST INDUSTRIAL INDEX STOCKS**  
*Prof. Cengiz TORAMAN*  
*İzmir Demokrasi University*  
*PhD. Tülin ANLAŞ*  
*Prof. Bedriye TUNÇSİPER*  
*İzmir Demokrasi University*

**SS. CYRIL HALL: FINANCIAL PERFORMANCE**

**Chair: Prof. Önder KAYMAZ/Clarion University**

1. **EVALUATING THE FINANCIAL SOLVENCY OF TURKISH LISTED COMMERCIAL BANKS: AN APPLICATION OF BANKOMETER**  
*Asst. Prof. İlkut Elif KANDİL GÖKER*  
*Kırıkkale University*  
*Asst. Prof. Tuba Derya BAŞKAN*  
*Kırıkkale University*

**2. DIESELGATE AND ITS IMPACTS ON CONSUMERS,  
REGULATORS AND THE COMPANY**

*Asst. Prof. İffet KESİMLİ*  
*Kırklareli University*

**3. AUDITING OF FINANCIAL SUSTAINABILITY FOR LISTED AND  
NON-LISTED COMPANIES THAT SUBJECT TO INDEPENDENT  
AUDIT: A RESEARCH IN BURSA**

*Res. Asst. Alp AYTAÇ*  
*Uludağ University*  
*Prof. Ümit GÜCENME GENÇOĞLU*  
*Uludağ University*

**13:00– 14:30** Lunch

**14:30 – 16:00** PARALLEL SESSIONS

**MAIN HALL: PERFORMANCE REPORTING**

**Chair: Prof. Fatih Coşkun ERTAŞ/ Gaziosmanpaşa University**

**1. ANALYSIS OF THE RELATIONSHIP BETWEEN  
MUNICIPALITIES' FINANCIAL STATEMENTS AND  
POPULATION IN TURKEY FROM 1980 TO 2014**

*Lecturer Gülistan BAŞCI*  
*Hitit University*  
*Asst. Prof. Eşref Savaş BAŞCI*  
*Hitit University*

**2. IMPLEMENTATION OF HYBRID DATA MINING APPROACH IN  
FRAUD EXAMINATION: A RESEARCH ON MANUFACTURING  
FIRMS LISTED IN ISTANBUL STOCK EXCHANGE**

*Prof. Seval KARDEŞ SELİMOĞLU*  
*Anadolu University*  
*Res. Asst. Gül YEŞİLÇELEBİ*  
*Anadolu University*

**3. ESTIMATION OF THE MINIMUM HEALTH EXPENSES OF 2015-  
2016 1ST LEAGUE TEAMS OF 2015-2016 TURKISH FOOTBALL  
FEDERATION**

*Assoc. Prof. Recep KARABULUT*  
*İnönü University*  
*Assoc. Prof. Mahmut AÇAK*  
*İnönü University*

**4. THE RELATIONSHIP BETWEEN LIQUIDITY RATIOS AND  
CASH PROVIDED FROM MAIN ACTIVITIES OF THE  
COMPANIES**

*Prof. Ümit GÜCENME GENÇOĞLU*  
*Uludağ University*  
*Res. Asst. Alp AYTAÇ*  
*Uludağ University*  
*Yusuf KURT*

**MUFAD HALL: ACCOUNTING AND ECONOMICAL DEVELOPMENT**

**Chair: Assoc. Prof. S. Serdar KARACA/ Gaziosmanpaşa University**

**1. POSSIBILITIES FOR MANAGING FINANCIAL CRISES OF  
MACEDONIAN COMPANIES**

**Prof. Biljana ANGELOVA**

*Ss. Cyril and Methodius University*

**Prof. Neda PETROSKA-ANGELOVSKA**

*Ss. Cyril and Methodius University*

**Assoc. Prof. Marija ACKOVSKA**

*Ss. Cyril and Methodius University*

**2. EUROPEAN CENTRAL BANK -CONVENTIONAL AND/OR  
UNCONVENTIONAL INSTRUMENTS FOR MONETARY POLICY**

**Prof. Klimentina POPOSKA**

*Ss. Cyril and Methodius University*

**MSc Elena MIHAJLOSKA**

*Coordea Outsourcing*

**Asst. Prof. Iskra STANCHEVA-GIGOV**

*Ss. Cyril and Methodius University*

**3. DIGITAL ECONOMY AS A FACTOR FOR SUSTAINABLE  
DEVELOPMENT-COMPARISON OF PRACTICES IN THE SIX  
COUNTRIES OF SOUTHEAST EUROPE**

**Assoc. Prof. Zoran JANEVSKI**

*Ss. Cyril and Methodius University*

**Asst. Prof. Vladimir PETROVSKI**

*Ss. Cyril and Methodius University*

**Prof. Tatjana PETKOVSKA MIRCEVSKA**

*Ss. Cyril and Methodius University*

**Assoc. Prof. Elena DAVITKOVSKA**

*Ss. Cyril and Methodius University*

**Asst. Prof. Irina MAJOSVKI**

*Ss. Cyril and Methodius University*

**4. OPERATING DRIVERS WHICH EXPLAIN BANK CREDIT  
MARGINS: THE CASE OF TURKEY**

**CPA Ph.D. Özgür KAYMAZ**

*Manager of Financial and Administrative Affairs at the Education  
Directorate in Turkish Airlines*

**Prof. Önder KAYMAZ**

*Clarion University*

**16:00 – 17:00: CLOSING CEREMONY ( MAIN HALL)**

## **Keynote Speaker:**

# **INDEPENDENT AUDIT AND ACCOUNTING STANDARDS IN TURKEY AND HISTORICAL IMPROVEMENTS**

**Hasan Gül**

Public Oversight, Accounting and Auditing Standards Authority

## **1. INTRODUCTION**

Today we are face to face a world that the borders are disappearing. And however, this disappearance does not unite us a homogeneous world, it unites a world that can be lived by homogeneous instruments. Especially in finance, transactions fit into invisible networks. And in these networks millions of information are travelling around the individuals. So, the individuals need a common language to convey and to understand the conveyed. In practice, the information systems of the entities generate a large information flow. And by the help of the accounting, this information is recorded, measured, classified, summarized and presented in the financial statements. And all of us know that this process is handled in a given context called financial reporting framework. In other words, a single language is established that conveys the managements' assertions among millions of entities.

The accounting focuses on applying the rules, techniques, and computations required to prepare and analyze financial information. Auditing on the other hand, focuses on the analytical and logical skills necessary to evaluate the relevance and reliability of financial information as well as of the systems and processes responsible for recording and summarizing that information. And due to the nature of audit, it is based on the auditor's beliefs whether sufficient and appropriate audit evidence has been obtained or not. Accordingly, auditors also need procedures to perform the audit that will make them to conclusions based on their evidence obtained.

To meet these requirements, there are two general accepted agencies that issue financial reporting standards to increase the reliability, comparability and the understandability of the financial information regardless of in what jurisdiction it is being produced.

Today in my speech, I would like to talk about the standardization developments before POA in the auditing and accounting field and afterwards to move on the developments made by POA.

## 2.AUDITING STANDARDS

### 2.1 Historical Developments

The obligation to carry out independent audit was initiated by audits of the banks in 1987 and the rules and principles were firstly published by the Capital Markets Board in 1988. The first regulation of the Board was the “By-Law on Independent External Audit for Capital Market”, that was published in the Official Gazette on 13/12/1987. And to prescribe the standards, principles and procedures relating to audit for capital market, independent auditors and audit institutions the Regulation X, No: 22 “Regulation on Independent Audit Standards for Capital Market” was published in the Official Gazette on 12/06/2006.

In the banking system, after the foundation of Banking Regulation and Supervision Agency by the Banks Code No: 4389, “By-Law on Authorization of Independent Audit Institutions and the Suspension of the Authorization Temporarily and Permanently” and “By-Law on Independent Audit Principles” were issued. Following these regulations, the Banking Code No:5411 was published in Official Gazette on 1/11/2005.




The other sector that regulations regarding audit made was the energy market. The Energy Market Regulatory Board was founded by the Code No:4628 and by the Codes No: 5015,5307 the Board was authorized to regulate and supervise the energy market.

A similar regulation in relation to audit was also made in the insurance sector. However the most effective and the newest regulation is the Insurance Code No:5684, which was published in the Official Gazette on 3/6/2007. By this code, the principles regarding insurance activities were regulated.

The last historical development before the POA was foundation Turkey Auditing Standards Board (TASB). TASB was not founded pursuant to legislative regulation rather it was founded as a sub-group of TURMOB in 2003. The objective of the TASB was to determine “National Audit Standards” for the professions within the scope of the Code No:3568. To meet this objective, TASB translated the IFAC’s international standards.

### 2.2 Developments made by POA

Under the negotiations regarding the candidate membership of Turkey to EU, the 4 th Chapter, Company Law has been initiated and the forth closing benchmark of this chapter required Turkey to set up an agency as the sole supreme authority in

-  Determining auditing standards and ethics,
-  Authorizing independent auditors and audit companies under a public oversight system and
-  Monitoring their activities within the frame of quality assurance.

In this direction, to eliminate the fragmented approach in the field of accounting and auditing in Turkey, POA has been founded in 2011 by the authorization to issue Turkish Auditing Standards (TASs) in compliance with international auditing standards. In line with the duty given to our Agency, a copyright agreement was signed with IFAC in 2013.



POA issued 37 ISAs, 1 ISRE, 1 ISQC and Ethic Code. In addition to adaptation of international standards, our agency has issued a principle decision that enables the auditors to conduct the audit of the committee of early detection of risk.

### **2.3. Revisions on ISAs**

Now I would like to talk about the amendments have been made in ISAs.

Today's audit environment is changing day to day. The nature of financial reporting is now more complex, has more areas of judgment, and more qualitative disclosures. There is changing demand from users, which can be summarized as "we want to hear more". Then, as a result of the global financial crisis, some key questions were raised: about the quality of auditing, its effectiveness, and the role of professional skepticism and judgment; and about the relevance of the audit.

When we take audit report in our hands, we are taking a sort of the audit's output. And when we consider the wording of the auditors' report, we see that they are designed such that those who read the financial statements can grasp the message that the auditor wants to convey.

By hearing these signals, IAASB initiated the New Auditor's Report project in 2006 and while starting this project IAASB has aimed to,

- ✚ Appropriately enhance the communicative value and relevance of the auditor's report through revisions to the ISAs that address its structure and content; and
- ✚ Modify, in their design, the IAASB's reporting ISAs to accommodate evolving national financial reporting regimes, while at the same time ensuring that common and essential content is being communicated.

The project was finalized in 2014. At this stage a new ISA, "*ISA 701 Communicating Key Audit Matters in the Auditor's Report*" has been added and as you can see by the figure in our slide, the revisions can be summarized in aspect of the ISAs like this.

Except ISA 720, ISA 700, 701, 705, 706, 260, 570 have been translated and issued in the Official Gazette for the audits of annual period that begin at 1/1/2017.

Now, I am moving to key enhancements to the auditor's report that will also change the audit and financial reporting environment in Turkey. These are:

- ✚ New section to communicate **key audit matters (KAM)**.
- ✚ Opinion section required to be presented first, followed by the Basis for Opinion section.
- ✚ A new section "Material Uncertainties Related to Going Concern".
- ✚ Enhanced description of the responsibilities of the auditor and key features of an audit (like materiality, reasonable assurance).

### ***Key Audit Matters***

As we have mentioned a few minutes ago, in this year's audit reports there will be a new section: KAM section. KAMs are defined in 701 as follows: "*Those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements of the current period. Key audit matters are selected from matters communicated with those charged with governance.*" and ISA 701 will be effective for the audits of 2017 for listed entities and 2018 for the other entities that are subject to audit.

### ***Going concern***

From the standard-setter eye, the second enhancement is addressing the GC in the auditor's report. Investors and others have requested earlier warning of potential issues that may exist with respect to an entity's ability to continue as a GC. In "close-calls" situations the auditor work effort has been enhanced. Especially for close-calls situations, the auditor is required to evaluate the adequacy of financial statements relating these significant events or conditions. Besides this enhancement requires the auditor report to include a new separate section when a material uncertainty related to GC

### ***Other information section***

As we have mentioned before, a new section will take place in the auditor's report: Other Information. For the international practice, the auditor is required to describe the material inconsistencies or misstatements within the other information. However, in accordance with TCC, the other information is within the scope of the statutory audit and it is mandatory to communicate the audit of other information in a separate auditor's report. For this reason, the auditor reports will not continue an Other Information. Indeed, it will be audited and an audit opinion for other information will be expressed in a separate report.

## **3. ACCOUNTING STANDARDS**

### **3.1 Historical Development**

After foundation of capital markets in 1980, the CMB was founded in 1981 by the Code No:2499 and effect of the global standardization began to occur clearly. After the foundation of CMB, the regulation called Communique of Accounting Standards No 11/1 has been published. By this Communique, a modern accounting practices were inserted to the Turkish Legislation System.

The other fundamental standardization implementation is the tax basis framework which was prepared by Ministry of Finance in 1992 and was in line with 4th Directive of EU.

In order to cease the fragmented approach regarding financial reporting frameworks, enhance the quality in financial reporting and to be integrated with the world Turkey Accounting and Auditing Standards Board was established under TURMOB. However, the foundation was not based on any legal regulation and for this reason the studies of this Board were taken as interpretation.

To eliminate this fragmented approach in 1999 Turkish Accounting Standards Board (TASB) was established by the amendment to Capital Market Code. This Board, adapted the

international accounting standards in full compliance with IAS/IFRSs. By the foundation of TASB, implementation of IAS/IFRSs have been legalized. By the foundation of the POA in 2011, TASB, with its all responsibilities and authorities, has been transferred to the new Authority.

### **3.2 Developments made by POA**

POA is the sole authorized body in setting and issuing Turkish Accounting Standards in compliance with the international standards. Currently all standards issued by IASB except IFRS 16 and IFRS 17 have been translated and published in the Official Gazette.

Besides this authorization, in accordance with TCC, the POA is authorized to exempt the different size entities, sectors and non-profit organizations from applying TFRSs. and to make regulations different from TFRSs for different entity sizes, sectors and non-profit organizations. And these regulations will be taken as TAS.

For the 2013 annual period, POA has determined the applying scope of the TFRSs is equivalent to the entities which are subject to statutory audit. However, when the scope of the audit was extended by the Cabinet Decree in 2014, POA considered this determination would lead to due efforts for some entities, especially smaller than larger entities. These entities would have obligation to apply a comprehensive standard set.

On the other hand, when the EU member states and the other developed countries are considered, it has been seen that the scope of IFRSs are generally limited with the consolidated accounts of the listed entities. POA has preferred to adapt this approach and has published a Decision on the scope of TFRSs in 2014. According to new Decision, entities generally composed of public interest entities (PIEs) and which are subject to audit are required to apply TFRSs on annual and consolidated accounts. And the other entities may prefer to apply TFRS or the framework of Ministry of Finance and the POA's Boards Decision called Additional Requirements.

After issuing Additional Requirements, POA has initiated the Local GAAP project and it will be effective this year.

Another important project that has been carried into effect is the preparation of TMS Taxonomy. Today, to make financial reports comparable and analytical applying only a common set of standards is not enough. Financial information must also be expressed on a common basis in the electronic environment.

Extensible Business Reporting Language (XBRL) is a reporting language that is designed for electronic communication of the business information and financial data and is bringing fundamental changes to business reporting around the world.

XBRL is mainly a way of expressing information for users. If financial statement preparers express financial information in the same way, this situation will allow easy sharing and understanding of financial information. As a result, it will be easier to analyze financial information and interpret financial information. For this reason, the TMS taxonomy was published in June 2016 to provide these opportunities for financial statement users in our country.

# Keynote Speaker:

## PENSION SYSTEM REFORM IN THE REPUBLIC OF MACEDONIA: ESTABLISHMENT OF MULTIFUND SYSTEM

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**Abstract :** Pension system reforms process has been initiated in 1993 due to deficits of the Pension and Disability Insurance Fund (PDIF), low fertility rates, demographic aging and high unemployment rates in the country. Fully funded pension insurance differs radically from previously existing currently funded pension insurance in terms of treatment and records of contributions paid in respect of the determination and payment of the pensions. In this insurance each member has an individual account, which recorded its assets and provides a contribution, which increases the funds.

The fully funded pension system, which consists of mandatory and voluntary pension insurance, provides only one type of fund selection to the insurers, or one portfolio for investing of their assets. That way insurer receives the same relation to the risk or same opportunities for contributions regardless of their desire and appetite. The desire and appetite for risk usually differ depending on the age of the insurer. Also, the composition of one portfolio increases the risk of loss of assets of older insurers without possibility for their return through the capital markets.

With the establishment of the multifunds, the members of the system will be able to accumulate and invest their contributions according to their own choice. In this paper, the current pension system in Republic of Macedonia and the future of the multifunds will be analyzed.

**Keywords:** pensions, multifunds, subfunds, pension system, portfolio

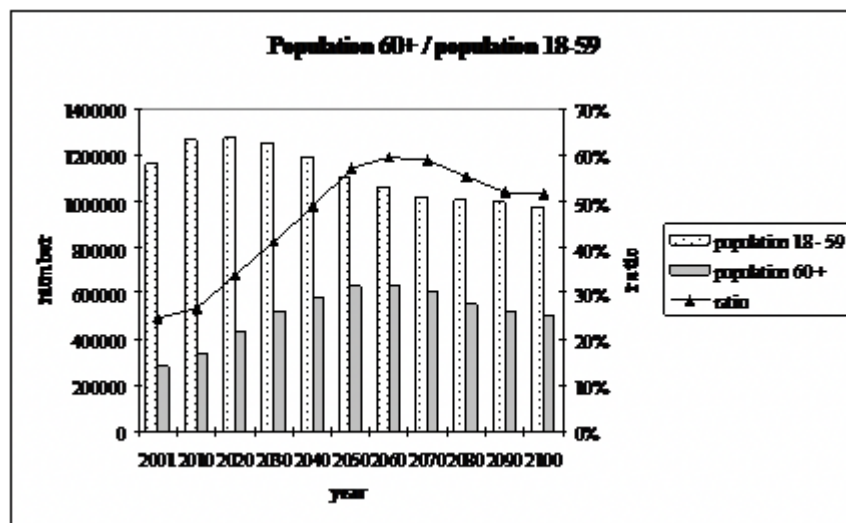
## INTRODUCTION

In Macedonia, as in other European countries, there is a trend of aging population. This leads to an increase in the number of elderly people in the total population, the changing ratio of pensioners - employees – insurers. In the future, the numbers of pensioners are expected to be equal with the numbers of insurers, which would cause difficulties in the payment of pensions. Because of the current funded system, current insurers pay for the pensions of current pensioners. It causes the insolvency of the pension system in long term.

Over the last decade, almost every country in Europe has made changes to its national pension system to ensure its stability for the future. Demographic changes are the main reason for pension reform. Across Europe, life expectancy increases and the duration of the pensions as well increases.

Simultaneously, the average family size decreases because people are choosing to have fewer children's. These two trends together lead to an increase the number of elderly people in relation of the number of working-age people. In Macedonia, the proportion of people aged over 65 with people aged 18 to 64 is projected to increase from 17.68% (current level) to 53.03% by 2060 and to decline to 47.34% in 2080 (mapas.mk,2017).

This projection from PDIF demonstrates that the demographic changes increase the pressure on the Macedonian pension system, which was funded only as the *pay-as-you-go* basis. Pay-as-you-go means that current retirees are paid with contributions of current employees. The cost of funding pensions will grow the volume, which will be unbearable for every individual and every economy in the framework of the state budget. Such funding scheme is very sensitive to the ratio of pensioners to the contributors. The ratio is shown in the next graph.



Source: Pension and Disability Insurance (PDIF)

From the graph it can be observed that in the initial period of the projections by 2030, the number of insurers grows, and in 2030 the number of the insured begins to decline due to demographic trends and stabilization of economic growth. The number of pensioners continues to grow in the next 50 years and then declines. The ratio between contributors and pensioners, from the current 1.74 to 1 retiree insurer in long-term, decrease to 1.03 contributors per 1 pensioner. This trend of the ratio means that less and less insurers will pay for a growing number of pensioners.

Considering the ratio of pensioners to contributors that gradually increases with demographic changes, the unreformed pension system will lead to an increase in the contribution from the current 18% of gross salary (which equals to 33% of net income) to approximately 38 % of gross salary (equals to 66% of net income). Such increase in the contribution rate would diminish the net income of workers, the country's potential for economic growth and would likely cause a further increase in the unemployment rate. The reform includes raising the retirement age, changing the rate which pensions are indexed and the introduction of mandatory and voluntary fully funded pension insurance that significantly reduces the impact of demographic change.

## OBJECTIVES OF PENSION REFORMS

- Safety in the exercise of the pension and disability insurance;
- Provide short-term and long-term solvency of the Pension and Disability Insurance;

- Maximum safety and minimum risk;
- Guarantee of fair pensions for all generations;
- Strengthening public confidence in the pension system by achieving the other objectives of the reform;
- Stimulating the development of capital markets and encourage economic growth.

The main aim of the reformed pension system is a care and protection of the interests of each member, because each member deserves retirement security.

Primary purposes of the voluntary fully funded pension insurance in the Republic of Macedonia are:

- Providing a higher income in retirement for those contributors who are already insured in the first or second pillar (mandatory pension and disability insurance) and who are willing and able to allocate additional funds for greater financial security or maintain a higher standard of living after retirement;
- Providing pension to persons who are not covered by mandatory pension insurance for themselves or others. These include long-term unemployed, employees at projects in foreign missions, spouses who are not employees, and other persons, whether employed or unemployed;
- Providing preconditions for the establishment of occupational pension schemes in the process of harmonizing the Macedonian social security system with the European Union.

## **THE STRUCTURE OF MACEDONIAN PENSION SYSTEM**

Reformed pension system is composed of pension and disability insurance based on generational solidarity and fully funded pension insurance, thus allowing citizens of Macedonia the financial and social security.

The structure of the tiered pension system is based on three types (pillars) of insurance including:

- Mandatory pension and disability insurance based on generational solidarity (first pillar)
- Fully funded pension insurance (second pillar)
- Voluntary fully funded pension insurance (third pillar)(mapas.mk,2017).

Mandatory pension and disability insurance based on generational solidarity (first pillar) insurance is organized on the principle of current financing (pay-as-you-go), which means that current contributors pay for current retirees. This pillar provides defined pensions according to a predetermined formula, and the rest of the pension is provided by the fully funded pension insurance. Through this pillar provides the right to a pension and disability insurance in case of old age, disability and death, meaning that pays part of the old age pension, disability pension, family pension, and the minimal pension (mapas.mk,2017).

Mandatory fully funded pension insurance (second pillar) is insurance based on capitalization of the funds based on defined contributions, where there is a close correlation and interdependence between the invested funds - contributions and future pension benefits that exercise each person based on the market regularities. Namely, this type of insurance is based on the principle of collecting contributions to individuals accounts which are being invested and profits reduced with the operating expenses of the system is added (accumulated) to individual accounts.

Voluntary fully funded pension insurance (third pillar) is also insurance based on capitalization of the funds based on defined contributions, but on a voluntary basis. The significance of this insurance is that it can include all persons who wish to provide a higher volume of material security despite compulsory insurance, and all persons who are not covered by compulsory insurance (first and second pillar). In addition, the third pillar allows the establishment and funding of occupational pension schemes (Apostolska, 2009:265).

The establishment and existence of multi-pillar pension system, combined with the currently funded and fully funded pension system provides benefits and advantages both for the individual, the pension system and the economy. In terms of the individual, this system provides greater safety because the financing of pensions will be from two or three sources. This will make the diversification of risks that each system carries itself.

## **CONTRIBUTIONS IN THE MANDATORY PENSION FUNDS**

The taxpayer is obligated to pay the pension and disability contribution in the Republic of Macedonia where the employers pay the contributions on behalf of the employees. The Public Revenue Office is in charge of the integrated collection of the social insurance contributions (pension and disability insurance, health insurance and insurance in the event of unemployment), as well as of the personal income tax.

For those who are members only in the mono-pillar system, their contributions remain with the PDIF (which for 2015 was 18% of the gross wage). For those persons who are part of the two-pillar system, the PDIF divides the contribution between the first and the second pillar. The contributions transferred to the mandatory pension fund is 6% of the gross wage and the rest of the contribution for pension and disability insurance remains with the PDIF (for 2015 it was 12% of the gross wage ( $12\% = 18\% - 6\%$ )) (MAPAS,2015:29).

The PDIF transfers the contributions of the mandatory pension fund members to their individual accounts, immediately upon payment, or maximum within five working days after receipt of the contributions, under the condition that with the receipt of the contributions the PDIF received the relevant data that would enable the PDIF to perform such transfer.

## **INSTITUTIONAL REGULATION OF THE PENSION SYSTEM**

The three-pillar pension system is consisted of the following institutions:

- Ministry of Labour and Social Policy - responsible for creating and enforcing the policy governing the pension and disability insurance and for supervising the legality of operations within this insurance.
- Agency for Supervision of Fully Funded Pension Insurance (MAPAS) - regulatory and supervisory body, established to protect the interests of the current and retired pension funds' members, and to enhance public awareness about the characteristics of this type of insurance and to promote the development of the fully funded pension insurance. MAPAS initiates and passes regulations and acts, grants licenses to pension companies and approvals for pension fund management, performs off site and on-site supervision of the pension companies, pension funds and custodians, organizes exams and registration of sales agents, performs pro-active controls over the activities of the pension companies, etc. (Apostolska, 2009:266)
- Pension Company - joint stock company founded by financial institutions with large capital and experience, whose sole activity is managing pension funds' assets. The reformed pension system offers the opportunity for establishing three types of pension companies:

- o Mandatory Pension Company - manages only mandatory pension funds
- o Voluntary Pension Company - manages only voluntary pension funds
- o Joint Pension Company - manages mandatory and voluntary pension funds
  
- Custodian of pension fund assets - safely keeps pension funds' assets, on a separate account, apart from the assets of the Pension Company. Custodian of pension funds is a commercial bank that meets certain legal requirements. In the initial years as a transitional solution, custodian of mandatory pension funds was the National Bank of Macedonia.
  
- Public Revenue Office (PRO) - PRO undertakes centralized contribution collection and submits to the PDIF total contributions for pension and disability insurance.
  
- Pension and Disability Insurance Fund of Macedonia (PDIF) - allocates the pension insurance contributions between the first and the second pillar and allocates the data on membership to the selected mandatory pension fund.

## **THE ROLE OF THE FULLY FUNDED PENSION INSURANCE IN THE MACEDONIAN PENSION SYSTEM**

Fully funded pension insurance differs radically from previously pension insurance. In this insurance each member has an individual account, which recorded its assets and provides a correlation and interdependence between the paid contributions and future pensions of the members. This insurance is based on accumulation of assets from contributions to individual accounts that are being invested and the return on investments with reducing the net costs of operating of the system, accumulated in individual accounts. The future pension depends on the accumulated assets on the individual account and life expectancy at retirement, i.e. the expected period of retirement.

It is important to note that these pension savings are long, which are continuously increasing. Due to this, the insurer is young and savings are small, but in the future when the insurer reaches the age of retirement savings substantially grows.

Characteristic of this insurance is that the assets are privately managed and contributions are invested by specialized licensed pension companies that manage the pension funds. This ensures economic goals to determine the investment policy, creating an opportunity to maximize the overall yield in the interest of members. Diversification of investment risks (including international diversification) is one of the important features of this system.

Furthermore, the important feature of the fully funded pension insurance is the right of personal choice and individual initiative. All employees prior to January 1, 2003 were given the opportunity to decide whether to join the second pillar of the pension system and the right to choose a pension fund to participate and they have the possibility to choose a pension fund of their choice. Also in the voluntary pension fund, membership is by choice of the individual person or through participation in a pension scheme funded by the employer or an association.

The possibility (portability) of assets is also an important right in a system of fully funded pension insurance. All members of mandatory or voluntary pension funds have the right to transfer their savings to another pension fund. Also in case of participation in an occupational pension scheme, the member has the right to transfer his accumulated assets to another insurer or in another occupational pension scheme.



Fully funded pension insurance provides a high degree of transparency, which is one of its most important features and novelty in the pension system. Companies have a legal obligation to regularly inform the members of the pension fund about the balance on their individual accounts, dates of contributions, transfer of assets during the relevant period, the fees for converting contributions, transferred assets into accounting units and the balance of their individual accounts. At least once a year, companies have to inform the members about the value and proportion of the assets of the funds invested in certain types of assets, including data publishers and data on transaction fees. Companies also annually publish informational brochures that contain information about the fund company, which among other things contains data of the supervisory and management board of the company, the basic principles of investing, fees that are charged, investment, net assets of the pension fund, etc.

## PERSPECTIVE OF THE MULTIFUNDS

The age of the members could be used as a basis for the creation of funds to suit the period of membership to pensions and segmentation; it could also aim for maximizing income with minimum risks.

The structure of the Mandatory Pension Funds in the first quarter of 2016 is as follows:

Age	НЛБЗ / NLBm			КБПЗ / KBPm			Total
	Men	Women	Total	Men	Women	Total	
up to 20	1.788	1.113	2.901	1.860	1.133	2.993	5.894
21 to 25	13.700	9.924	23.624	14.771	10.687	25.458	49.082
26 to 30	23.832	20.104	43.936	25.687	21.078	46.765	90.701
31 to 35	25.167	21.744	46.911	26.792	22.844	49.636	96.547
36 to 40	19.263	16.363	35.626	20.118	18.226	38.344	73.970
41 to 45	12.402	10.786	23.188	14.176	13.221	27.397	50.585
46 to 50	5.863	5.524	11.387	6.633	6.873	13.506	24.893
51 to 55	2.152	2.064	4.216	2.479	2.443	4.922	9.138
56 to 60	741	614	1.355	859	720	1.579	2.934
61 to 64	300	186	486	311	210	521	1.007
65+	138	101	239	143	102	245	484
<b>Total</b>	<b>105.346</b>	<b>88.523</b>	<b>193.869</b>	<b>113.829</b>	<b>97.537</b>	<b>211.366</b>	<b>405.235</b>

Source: [www.mapas.gov.mk](http://www.mapas.gov.mk)

The current structure of the Mandatory Pension Funds in the first quarter of 2017 is as follows:

Age	NLBm			KBPm			Total
	Men	Women	Total	Men	Women	Total	
up to 20	2.185	1.371	3.556	2.246	1.339	3.585	7.141
21 to 25	14.200	10.256	24.456	15.299	11.248	26.547	51.003
26 to 30	24.251	20.391	44.642	26.313	21.345	47.658	92.300
31 to 35	26.218	22.609	48.827	27.971	23.847	51.818	100.645

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
OHRID-MACEDONIA/3-5 JULY 2017**

36 to 40	20.903	17.907	38.810	21.706	19.639	41.345	80.155
41 to 45	13.990	12.340	26.330	15.767	14.610	30.377	56.707
46 to 50	7.297	6.595	13.892	8.108	8.387	16.495	30.387
51 to 55	2.706	2.678	5.384	3.166	3.136	6.302	11.686
56 to 60	968	803	1.771	1.066	925	1.991	3.762
61 to 64	339	219	558	356	249	605	1.163
65+	173	113	286	181	135	316	602
<b>Total</b>	<b>113.230</b>	<b>95.282</b>	<b>208.512</b>	<b>122.179</b>	<b>104.860</b>	<b>227.039</b>	<b>435.551</b>

The current structure of the Mandatory Pension shows that the growth of new employees is between the age of 31 to 45, or almost 13,000 new members are subscribed to this group. With this figure, it can be concluded that the new employments have most effect. The negative growth in groups of employees of 20 to 30 years of age is due to the fact that the Government adopted a measure to subsidize the employment of young persons under 29, for which the employer is exempted from paying contributions to these persons and they won't become members of the second pillar in the period of subsidy. If this trend of middle age growth continues, we could expect that all new member that enters the system would not be divided to aggressive subfunds, which is a common practice in other countries. It is also important to keep in mind that the communication should be done with members for their rights of choice. (Cortez, 2005:56).

Regarding the institutions capacity there is no identified need for additional institutions that would be involved in this area. Might need more to promote the system in terms of competition on pension funds and the custodian or creating new entities in the system in order to improve the service offering, the rights of members, etc. Also, MAPAS would be responsible for implementing the reform in practice and guidance to the pension funds in this project.

## **OBJECTIVE OF THE MULTIFUNDS**

Main objectives of introducing multifunds are:

- To increase future pensions through increased yield of the portfolios at a young age and taking bigger risks;
- To increase the security of pension savings through low-risk portfolios before retirement, without the possibility of large fluctuations;
- To improve the ownership status of members by the right of disposal of assets;
- To increase the diversity of investment opportunities with greater diversification and avoid pooling of investment strategies (Cortez, 2005:65)

With regulation of multifunds, the following consequences of this complex system will have to be considered:

- Regulation should consider that the potential in multifunds can be realize only if investment policies differ and if they are effectively implemented.
- Although the administration implies a surcharge, but if the architecture is properly determined, the level of a single fund can develop further (or "multiply").

- Finally, members would be required to be better informed; to learn about the significance of the differences; to have the capacity to assess their own assumptions about risk and return.

Cooperation and the pressure of the supervisor should be adequate to provide the required effect without undertaking major operational risks in the transfer of technical solutions and without investment risks in the transfer of portfolios.

Macedonia should improve the situation of members through a greater amount of accounts of members when choosing a pension product. The main reasons for the implementation of multifunds are related to the limited number of operators in the market and limited investment opportunities in the financial markets. Mainly due to the small market that created a duopoly position, which does not result in competition in investment strategies being one of the main marketing tools that require legislation of system that will steer pension funds to have larger contribution to the pension fund members.

From the above objectives, the elements of the system of multi-fund will be derived from the following three:

- Possibility of high return portfolios in young ages,
- Providing pension savings portfolios with low risk,
- Increasing the diversity of investment options (Ramos,2005:76).

Improving the ownership status of the members, who have made an active choice, has less importance at this stage. It can be predicted because of low participation in the voluntary system, as an indicator of active choice, due to lack of experience in investment decisions by a number of the working population. At the same time, the low level of financial education awareness affects individuals that can decide on their assets. The regulator should ensure the appropriate option in the case of passivity of the membership that will provide an appropriate return and insufficient funds in accounts that will result with smaller bursts of funds from the state budget in case of need for the payment of minimum pension.

Active attention should be paid to the fact that the implementation of multifund may involve additional risks to the pension system. Risks involved directly could affect members of the funds through investment, and indirectly because of the effect of companies' operations.

Example of the recent crisis has shown that, although multifunds protect members in conservative portfolios to some extent, yet they lost because of the large number of members in growing portfolios. That risk remains; in crisis the negative effect of the assets of the growing portfolios affect adversely the members before crossing a conservative portfolio. Conservative portfolio may not give the same effect on recovery from crisis as other portfolios, because these members will have opportunity loss due to transfer to a new portfolio. Considering that crises are unpredictable and such situations cannot be regulated adequately, the regulator should consider specific legislation, which will give an opportunity to extend the basic, and default option of the member in crisis situations, normally with a choice of the member. Complex nature of the system could lead to higher prices due to several reasons:

- Limits and restrictions on investment can lead to increased levels of exposure to foreign currency with higher costs,
- Increased need for information about investing to educate the members can also be expressed as costs,

- Managing with a greater number of funds will be more expensive (Cortez,2005:66).

## **NUMBER OF FUNDS**

The regulator should determine the structure of multifunds. Another option is the prudential regulation that would give more freedom to create a multifund by business authorities. The regulator in this case may set only the creation of several investment policies depending on the age of the members and on this basis to give freedom to the pension companies to options for the product they offer. However, awareness of this option should ensure and protect the members and get higher yields, also the supervisors have to direct all power in order to take measures in case of dissatisfaction with the measures taken by the pension funds. Furthermore, this regulation requires a greater level of financial education and discipline. For these reasons the better option could be that the regulator accurately determine multifunds and give guidance to the management for the investment limits and restrictions within these funds (Bolok, 2005:84).

The number of funds should be defined with taking into consideration the ratio of;  
diversity, the cost of operation and the potential scope of the funds.

In most regulations there are three funds:

- Conservative Fund
- Balanced Fund
- Growth Fund

These three funds would be specified in the case of fully funded pension insurance. Voluntary pension funds could allow freer access with the option to link two or more funds, but at least have a conservative or balanced fund. In other words, leading all three options could be required only in case of a mandatory pension fund.

Even in this case, for reasons of efficiency and administration of funds, regulator should analyze how much money fund would transfer to multifunds, what liquidity and the cost for members to maintain that portfolio would be.

Three different funds are the minimum number that will allow appropriate selection and having explicit rules to reduce costs and increase inflows to the accounts of members. The regulation of the number of sub-funds should be provided for three aspects:

- To enable realization of the goals;
- To consider the arguments for market development;
- Difference between mandatory and voluntary system.

*To enable the realization of the goals;* Growing Fund conducts objective of high return, while Conservative Fund protects the value of the accounts of the older members. Balanced Fund allows a gradual approach to the Conservative fund, and implements individual strategies with deviation from the standard options.

*To consider the arguments for market development;* To develop the regulation, the minimum possible number of funds should be used. The scope of the Macedonian pension funds will allow the existence

of many, at a later stage. More options can be allowed when there are reasonable opportunities to implement different investment strategies with a reasonable marginal cost (Mustafai, 2014:189).

*Difference between mandatory and voluntary system;* The scope of the voluntary system in Macedonia is much lower than the statutory funds. Also, according to general thinking, the options in the voluntary sector could remain open and rely on the decisions of market participants and members.

Introducing a system of multifund with three subfunds is one option. Another option would be using the same approach as recommended for voluntary funds, while leaving open the decision on the number of funds to those who operate the funds. It could jeopardize the attainment of the objectives. However, to provide more than three subfunds can lead to unnecessary risks (costs, profitability, investment and regulatory risks) to the system.

Members have a contractual relationship with the company, which manages the pension fund ( Law on Mandatory Fully Funded Pension Insurance Official Gazette of the Republic of Macedonia,2014:article 59). Thus the above-mentioned funds are essentially the subfunds of pension funds that are managed by the companies of the pension funds. Sub-funds are representing different investment portfolios or representing different investment strategies. Investment strategies are formulated in the investment policies of subfunds or portfolios. Another consequence of the accession of subfunds is to the change of portfolios, as in reality, the change of portfolio does not require the cancellation of the membership agreement and re-signing the contract with the same pension company, but in this case it only changes the parameters of the contract under the defined conditions.

## **CONCLUSIONS**

Finally, any reform improvements and additions to the pension system are made in order to make a higher comfort in retirement years for the members of the second and third pillar pension system. Multifunds above all should ensure security and greater income in early years of membership. The assets of the member should be higher compared with the same period of their lives without proposed reforms. Security is the main argument for the multifunds. The financial crisis is affecting the pension funds on a large scale, and the worst affected in such periods are members who retire. Each crisis has its own corrective period when prices of the securities are returned to the previous trend, once in 2-3 years, sometimes for 5-6 years, but this period will not affect the members who will retire. Therefore, for their security, such a system is designed by gradation of the risk depending on the age of the members.

Higher contribution is a side effect of the composition of the system. In Multifunds, taking higher risk in the early years of membership generates more funds that can multiply in the future. Certainly there would be possibility for higher contributions if we always stay on aggressive portfolios, but returns are correlated to risk or possible loss of funds. The main objective of this project is to provide security, but the increased contribution is additional benefit that justifies all positive inputs. Multifunds are project which will largely achieve the required goals for its acceptance by the state and will undoubtedly affect the increase of the pensions of insurers and their stability in retirement years.

## **REFERENCES**

Annual Statistical Report for 2015 (Agency for supervision of fully funded pension insurance MAPAS).

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
OHRID-MACEDONIA/3-5 JULY 2017**

---

Apostolska, Zorica (2009), Preparing the Financial Market for an Aging Population: The Case of the FYR Macedonia, Pension reform in South Eastern Europe, Worldbank .

Bolok Volin, Isak (2005), Chalanges in launching multifunds in Mexico, FIAP.

Cortez, Joaquin (2005), The chilean experience, Pension Funds Investment, FIAP.

D. Pfau,Wade (2009), Lifecycle Funds and Wealth Accumulation for Retirement: Evidence for a More Conservative Asset Allocation as Retirement Approaches” Associate Professor National Graduate Institute for Policy Studies (GRIPS).

Funded systems: Their role in solving the pension problem (FIAP, international organization of pension fund administrators, 2007.

Multifunds the cases of Chile, Mexico and Peru (FIAP, international organization of pension fund administrators, 2007.

Mustafai, Habil (2014), Perspective of application of the multifund system in fully funded pension insurance of the Republic of Macedonia, unpublished doctorate thesis, University of Cyril and Methodius.

Report of the Pension and Disability Insurance in 2015 (Pension and Disability Insurance Fund of Macedonia)

Ramos,Jorge (2005), Chalanges in launching multifunds in Peru, FIAP.

Report on the developments in the fully funded pension insurance (2015) MAPAS

Whitehouse,Edward, (2000), Administrative Charges for Funded Pensions: An International Comparison and Assessment, June.

Law on Pension and Disability Insurance (Official Gazette of the Republic of Macedonia 80/93, 3/94, 14/95, 71/96, 32/97, 24/2000, 96/2000, 50/2001, 85/2003, 50/2004, 4/2005, 84/2005, 101/2005, 70/2006, 153/2007, 152/2008, 161/2008, 81/2009, 156/2009).

Law on Mandatory Fully Funded Pension Insurance (Official Gazette of the Republic of Macedonia No 29/2002, 85/2003, 40/2004, 113/2005, 29/2007, 88/2008, 48/2009, 50/2010, 171/2010, 36/2011, 98/2012, 13/2013, 164/2013 and 44/2014).

Law on Voluntary Fully Funded Pension Insurance (Official Gazette of the Republic of Macedonia No 7/2008, 124/2010 and 17/2011)

[www.mapas.gov.mk](http://www.mapas.gov.mk) (10.04.2017)

[www.piom.com.mk](http://www.piom.com.mk) (12.04.2017)

[www.mtsp.gov.mk](http://www.mtsp.gov.mk) (13.04.2017)

[www.kbprvo.com.mk](http://www.kbprvo.com.mk) (15.04.2017)

[www.nlbnpf.com.mk](http://www.nlbnpf.com.mk) (15.04.2017)

# Keynote Speaker:

## STRUCTURE OF PORTFOLIO AND INVESTMENT POLICY OF PENSION FUNDS IN REPUBLIC OF MACEDONIAN

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**Abstract:** Financial market in general is where supply and demand of funds are met. In another words, funds saved in financial market are directed to investments in order to contribute the economy. In Macedonian financial market, banking sector is really dominant but also pension funds and insurance funds has an active role.

In this research will be studied the distribution of pension funds portfolios in Macedonian financial market.

When we look at the distribution of the portfolios of pension funds when they began operating in 2006, a large part of the funds are invested in government bonds, shares and a small part of deposits.

The global financial crisis in 2008 has adversely affected many countries economy and financial markets including US and Europe.

Pension companies during this period (2009 - 2012) has shown their ability to manage funds, compared to previous years pension funds in Macedonia, by investing in more closed and low risk investment vehicles such as government bonds, they closed the financial crisis with very few loss even with return.

In another side, it can be seen that the mandatory private pension companies have invested mostly in government bonds. It is foreseen that pension companies will continue to invest in government bonds in next years.

According to the previous years there is a slight increase in foreign investment, but its very likely that the pension companies will continue to invest in foreign countries in next years.

As of december 2016, 780 milion euros has accumulated in pension funds.

When you take into consideration that average age of members is 35 and retirement age is 64 for men and 62 for women, assuming that next 25-30 years will be no payouts and according to the projections after 2-3 years mandatory pension funds assets will be more than 1 billion euro, finding investment tools will be difficult.

Unless there is no change in the legislation and the fact that the Macedonian stock exchange is so shallow, mandatory pension funds will be directed to treasury bills and foreign investment.

**Keywords:** Financial market, pension funds, portfolios, pension companies.

## **1. INTRODUCTION**

The structure of the portfolio in the pension system with defined contributions is the most important decision, given that the investment risk is passed to the member.

The structure of the portfolio is established in the investment strategy. The investment strategy is a document of the pension company to invest of assets in various types of financial instruments in order to provide the highest return to the pension fund, taking into account the objectives, tolerance for risk, and the investment horizon, in the interest of the pension fund it manages.

Since there is no defined way for the development of the structure of portfolio, responsibility of asset manager of the pension fund is to find the best opportunity for setting up an investment structure that will monitor the restrictions in regulation and internal control mechanisms in the company.

The development of the investment structure of the portfolios of pension funds should not be left to decide on only one side, but it should be a combination of decisions of Supervisor, Management Board and Investment Board. Based on these three combinations and the consent of all three parties can come to a final decision on the establishment of an appropriate structure of the portfolio of the pension fund.

Currently in Macedonia the average age of members of the fully funded pension insurance is 35 years, and under current legislation the right to pension is achieved at 62 years for women and 64 for men, which would mean that the investment horizon of pension funds of 25-30 years. According to the latest assumptions for employee participation in the pension system is that after 2-3 years of pension fund assets will reach over one billion euros.

## **2. FULLY FUNDED PENSION INSURANCE**

Investment in fully funded pension insurance is constantly a hot topic, both in our country and internationally. The specificity of each pension system at the international level that there is no uniformity in setting investment structure and investment policy for all countries equally to contribute for higher investment yields. The specificity of each pension fund arises from the different structure of the fully funded pension insurance from the perspective of the various principles of defined benefits and contributions, level of economic standard, attitudes for investment, expectations of investing, investment restrictions and finally of the behavior of insurers and the level of financial education.

On the other hand according to the demographic structure of the population in most countries it can be seen significant uniformity in terms that the average age of populations continuously increases at a time of improved health care of the employee. Now the countries are faced with a number of workers who experience the retirement age and on the other hand live longer and increase the number of years in which they use their pensions.

Situation in R.Macedonia is that currently the average age of members of the fully funded pension insurance is 35 years, and under current legislation the right to pension is achieved at 62 years for women and 64 for men, which would mean that the investment horizon of pension funds of 25-30 years. According to the latest assumptions for employee participation in the pension system is that after 2-3 years of pension fund assets will reach over one billion euros.



### **3. PENSION SYSTEM ON THE PRINCIPLE OF DEFINED CONTRIBUTION**

Especially it should be pointed out that in R.Macedonia, fully funded pension insurance is defined on the principle of defined contributions. From that perspective, the structure of the portfolio means that we should not provide separate account liabilities as required in the system of defined benefits, but it is especially important to provide regulatory investment restrictions and to ensure adequate internal investment structure or internal restrictions on the fund.

The pension system with a defined contribution, the member is the one who receives return from the investment directly to his personal account, and therefore only the member is taking the investment risk and not the pension fund or the employer. The pension fund with defined contributions system, each member has his own fund and only from the accumulation of the fund will depend the members' benefits in the future. The sum of all individual funds gives the total accumulation of the pension fund. Finally, the fundamental need to satisfy the member is to provide benefits that will be payable in real terms (inflation adjusted) at some time in the future.

### **4. INVESTMENT STRATEGY**

Before to setting up the structure of the portfolio must be mention the positioning of the investment strategy, which is a document of the pension company to invest of assets in various types of financial instruments in order to provide the highest return to the pension fund, taking into account the objectives, tolerance for risk, the investment horizon, in the interest of the pension fund it manages. According to the regulation investment strategy is long-term document refers to a period of at least seven years and should be reviewed at least once every three years or whenever there is evidence that the assumptions underlying in the investment strategy changed. The investment strategy should be written in clear and simple way and should include a general framework of procedures for managing the assets of the pension fund, investment objectives of the pension fund, strategic allocation of pension fund, investment risks and processes for risk management and monitoring, control and evaluation of the implementation of the investment strategy.

Initial elements for the preparation of investment strategy: a) the conditions and restrictions prescribed by the regulations related to the investment of pension fund assets, b) the limitations specified in the statute of the pension fund, c) selection approach when investing and frequency of trading, d) investment goals and acceptable level of risk and e) the age of the members and expected duration of membership in the pension fund. In preparing the investment strategy the pension company has to have in mind fiduciary duty of every employee or member of the board of the pension company, or the obligation to work only in favor of the interests of members and retired members of the pension fund and implement a degree of care, effectiveness and skills that would have applied prudent man when investing their own funds.

The structure of the portfolio is established in the investment strategy. The structure of the portfolio of each long-term fund as long as pension funds need to have set a time frame that covers a longer period which requires the establishment of a strategic structure of the portfolio in order to meet strategic long-term investment yields.

## **5. ASSET MANAGERS OF PENSION FUNDS**

In this direction, setting the portfolio structure of pension fund through defined investment policy is the most important decision in any pension fund. Therefore the responsibility of asset manager of pension funds is how to choose and set up a proper structure between the different classes of financial instruments. Since there is no defined way for the development of the structure of portfolio, responsibility of asset manager of the pension fund is to find the best opportunity for setting up an investment structure that will monitor the restrictions in regulation and internal control mechanisms in the company. So of qualifications, understanding, philosophy and skill of asset manager of pension funds depends most appropriate option for setting the investment structure.

Once when we connect the investment strategy, asset manager and structure of portfolio, we come to information that the structure of the portfolio is established in the investment strategy based on communication within responsible members of asset manager. To get to the appropriate structure of portfolio, communication within the asset manager is particularly important, because the only way to understand the whole investment process and fulfilled results, will ensure that meet the investment objectives of providing higher benefits for members.

At the same time, pension companies as the asset managers of pension funds should, within the set investment regulations, to establish appropriate optimal portfolios of pension funds based on research and analyzes, which will be the basis of investment strategies and policies appropriate for pension funds. For this purpose pension companies through investment teams are responsible, for any investment activity is essential for the members, which requires appropriate training of employees, risk management and better investment results that will directly contribute to the benefit of the members. Established risk based supervision in other hand has contributed to pension companies to establish a system of risk management, then responsible risk manager and to consider all possibilities in terms of investment activities. In addition, the regulations only establish rules and a framework for investment, while the creators of the investment policies in the companies are given a crucial role to adjust their internal criteria in order investment teams to provide investment returns according risk undertaken.

Hence that the establishment of the investment structure of the portfolios of pension funds should not be left to decide on only one side, but it should be a combination of decisions. First it should be taken into account decisions of the supervisor as a state institution which establishes regulatory investment limit and monitor their implementation. The supervisor is on the side of interest of members and mitigate risk of failure to meet the expectations of the members of their benefits. Then follow the decisions of the Member Board who is aware of the risk of incorrectly established structure a portfolio which may cause a reduction of the fund's assets and cause further outflow of funds from the company. And in the end the decisions of the Investment Board, which bears the risk of losing work if the fund is not managed properly. Based on these three combinations and the consent of all three parties can come to a final decision on the establishment of an appropriate structure of the portfolio of the pension fund.

## **6. REGULATORY INVESTMENT RESTRICTIONS**

The pension company is obligated to invest the assets of the mandatory pension fund in accordance with the legal provisions and its investment strategy in order to earn the highest return for the benefit of the active and retired members. Also, it is obligated through diversification and due diligence, to minimize the risks from losses which might occur due to default of the issuer or other contractual parties, from the influences of the domestic or foreign markets, losses in the real value for the mandatory pension fund

assets due to inflation and losses due to selling of assets for securing liquidity of the mandatory pension fund. In doing so, the members of the management board and supervisory boards are obligated to employ care, efficiency and skills of prudent men upon discharging their duties of control and management over the investment of the pension funds' assets. Each member of the management board or supervisory board of the pension company must meet their obligations in accordance with their fiduciary duties and they must provide for their application by each employee or contractor of the company.

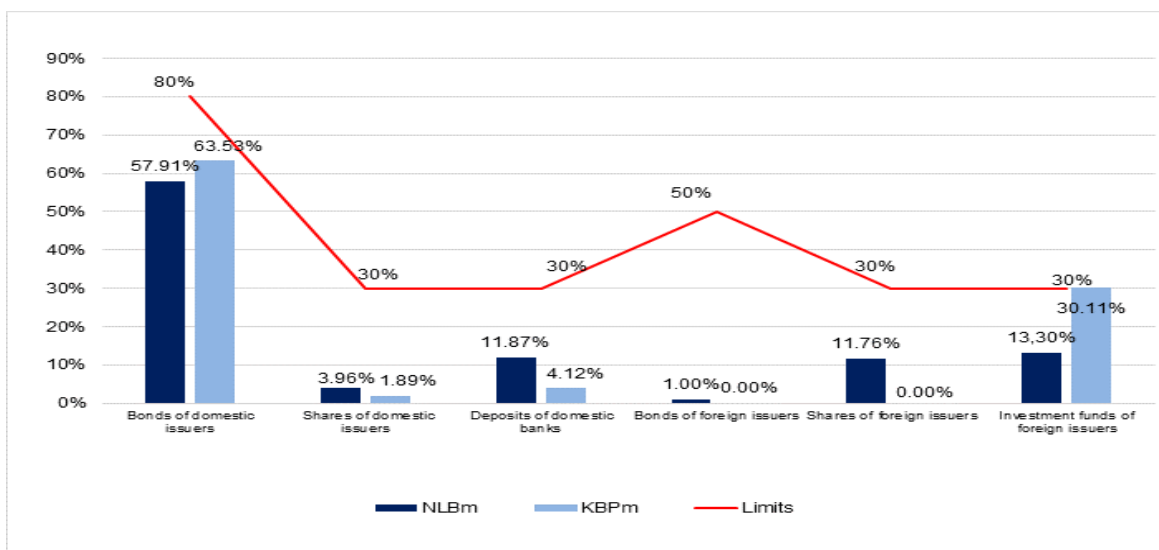
The law and the secondary regulation stipulate that the pension fund's assets may be invested in bank deposits, certificates for deposits, bonds or other debt securities, shares and commercial notes issued by issuers with headquarters in the Republic of Macedonia or abroad, in the countries of the EU or OECD. Having in mind the necessary diversification that must be attained among different types of investment, there are maximum limits for investing in one company and maximum limits on the amounts that might be invested in certain types of instruments. In order to prevent investing in instruments that might be disadvantageous to mandatory pension funds, the law prohibits investments in shares, bonds and other securities that are not traded on official markets or that are not publicly traded, instruments that are not legally disposable, instruments that cannot be assessed, most types of property that cannot be immediately assessed and other items with uncertain values, like antiques, art etc.

**Table 1. Maximum investment limits**

Investment abroad (EU and OECD)	50%
<i>- bonds and other securities issued by foreign governments and central banks</i>	50%
<i>- securities issued by non-state foreign companies, banks or investment funds</i>	30%
Securities issued or guaranteed by RM on the domestic market or NBRM	80%
Bank deposits, deposit certificates, mortgage backed securities, and other securities issued by domestic banks	60%
<i>- bank deposits</i>	30%
Bonds issued by local self-government and domestic joint stock companies, which are not banks and, commercial notes from domestic joint stock companies, which are not banks	40%
<i>-bonds issued by local self-government</i>	10%
Shares issued by domestic joint stock companies	30%

Participation units and shares of open-end, close-end and private investment funds in RM	5%
<i>-participation shares in private investment funds</i>	1.5%

In 2016 both pension funds were in compliance with the statutory maximum investment limits. KBPz “passively exceeded” the limits on investments in participation units of investment funds by, due to changes of market prices and currencies. Figure below demonstrates the percentage participation in the portfolio per classes of assets for NLBz and KBPz and the statutory limits on 31.12.2016.



**Figure 1. Classes of assets in the portfolios of the mandatory pension funds compared to the statutory limits**

## **7. STRUCTURE OF THE PORTFOLIO OF PENSION FUND**

As representative portfolios of pension funds in R. Macedonia operating from the beginning of the fully funded pension insurance we are considering mandatory pension funds and their structure by age. The comments for structure are to portfolios allocation in instruments denominated in thousand EUR and the share of each class within the portfolio and the portfolios allocation in investments in the domestic economy and abroad and participation in classes within the portfolios.

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**Table 2. Mandatory pension fund total assets investment structure (by region of in thousand of EUR)**

<i>Mandatory pension fund total assets investment structure</i>											<i>Updated: 31.12.2016</i>
<i>At the end of period, Asset distribution by region in thousand of EUR</i>											
<i>Type of assets</i>	12.2006	12.2007	12.2008	12.2009	12.2010	12.2011	12.2012	12.2013	12.2014	12.2015	12.2016
<b>DOMESTIC ASSETS</b>	20.266	49.355	80.167	140.115	180.070	219.402	290.061	339.515	396.112	470.662	561.098
<i>Securities and deposits</i>	20.261	49.345	79.349	138.397	179.508	218.425	286.060	338.638	389.210	457.321	558.910
<i>Shares</i>	769	9.581	5.780	6.806	6.468	9.121	12.667	15.677	18.339	20.999	22.313
<i>Government bonds</i>	14.665	30.382	36.177	81.216	108.647	160.711	224.294	268.970	311.845	385.205	470.992
<i>Corporate bonds</i>	0	0	0	488	0	0	0	0	0	0	0
<i>Short-term securities</i>	1.393	0	3.078	0	485	0	1.615	0	0	4.765	5.186
<i>Deposits</i>	3.434	9.382	34.316	49.887	63.908	48.592	47.485	53.991	59.026	46.352	60.420
<i>Cash</i>	0	5	426	1.103	516	713	576	199	994	1.296	824
<i>Receivables</i>	5	6	392	615	46	264	3.424	678	5.908	12.045	1.364
<b>FOREIGN ASSETS</b>	0	1.468	1.736	2.092	22.359	41.235	53.746	96.560	141.682	180.809	220.622
<i>Shares</i>	0	1.387	1.388	1.623	4.334	6.749	10.174	21.112	26.114	35.258	42.766
<i>Government bonds</i>	0	0	0	0	6.039	0	0	0	0	1.350	3.650
<i>Open-end funds</i>	0	81	348	468	11.986	34.486	43.572	75.448	115.568	144.201	174.207
<b>TOTAL ASSETS</b>	20.266	50.823	81.902	142.207	202.428	260.638	343.806	436.075	537.794	651.470	781.720
<b>Net assets</b>	20.188	50.796	81.374	142.098	202.303	260.474	343.481	435.767	537.058	649.630	781.304

**Table 3. Mandatory pension fund total assets investment structure (by region of in %)**

<i>Mandatory pension fund total assets investment structure</i>											<i>Updated: 31.12.2016</i>
<i>At the end of period, Asset distribution by region in %</i>											
<i>Type of assets</i>	12.2006	12.2007	12.2008	12.2009	12.2010	12.2011	12.2012	12.2013	12.2014	12.2015	12.2016
<b>DOMESTIC ASSETS</b>	100%	97%	98%	99%	89%	84%	84%	78%	74%	72%	72%
<i>Securities and deposits</i>	100%	97%	97%	97%	89%	84%	83%	78%	72%	70%	71%
<i>Shares</i>	4%	19%	7%	5%	3%	3%	4%	4%	3%	3%	3%
<i>Government bonds</i>	72%	60%	44%	57%	54%	62%	65%	62%	58%	59%	60%
<i>Corporate bonds</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Short-term securities</i>	7%	0%	4%	0%	0%	0%	0%	0%	0%	1%	1%
<i>Deposits / Deposits</i>	17%	18%	42%	35%	32%	19%	14%	12%	11%	7%	8%
<i>Cash</i>	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%
<i>Receivables</i>	0%	0%	0%	0%	0%	0%	1%	0%	1%	2%	0%
<b>FOREIGN ASSETS</b>	0%	3%	2%	1%	11%	16%	16%	22%	26%	28%	28%
<i>Shares</i>	0%	3%	2%	1%	2%	3%	3%	5%	5%	5%	5%
<i>Government bonds</i>	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%
<i>Open-end funds</i>	0%	0%	0%	0%	6%	13%	13%	17%	21%	22%	22%
<b>TOTAL ASSETS</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Net assets</b>	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%

In the first year (2006) of mandatory fully funded pension system, most of the assets were invested in government securities, in deposits and smaller part in shares. In 2007, the participation of shares in the overall investments was increased, while that of the deposits slightly decreased and the investments abroad started to roll out slowly. However, in the following couple of years (2008 and 2009) the pension companies employed a more conservative investment policy and again, increased the investments in deposits and government securities. It should be noted participation in deposits in the first years of the system when interest rates were interesting for investment in deposits with a maturity of 2-5 years when interest rates ranged from 8% -10% that in recent years is impossible to achieve.

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In 2010, the pension funds increased the investments abroad, and in 2011 and 2012, the participation of the government shares in the overall investments was again increased, while the deposits decreased in respect to previous year. In 2013, the participation of domestic government shares has decreased and it was 61.68%. The participation of bank deposits has also decreased in respect to 2012 and it is 12.38%. Domestic shares participate with 3.60% in investment portfolio, almost the same as the previous year, cash and cash equivalents are participating with 0.05% and receivables with 0.16%. In 2013, the investment abroad have increased in respect to 2012 and they were 22.14%, out of which investment in foreign shares are 4.84% and 17.30% are investment in participation units of foreign investment funds. In the period from 2014 to 2016 we have a stabilization of the structure of the portfolios, so the participation of bonds in the total portfolio stands at 58% to 61%, while the participation in shares and participation units in companies and investment funds is from 30% to 31%.

**Table 4. Mandatory pension fund total assets investment structure (Asset distribution by instruments in thousand of EUR)**

<i>Mandatory pension fund total assets investment structure</i>											<i>Updated: 31.12.2016</i>
<i>At the end of period, Asset distribution by instruments in thousand of EUR</i>											
<b>Type of assets</b>	<b>12.2006</b>	<b>12.2007</b>	<b>12.2008</b>	<b>12.2009</b>	<b>12.2010</b>	<b>12.2011</b>	<b>12.2012</b>	<b>12.2013</b>	<b>12.2014</b>	<b>12.2015</b>	<b>12.2016</b>
<i>Securities and deposits</i>	20.261	50.813	81.085	140.489	201.866	259.660	339.806	435.198	530.891	638.130	779.532
<i>Bonds</i>	14.665	30.382	36.177	81.704	114.686	160.711	224.294	268.970	311.845	386.555	474.641
<i>Government bonds - Domestic</i>	14.665	30.382	36.177	81.216	108.647	160.711	224.294	268.970	311.845	385.205	470.992
<i>Government bonds - Foreign</i>	0	0	0	0	6.039	0	0	0	0	1.350	3.650
<i>Corporate bonds</i>	0	0	0	488	0	0	0	0	0	0	0
<i>Short-term securities</i>	1.393	0	3.078	0	485	0	1.615	0	0	4.765	5.186
<i>Shares</i>	769	11.048	7.515	8.898	22.788	50.357	66.412	112.238	160.021	200.458	239.286
<i>Shares - Domestic</i>	769	9.581	5.780	6.806	6.468	9.121	12.667	15.677	18.339	20.999	22.313
<i>Shares - Foreign</i>	0	1.387	1.388	1.623	4.334	6.749	10.174	21.112	26.114	35.258	42.766
<i>Open-end funds</i>	0	81	348	468	11.986	34.486	43.572	75.448	115.568	144.201	174.207
<i>Deposits</i>	3.434	9.382	34.316	49.887	63.908	48.592	47.485	53.991	59.026	46.352	60.420
<i>Cash</i>	0	5	426	1.103	516	713	576	199	994	1.296	824
<i>Receivables</i>	5	6	392	615	46	264	3.424	678	5.908	12.045	1.364
<b>TOTAL ASSETS</b>	<b>20.266</b>	<b>50.823</b>	<b>81.902</b>	<b>142.207</b>	<b>202.428</b>	<b>260.638</b>	<b>343.806</b>	<b>436.075</b>	<b>537.794</b>	<b>651.470</b>	<b>781.720</b>
<b>Net assets</b>	<b>20.188</b>	<b>50.796</b>	<b>81.374</b>	<b>142.098</b>	<b>202.303</b>	<b>260.474</b>	<b>343.481</b>	<b>435.767</b>	<b>537.058</b>	<b>649.630</b>	<b>781.304</b>

**Table 5. Mandatory pension fund total assets investment structure (Asset distribution by instruments in %)**

<i>Mandatory pension fund total assets investment structure</i>											
<i>At the end of period, Asset distribution by instruments in %</i>											<i>Updated: 31.12.2016</i>
<b>Type of assets</b>	12.2006	12.2007	12.2008	12.2009	12.2010	12.2011	12.2012	12.2013	12.2014	12.2015	12.2016
<i>Securities and deposits</i>	100%	100%	99%	99%	100%	100%	99%	100%	99%	98%	100%
<i>Bonds</i>	72%	60%	44%	57%	57%	62%	65%	62%	58%	59%	61%
<i>Government bonds - Domestic</i>	72%	60%	44%	57%	54%	62%	65%	62%	58%	59%	60%
<i>Government bonds - Foreign</i>	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%
<i>Corporate bonds</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Short-term securities</i>	7%	0%	4%	0%	0%	0%	0%	0%	0%	1%	1%
<i>Shares</i>	4%	22%	9%	6%	11%	19%	19%	26%	30%	31%	31%
<i>Shares - Domestic</i>	4%	19%	7%	5%	3%	3%	4%	4%	3%	3%	3%
<i>Shares - Foreign</i>	0%	3%	2%	1%	2%	3%	3%	5%	5%	5%	5%
<i>Open-end funds</i>	0%	0%	0%	0%	6%	13%	13%	17%	21%	22%	22%
<i>Deposits</i>	17%	18%	42%	35%	32%	19%	14%	12%	11%	7%	8%
<i>Cash</i>	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%
<i>Receivables</i>	0%	0%	0%	0%	0%	0%	1%	0%	1%	2%	0%
<b>TOTAL ASSETS</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Net assets</b>	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%

The structure of investments of the mandatory pension funds, as of 31.12.2016 is given in Figure 5.11. The participation of domestic government shares has increased in respect to the previous year and it was 60.91%. Besides bonds (60.25%) domestic securities include short-term securities (0.66%). The participation of bank deposits has increased in respect to 2015 and it was 7.73%. Domestic shares' participation is rather low (2.85%) in the investment portfolio, and it is almost the same as the previous year. In 2016, the investments abroad had increased in respect to 2015 and they were 28.22%, out of which the investments in foreign shares were 5.47% and, 22.29% were investments in participation units of foreign investment funds and 0.47% in government bonds. The rest were investments in cash and cash equivalents (0.11%) and receivables (0.17%).

## 8. CONCLUSION

The structure of the portfolio in pension system with defined contribution means that we should not provide separate account liabilities as required in the system of defined benefits, but it is especially important to provide regulatory investment restrictions and to ensure adequate internal investment structure or internal restrictions on the fund.

The structure of the portfolio is established in the investment strategy. The structure of the portfolio of each long-term fund as long as pension funds need to have set a time frame that covers a longer period which requires the establishment of a strategic structure of the portfolio in order to meet strategic long-term investment yields.

The investment strategy should be written in clear and simple way and should include a general framework of procedures for managing the assets of the pension fund, investment objectives of the

pension fund, strategic allocation of pension fund, investment risks and processes for risk management and monitoring, control and evaluation of the implementation of the investment strategy.

In preparing the investment strategy the pension company has to have in mind fiduciary duty of every employee or member of the board of the pension company, or the obligation to work only in favor of the interests of members and retired members of the pension fund and implement a degree of care, effectiveness and skills that would have applied prudent man when investing their own funds.

The communication within the pension company between boards, asset managers and risk managers is particularly important, because that is the only way to understand the whole investment process and fulfilled results, and within the set of investment regulations, to establish appropriate optimal portfolios of pension funds based on research and analyzes, and that will ensure to meet the investment objectives of providing higher benefits for members.

The regulations only establish rules and a framework for investment, while the creators of the investment policies in the companies are given a crucial role to adjust their internal criteria in order investment teams to provide investment returns according to undertaken risk. So of qualifications, understanding, philosophy and skill of asset manager of pension funds depends most appropriate option for setting the investment structure.

## **REFERENCES**

- Augusztinovics, M., R. I. Gál, Á. Matits, L. Máté, A. Simonovits, and J. Stáhl. (2002). "The Hungarian Pension System before and after the 1998 Reform." In *Pension Reform in Central and Eastern Europe. Vol. 1: Restructuring with Privatization: Case Studies of Hungary and Poland*, ed. E. Fultz. Budapest: International Labour Office.
- Chlon-Dominczak, A. (2009). "Pension System and Employment of Older Workers: How to Change the Incentive Structure? The Polish Experience." In *Pension Reform in Southeastern Europe: Linking to Labor and Financial Market Reforms*, ed. R. Holzmann, L. MacKellar, and J. Repansek, 163–76. Washington, DC: World Bank.
- EBRD (European Bank for Reconstruction and Development). (2006). "Transition Report 2006: Finance in Transition." EBRD, London.
- Holzmann, R., MacKellar, L., and J. Repansek, eds. 2009. *Pension Reform in Southeastern Europe: Linking to Labor and Financial Market Reforms* Center of Excellence in Finance - Ljubljana, DC: World Bank.
- Law on mandatory fully funded pension insurance, (29/2002, 85/2003, 40/2004, 113/2005, 29/2007, 88/2008, 48/2009, 81/2009, 50/2010, 171/2010, 36/2011, 98/2012, 13/2013, 164/2013, 44/2014)
- Law on voluntary fully funded pension insurance, (7/2008, 124/2010, 71/2011, 13/2013)
- Macedonian Stock Exchange, Report **2000 – 2016**
- Pension and disability insurance fund of Macedonia, Report (2000 – 2016)



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National bank of the Republik of Macedonia, Raport (2000 – 2016)

Securities and Exchange Commission of the Republic of Macedonia, Raport (2000 – 2016)

OECD – Pension Market in Focus, World Bank-The Financial Crisis and Mandatory Pension Systems in Developing Countries.

OECD Forthcoming. *Pensions at a Glance: Special Edition on Retirement Incentives*. Paris: OECD.

OECD 2001. “Aging and Income: Financial Resources and Retirement in 9 OECD Countries.” OECD,

Paris. Pablo Antolin and Fiona Stewart “The Financial Crisis and Mandatory Pension Systems in Developing Countries Private Pensions and Policy Responses to the Financial and Economic Crisis”

Agency for Supervision of Fully Funded Pension Insurance (MAPAS), [www.mapas.mk](http://www.mapas.mk)

Ministry of labor and social policy, [www.mtsp.gov.mk](http://www.mtsp.gov.mk)

Pension and disability insurance fond of Macedonia [www.piom.com.mk](http://www.piom.com.mk)

National bank of the Republik of Macedonia, [www.nbrm.mk](http://www.nbrm.mk)

Macedonian Stock Exchange, [www.mse.mk](http://www.mse.mk)

Securities and Exchange Commission of the Republic of Macedonia, [www.sec.mk](http://www.sec.mk)

NPF Pansion Fund, [www.npf.com.mk](http://www.npf.com.mk)

KB Pension Fund, [www.kbprvo.com.mk](http://www.kbprvo.com.mk)

International Organisation of Pension Supervisors (IOPS), [www.iopsweb.org](http://www.iopsweb.org)

Komercijalna Banka AD Skopje, [www.kb.com.mk](http://www.kb.com.mk)

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# HOW DO STOCK MARKETS REACT AGAINST TAX REGULATIONS? EXAMPLE FROM BIST FINANCIAL SECTOR INDICES

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**Abstract:** *This study investigates the effects of tax regulations regarding securities in financial markets on sector indices by the event study. The event study is a method allows to explain short-run effects of nonquantitative changes on returns in financial markets. The research is conducted on main and sub financial sector indices for the codes of 5281 and 6486.*

*Findings show that Turkish financial markets do not have characteristics of semi-strong form efficiency and it is possible to gain abnormal returns by following changes in tax regulations.*

**Keywords:** *Borsa Istanbul, Financial Market Regulations, Event Study, Sector Indices.*

## INTRODUCTION

This study aims to set forth the short-term effect of tax law regulations on financial markets. The event study analysis is conducted on one main and five sub financial sector indices in the BIST and the regulation no. 5281 which is the law regarding the adaptation of tax law to the New Turkish Lira and amendment of certain laws which went into effect on 01.01.2006 and 6486 which is the law about the changes in social security and general health insurance laws which went into effect on 29.05.2013 by the event study. Study differentiates from the most of the related previous researches as it aims to explain this interaction from a statistical perspective and on the sectoral basis.

As reported by Yalçın (2010), there are different views among the academics about the effects of imposing tax on returns on securities such as; Tobin (1984), Stiglitz(1989) and Summers and Summers (1989) argue that tax implications decrease volatility by preventing speculative transactions and increase government income, while studies like Ross(1989), Amihud ve Mendelson(1992), Schwert and Seguin(1993) and Kupiec(1996) on the other hand argue that taxing increases cost of capital and decreases market liquidity by reducing trading volume and increasing expected return. Hence it is important to understand how financial markets react towards the changes in tax regulations and if it is possible to benefit from these changes in investment decisions. However, when we examine the Turkish literature we see that the research is mostly focused on reviewing the available and past regulations rather than conducting a statistically explanatory analysis.

Many studies in the Turkish literature investigate the tax law regulations in financial markets from a theoretical perspective like Çömen (2006), Büyükçapar (2007), Pallı (2007) and Demir (2007). On the other hand, Yalçın (2010) is among the first by examining the effect of taxation of financial instruments on returns and trading volumes of IMKB-30 stocks by the event study. Her findings suggest that the Turkish financial markets do not show semi-strong efficiency. Koçyiğit and Kılıç (2008); also analyze the effect of value added tax regulation on the leasing sector companies, Derin-Güre and Kütük (2016) examine the effect of regulations in corporate tax on stock prices in Borsa

Istanbul. Other studies employing the event study in order to set forth the impact of changes like company specific events, declarations or certain events in the economy include studies like Mutan and Topçu (2009); Sakarya (2011); Mazgit (2013); Babacan and Özer (2013); Güvercin and Demir (2015); Sarıgül (2015); Eyüboğlu and Bulut (2015).

The difference of Jonsson (2011) and Eryiğit (2007) from the aforementioned research in the event study is that they conduct the analysis on various sector indices rather than sole stocks. Jonsson (2011) investigates the effect of announcements related to OPEC on energy, telecommunication and financial sector indices from 2005 to 2007. His findings suggest that only telecommunication sector reacts significantly to the announcements. Eryiğit (2007) investigates the impact of six selected news about European Union membership process on 17 sector indices in Turkish financial markets and finds out that there is not a significant relation.

## **METHODOLOGY**

The event study which is one of the mostly used tools of Capital Asset Pricing Model (CAPM) is a method enabling us to analyze the possible effects of certain events that can not be expressed quantitatively on financial markets which dates the back to the early 1970s. Fama, Fisher, Jensen and Roll (1969) also conducted the event study in order to test for the efficiency of financial markets. Moreover, MacKinlay (1997) reports in the study explaining the general method of the event study that the earliest research about the event study is conducted by Dolley (1933) to examine the price effects of stock splits. The method investigates whether an event or a news causes abnormal returns in the financial markets (Benninga, 2008: 371). Three important time periods in the event study are “the event date” which is the date or the first trading date after the change occurs, “the event window” which comprises the period before the change to see if the event was heard and affected prices and after the change to see how many days more the event keeps affecting the prices. Generally 3+3, 5+5 or 10+10 days are chosen for the event window. The third period is called “the estimation window” which helps to control and understand the normal behavior of the prices for no particular event and mostly taken as one calendar year (approximately 250 trading days) or at least 126 trading days before the event (Benninga, 2008, 371: 373; Sakarya, 2011: 152). Detection of abnormal returns after the event means that the markets are not efficient (Kothari and Warner, 2007: 10). Furthermore, detection of significant positive abnormal returns and cumulative abnormal returns means that there is information leakage in the market (Keown and Pinkerton, 1981: 858).

The market model is the most preferred method in order to conduct event analysis and the steps taken to conduct event analysis can be summarized as below (Brown and Warner, 1985:6-7; Benninga, 2008: 373-374; Tong, 2010: 4):

1. Determining  $\alpha$  (constant term) and  $\beta$  coefficient (trend) by the data in the estimation window through ordinary least squares (OLS):

$$R_t = \alpha_t + \beta_t * R_{m,t} \quad (1)$$

According to equation (1)  $R_t$  is the return at the day  $t$ ,  $R_{m,t}$  is the market return at day  $t$ ,  $\alpha$  is the constant term that also represents risk-free rate and finally,  $\beta$  is the beta coefficient for the systematic risk. Returns ( $R_t$ ) are calculated by dividing the difference of current and previous closing prices to the previous closing price.

2. Calculating expected returns (equation (2)), abnormal returns (equation (3)), average abnormal returns (equation (4)) and cumulative abnormal returns (equation (5)) for each day in the event window according to the data obtained from equation (1):

$$E(R)_t = \alpha + \beta * R_{m,t} \quad (2)$$

Here;  $E(R)_t$  is the expected return at day t.

Abnormal return (AR) is the difference between current return (R) and expected return ( $E(R)$ ) for each day in the event window:

$$AR_t = R_t - E(R)_t \quad (3)$$

Average abnormal return (AAR) is the arithmetic mean of the abnormal returns in the event window:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_t \quad (4)$$

Cumulative abnormal return (CAR) indicates the total impact of an event in a certain period also called as the event window and calculated as the sum of the current abnormal return and the previous CAR value. For the first day, CAR equals to the current abnormal return for the same day.

$$CAR_t = AR_t + CAR_{t-1} \quad (5)$$

3. Finally calculating t-test for AR (equation (6)) and CAR (equation (7)) values in order to evaluate the positive or negative effects of the event. If the statistics are between -1,96 and +1,96, the finding is significant at 5% level and if it is between -1,64 and +1,64 the finding is supposed to be significant at %10 level:

$$t_{AR} = AR_t / \sigma \quad (6)$$

$$t_{CAR} = CAR_t / \sigma \quad (7)$$

Event window is taken as 21 days including the event date and 10 days before and after the event date. Estimation window comprises 250 trading days. If the tax law corresponds to a day out of trading days, then the first trading day after the regulation is taken as the event date. BIST100 index is used for market proxy and the steps explained above are conducted for each index and regulation separately through MS Excel. Information considered for the regulations are as follows:

Regulation No:	Ratification Date	Effective Date	Event Date (first trading date)	Event Window (21 days)	Estimation Window (250 days)
5281	30.12.2004	01.01.2006	01.01.2006	19.12.2005-23.01.2006	22.12.2004-16.12.2005
6486	21.05.2013	29.05.2013	29.05.2013	15.05.2013-12.06.2013	18.05.2012-14.05.2013

Financial Sector Indices defined at Borsa Istanbul and included in the analysis can be listed as follows:

Index Code	Sector
• XBANK	Banks
• XSGRT	Insurance
• XFINK	Leasing Factoring
• XHOLD	Holding and Investment
• XGMYO	Real Estate Investment Trusts
• XUMAL	<b>BIST Financials</b>

The null hypothesis for the analysis is;  $H_0$  : Tax law regulations do not have a significant impact on the related financial sector index.

## FINDINGS

Findings of the analysis are shown in Table 1 and Table 2. Accordingly, AR stands for the abnormal returns, AAR is the average abnormal returns, CAR is the cumulative abnormal return on the 21st day of the event window.

All indices are affected by the regulation code 5281. Both positive and negative significant abnormal returns are seen after the regulation went into effect. While XHOLD is the most affected, XFINK is the least (Table 1).

**Table 1.** AR Findings for the Regulation No: 5281 (01.01.2006)

Days ( $\tau$ )	XBANK	XSGRT	XFINK	XHOLD	XGMYO	XUMAL
-10	-0,006	-0,006	0,006	0,002	-0,001	-0,004
-9	0,004	-0,006	0,015	-0,005	0,001	0,002
-8	0,005	0,010	-0,001	-0,002	-0,004	0,003
-7	0,006	0,001	-0,004	-0,007	0,002	0,003
-6	-0,003	-0,005	0,020	-0,009	0,007	-0,004
-5	-0,001	-0,009	0,009	0,000	-0,001	-0,001
-4	0,002	0,018	0,029	0,000	0,015	0,003
-3	0,002	-0,005	-0,015	-0,009	0,000	-0,001
-2	0,001	-0,017	-0,021	-0,001	0,009	0,000
-1	0,000	0,002	0,006	0,008	0,008	0,002
0	0,007	-0,008	-0,007	-0,006	0,002	0,003
1	0,010**	0,006	-0,025	0,004	-0,013	0,008*
2	0,004	0,029*	-0,005	0,000	-0,012	0,004
3	-0,004	0,040*	0,033	0,011**	-0,005	0,001
4	0,000	0,000	-0,013	-0,003	-0,012	-0,001
5	0,024*	-0,029*	-0,022	-0,022*	-0,009	0,012*
6	0,002	-0,011	-0,014	0,013**	-0,012	0,003
7	0,004	-0,005	0,007	0,000	-0,008	0,002
8	-0,004	0,044*	0,011	0,014*	0,030*	0,003
9	-0,005	-0,017	0,003	-0,014*	-0,013	-0,007*
10	-0,009**	0,033*	0,036**	0,011**	0,034*	-0,002
CAR <sub>(<math>\tau=-10...+10</math>)</sub>	0,038	0,066	0,049	-0,015	0,017	0,030*
AAR <sub>(<math>\tau=-10...+10</math>)</sub>	0,002	0,002	0,002	-0,001	0,001	0,001

<b>R<sup>2</sup></b>	0,92	0,64	0,33	0,84	0,52	0,96
<b>Std. error</b>	0,005	0,013	0,020	0,007	0,012	0,003

**Note:** \* and \*\* stand for significant findings at 5% and 10% levels respectively.

According to the findings from analyzing the regulation code 6486, there found to be no significant effect on XBANK and XSGRT indices. On the other hand, XFINK and XGMYO seem to be the mostly affected indices and these effects take part both before and after the regulation go into effect in positive and negative directions. However the index of XUMAL shows that only significant and positive abnormal return is seen at the third day after the regulation goes into effect. This finding is also supported by the positive and significant cumulative abnormal return for the same index (Table 2).

**Table 2.** AR Findings for the Regulation No: 6486 (29.05.2013)

<b>Days (<math>\tau</math>)</b>	<b>XBANK</b>	<b>XSGRT</b>	<b>XFINK</b>	<b>XHOLD</b>	<b>XGMYO</b>	<b>XUMAL</b>
-10	-0,004	0,001	-0,011	0,003	-0,008	0,000
-9	0,001	0,008	0,013	0,000	0,016**	0,002
-8	-0,002	-0,013	0,012	0,000	0,005	-0,001
-7	0,000	0,007	0,015**	0,006	0,004	-0,002
-6	-0,008	0,001	0,027*	0,002	-0,017**	-0,003
-5	-0,004	-0,011	-0,011	-0,007	0,004	0,001
-4	0,008	0,025	-0,011	-0,003	-0,001	0,001
-3	0,004	0,002	0,010	0,002	0,002	0,003
-2	-0,010	0,025	0,010	0,003	0,008	-0,006
-1	-0,011	0,017	0,022*	0,010	0,018*	-0,005
0	0,017	-0,013	0,007	0,004	-0,015**	0,006
1	0,007	0,010	-0,006	0,004	-0,004	0,006
2	0,004	-0,001	-0,012	0,000	-0,001	0,000
3	0,076	-0,002	-0,055*	0,000	0,012	0,032*
4	-0,038	-0,002	0,027*	-0,005	-0,003	-0,018
5	0,003	0,019	0,008	-0,004	0,005	-0,001
6	0,041	-0,006	-0,016*	-0,006	0,013	0,018
7	-0,021	-0,010	0,029*	0,005	-0,001	-0,006
8	0,020	0,009	-0,008	-0,014*	-0,038*	0,004
9	0,011	0,034	0,007	0,000	-0,004	0,004
10	-0,021	-0,028	-0,001	0,003	-0,017**	-0,010
<b>CAR<sub>(<math>\tau=-10...+10</math>)</sub></b>	<b>0,073</b>	<b>0,072</b>	<b>0,058</b>	<b>0,003</b>	<b>-0,020*</b>	<b>0,025*</b>
<b>AAR<sub>(<math>\tau=-10...+10</math>)</sub></b>	<b>0,003</b>	<b>0,003</b>	<b>0,003</b>	<b>0,000</b>	<b>-0,001</b>	<b>0,001</b>
<b>R<sup>2</sup></b>	<b>0,13</b>	<b>0,08</b>	<b>0,31</b>	<b>0,70</b>	<b>0,40</b>	<b>0,58</b>
<b>Std. sp.</b>	<b>0,048</b>	<b>0,029</b>	<b>0,008</b>	<b>0,007</b>	<b>0,009</b>	<b>0,012</b>

**Note:** \* and \*\* stand for significant findings at 5% and 10% levels respectively.

To sum up, it is seen that regulation no 5281 effects financial sector indices more than the regulation no 6486. In addition, Finance Sector index (XUMAL) reacts to both of the changes in regulations. However, considering the findings at subsectoral indices level, it is seen that Banking (XBANK) sector is the least affected sector while Leasing Factoring (XFINK) and Real Estate Investment Trusts (XGMYO) are the most affected indices both in positive and negative direction. On the other hand, since the significance of CAR findings can vary, it is hard to make certain interpretations. These effects also seem to take part before and after the regulation go into effect. However, findings from BIST Financials indicate that the reaction of the financials in total emerges after the regulation goes into effect and these findings are also supported by the significant CAR results. These findings show that there is information leakage in the market and the effects of the regulations continue after the event day and allow for abnormal returns. Also, we can not make a reasonable evaluation regarding the interaction of the findings and the length of the period between the ratification date and the effective date. Since indices react more to the event with the longer time span.

## SUMMARY AND CONCLUSION

This study investigates the short-run effects of two tax regulations regarding returns in financial markets in the context of one main and 5 sub financial sector indices in the BIST by the event study which is expected to make a contribution to the literature from this point of view. The study differentiates from the others by focusing on the financials sector in the market and the method it adopts. The method is useful in identifying the short-term outcome of events that can not be explained quantitatively on financial markets.

Since the findings show that significant abnormal returns are possible both before and after the regulations, and are supported by the significant cumulative abnormal returns it is conveyed that the Turkish financial markets do not show semi-strong efficiency. In a semistrong efficient market, assets are expected to react immediately to the news and thus no investors have the chance of gaining abnormal returns by using this news. In the contrary, findings show that the investors trading at the BIST could have excessive returns by using the information from tax regulations aiming financial markets. These findings are compatible with those of Yalçın (2010), Koçyiğit and Kılıç (2008) and Sakarya (2011) arguing that Turkish financial markets do not show the semi-strong efficiency form.

## REFERENCES

- Amihud Yakov- Haim Mendelson (1992), Transaction Taxes and Stock Values, in K.Lehn, R.W.Kamphuis (eds.) Modernizing U.C. Securities Regulations: Economic and Legal Perspective, Irwin: 477-500.
- Babacan, Burak - Gökhan Özer (2013), “Şirketlerin Gönüllü Açıklamalarının Hisse Senedi Getirileri Üzerine Etkileri”, Yönetim ve Ekonomi, Volume 20, Issue 2, pp. 91-104.
- Benninga, Simon (2008), Financial Modeling, Third Edition, The MIT Press, London, England.
- Brown, Stephen J. - Jerold B. Warner (1985). “Using Daily Stock Returns: The Case of Event Studies”, Journal of Financial Economics, Issue 14, pp. 3-31.
- Büyükcıpar, Ceren (2007), Türk Vergi Sisteminde Sermaye Piyasası Araçlarının Vergilendirilmesi ve Ekonomiye Etkileri, Yayınlanmamış Yüksek Lisans Tezi, Marmara Üniversitesi, İstanbul.
- Çömen, Fatih (2006), Sermaye Piyasasında Vergilendirme ve Sermaye Piyasası Oluşumuna Etkileri, Yayınlanmamış Yüksek Lisans Tezi, Afyon Kocatepe Üniversitesi, Afyon.
- Demir, Didar (2007). Türkiye’de Sermaye Piyasası Araçlarının Vergilendirilmesi ve Bankacılık Üzerindeki Etkileri. Yayınlanmamış Yüksek Lisans Tezi, İstanbul Üniversitesi. İstanbul.
- Derin-Güre, Pınar- Samet Kütük (2016), “Türkiye’de Kurumlar Vergisi Değişikliğinin Hisse Senetleri Fiyatları Üzerine Kısa Dönemli Etkisi”, Ankara Üniversitesi SBF Dergisi, Volume 71, Issue 1, pp.303-322.
- Dolley, James Clay (1933), “Characteristics and Procedure of Common Stock Split-Ups”, Harvard Business Review, Issue 11, pp. 316–326.
- Eryiğit, Mehmet (2007), “Stock Market Reaction to Developments in Turkish European Union Relations”, Ekonomik Yaklaşım, Volume 18, Issue 63, pp. 55-68.



- Eyübođlu, Kemal- Halil İbrahim Bulut (2015), “Şirketlere Özgü Haberlerin Hisse Performansına Etkisi: BIST-30 Şirketleri Örneđi”, Uluslararası İktisadi ve İdari İncelemeler Dergisi, Issue 16, pp.113-138.
- Fama, Eugene F.- Lawrance Fisher- Michael C. Jensen- Richard Roll (1969), “The Adjustment of Stock Prices to New Information”, International Economic Review, Volume 10, Issue 1, pp. 1-21.
- Güvercin, Ali - Yusuf Demir (2015), “Kazanç Açıklamaları ve Şirket Deđeri İlişkisi: BIST100 Şirketleri Üzerine Bir Olay Analizi”, Volume 10, Issue 3, ss. 233-253.
- Jonsson, Luciana (2011), An Empirical Study of the Impact of OPEC Announcements on Stock Returns of Selected Sector Indexes of the Stockholm Stock Market, Master Thesis, Department of Economics, Södertörn University.
- Keown, Arthur J. - John M. Pinkerton (1981), Merger Announcements and Insider Trading Activity: An Empirical Investigation. Journal of Finance, Volume 36, Issue 4, pp. 855-869.
- Koçyiđit, Murat - Asiye Kılıç (2008), “Leasing Sektöründe KDV Oranı Deđişikliğinin İMKB’de İşlem Gören Leasing Şirketlerinin Hisse Senedi Getirine Etkisi”, Muhasebe ve Finansman Dergisi, Issue 40, October, pp. 165-174.
- Kothari, S.P. - Jerold B. Warner (2007), “Econometrics of Event Studies”, Handbook of Corporate Finance: Empirical Corporate Finance, Volume 1, Issue 1, Elsevier/North-Holland, Handbooks in Finance Series.
- Kupiec Paul H. (1996), “Noise Traders, Excess Volatility, and a Securities Transaction Tax”, Journal of Financial Services Research, Issue 3, pp. 117-120.
- MacKinlay, A.Craig (1997), “Event Studies in Economics and Finance”, Journal of Economic Literature, Volume 35, Issue 1, pp. 13-39.
- Mazgit, İsmail (2013), “Endeks Kapsamında Olmanın Hisse Senedi Getirilerine Etkisi: BIST Temettü 25 Endeksi Üzerine Bir Uygulama”, Sosyo Ekonomi, Volume 20, Issue 20, pp. 225-264
- Mutan, Oya - Ayhan Topçu (2009), Türkiye Hisse Senedi Piyasasının 1990-2009 Tarihleri Arasında Yaşanan Beklenmedik Olaylara Tepkisi, Sermaye Piyasası Kurulu Araştırma Raporu.
- Pallı, Şerife (2007), Sermaye Piyasası İşlemlerinin Vergilendirilmesi ve Sermaye Piyasası Üzerine Etkileri, Yayınlanmamış Yüksek Lisans Tezi, İstanbul Üniversitesi, İstanbul.
- Ross Stephen A. (1989), “Commentary; Using Tax Policy to Curb Speculative Short-Term Trading”, Journal of Financial Services Research, Issue 3, pp. 117-120.
- Sakarya, Şakir (2011), “İMKB Kurumsal Yönetim Endeksi Kapsamındaki Şirketlerin Kurumsal Yönetim Derecelendirme Notu ve Hisse Senedi Getirileri Arasındaki İlişkinin Olay Çalışması (Event Study) Yöntemi ile Analizi”, ZKÜ Sosyal Bilimler Dergisi, Volume 7, Issue 13, pp.147-162.
- Sarıgöl, Haşmet (2015), “Sendikasyon Kredisi Kullanım Duyurularının Bankaların Hisse Senedi Getirilerine Etkisi”, Finansal Araştırmalar ve Çalışmalar Dergisi, Volume 7, Issue 12, pp. 113-129.

- Schwert G. William - Paul J. Seguin (1993), "Securities Transaction Taxes: An Overview of Costs, Benefits and Unsolved Questions", *Financial Analysts Journal*, (September- October), pp. 27-35.
- Stiglitz Joseph E. (1989), "Using Tax Policy to Curb Speculative Short-Term Trading", *Journal of Financial Services Research*, Issue 3, pp.101-115.
- Summers Lawrence H. - Victoria P. Summers (1989), "When Financial Markets Work too Well: A Cautious Case for a Securities Transaction Tax", *Journal of Financial Service Research*, Issue 3, pp. 261-286.
- Tobin James E. (1984), "On the Efficiency of Financial Systems", *Lloyds Bank Review*, Issue 153, pp. 1-15.
- Tong, Lihuang (2010), *Event Study Analysis of Share Price and Stock Market Index Data*, Master's Thesis, University of Stirling, Department of Computing Science and Mathematics, United Kingdom.
- Yalçın, Canan (2010), *The Effects of Taxation of Financial Instruments on Stock Returns Traded in Istanbul Stock Exchange: Evidence From ISE-30 Index*, Yüksek Lisans Tezi, Dokuz Eylül Üniversitesi, Sosyal Bilimler Enstitüsü, İzmir.

# FACTORS AFFECTING CAPITAL MARKET DEVELOPMENT IN THE REPUBLIC OF MACEDONIA

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**Abstract:** *The development of the capital markets is determined of the external and internal factors. Four global macro-trends will be crucial in shaping the new equilibrium for capital markets: global instability, the rise of state-directed capitalism, technology and war for resources. Furthermore, it should be noted that the drivers of these trends range from the regulatory environment, fiscal pressures, political and social unrest, but should be taken into account that their impact is depending by many internal factors, mainly from macroeconomic (economic growth, macroeconomic stability, development of the financial sector, gross fixed investment, gross saving, interest rate on deposit etc.), and institutional character (the corruption, government efficiency, quality of the regulation etc.).*

*In this paper in the focus are factors affecting capital market development in the Republic of Macedonia. The external factors are qualitatively explained, but the impact of the some of the internal factors (macroeconomic and institutional) to the Macedonia Stock Exchange are empirically calculated using the Calderon-Rossell model. The result from the applied model confirms that economic growth and national savings are the most important factors that determinate the capital market development. Another factor with the same statistical significance, but with inverse relationship with the development of the Macedonian Stock Exchange is the interest rate on deposits. The results of the included institutional indicators confirm positive impact on the capital market development, but statistically insignificant.*

**Keywords:** *capital markets, Macedonian Stock Exchange, external factors, macroeconomics factors, institutional factors.*

## INTRODUCTION

The paper, excluding the introduction and conclusion, will be structured in two sections. In the first section external factors that influence the development of the global capital markets will be elaborated. In second section internal factors will be elaborated and multi regression for the impact of the factors on the Macedonian capital market is conducted.

External factors of the development of the global capital markets that are reviewed in this paper are the four global macro-trends that's are crucial in shaping the new equilibrium for capital markets in the future: global instability, the rise of state-directed capitalism, technology and war for resources. Furthermore, it should be noted that the drivers of these trends range from the regulatory environment, fiscal pressures, and political and social unrest, and the impact is far-reaching, affecting users and participants at a fundamental level.

Analyses include these four global factors:

1. Global instability – the winds of change; A polarized world, with its tensions and fragmentations, create reorganized capital markets, reshaping participant business models and creating opportunities for new players (e.g. users of capital markets) to evolve their roles within the ecosystem.
2. Rise of state-directed capitalism – regulation reshaping the industry; the consequences of today's policies and regulations will lead to a more fragmented and regionalized financial markets ecosystem. Players will need to adapt to understand and navigate local regulations.
3. Technology – an enabler of change; Technology will be the disruptive force for the next years, permeating innovation and change. We will see it as a disruptive enabler of new products, services, business models and operating structures, as well as a catalyst for the entry of new players which we would not have seen years ago.
4. War for resources – the filling of the gaps; Scarcity of resources is of paramount importance for the next half century, contributing to future geopolitical tensions. Capital markets will help to alleviate some of these tensions through a reallocation of resources to where they are most needed.

In the second part of the paper internal factors and their impact on the Macedonian capital markets are researched. Also in this part the literature review and theoretical background for the empirical model is presented.

## **METHODOLOGY**

Determination of the factors and their influence of the development of the capital market are the interesting segment for researchers. There are a lot of studies that analyse the capital market development and every study takes in consideration different aspect of the analysis. Some of them were used as background for this study.

Lot of studies that analyse the impact of the economic growth and the development of the capital market, confirm the existence of a positive and significant relationship. According to Bekaert G. and Harvey C. (1997) economic growth in a modern economy hinges on an efficient financial sector that pools domestic savings and mobilizes foreign capital for productive investments. The findings from Caporale G., Howells A. and Soliman M.(2004) indicate that a well-developed stock market can foster economic growth in the long run through faster capital accumulation, similar to findings of King and Levine (1993) and Levine and Zervos (1998).

The majority of the studies that observe the determinants of the capital market development, especially in the emerging economies, draw a common conclusion that the banking sector has dominant influence on the capital market development. In most of the studies the size, the level of development and scope of the banking sector have positive and significant impact on the capital market development (Yartey,2008; Kemboi and Tarus, 2012). But, in the literature there are evidence that the development of the banking sector, the activities of the Central Bank and other financial institutions interacted negatively with market capitalization which implies that the activities of those institutions deterred the development of the capital market (Idowu, 2012).

In the study of Yartey (2008), the author exams macroeconomic and institutional indicator as determinant of the capital market development, using a panel data of 42 emerging economies for the period 1990 to 2004. The findings from this paper are that macroeconomic factors such as income level, gross domestic investment, banking sector development, private capital flows, and stock market liquidity are important determinants of capital market development in emerging market countries. The results also show that political risk, law and order, and bureaucratic quality are important determinants of capital market development because they enhance the viability of external finance.

The capital market development in Republic of Macedonia and the factors that affect it have been the subject of research in the several studies. In the study of the Hadzi-Mishev R. (2011), a model for the empirical analysis of the macroeconomic determinants of the trends of the Macedonia Stock Exchange is constructed. The study covers and analyses empirical literature and formulates a standard regression equation in which the dependent value that reflects the development of the capital market is

the value of MBI-10 and the independent variables that are taken into consideration are inflation, interest rates, industrial production and money supply. The results of empirical analysis confirm the expected positive relation between the value of MBI-10 and the level of industrial production and money supply on one hand, and the inverse relationship between interest rates and inflation, on the other.

Eliskovski M . (2012), in his study analyses the development of the capital market in Republic of Macedonia, through its size and depth, with the effects of the GDP, investment, development of the banking sector and macroeconomic stability. „The results for the first specification indicate that in Republic of Macedonia the gross investment and macroeconomic stability have a major impact on the size of the capital market. It is interesting to emphasize that the development of the banking sector does not have substitutable effect on the development of the capital market, but complementary” (Eliskovski, 2012: 23).

According to the previous conducted researches mentioned in the theoretical review, the challenge lies on how to attain a sustainable capital market development in an emerging economy like Republic of Macedonia that works as gate way to a sustainable economic growth and development. Previously mentioned papers were taken into consideration as a basis for preparing empirical analysis in this paper, considering the macroeconomic indicators that influence and determine the capital market development.

The determination of macroeconomic factors that influence the development of the Macedonian Stock Exchange in this paper is done with the extended Calderon-Rossell model. The extended model includes more variables that have influence on the capital market. These variables reflect the relationship among economic growth, national savings and the available capital for investment, macroeconomic stability, development of the financial sector and the capital market. This modification of the model is done in order to get a better specifications and more comprehensive model which determines the intensity of the influence of the variables on the development of capital market. The linear multiregression is conducted using data from the World Bank for the period 1997-2012. The calculations of statistical parameters are obtained using the software package XLSTAT 2015.

The analysis starts from the assumption that the development of the capital market in the country is determined by the impact of macroeconomic factors and institutional factors. Thus, in the model as a dependent variable is the market capitalization of the capital market in the country expressed as a % of GDP (Y - Market capitalization as % of GDP), while the independent variables are:

X1 - Savings (% of GDP)

X2 - Interest rate on deposits

X3 - Control of Corruption<sup>1</sup>

X4 – Government effectiveness<sup>2</sup>

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<sup>1</sup> Control of corruption - an index that shows the perception of abuse of power, ie the level of utilization of public power abuse for private gain, including petty and major forms of corruption. The index refers to the assessment of aggregate indicator for units with normal distribution and range from -2.5 to 2.5. In regression used based on data from the World Bank for this indicator ([http://databank.worldbank.org/data/reports.aspx?Report\\_Name=WGI-Table&Id=ceca4d8b](http://databank.worldbank.org/data/reports.aspx?Report_Name=WGI-Table&Id=ceca4d8b))

<sup>2</sup> Government Effectiveness - The performance of the government as an indicator shows the perception of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of the formulation and implementation of policy and the credibility of the government's commitment to such policies. And for this region indicator used estimates aggregate indicator in units of

X5 – Regulative Quality<sup>3</sup>

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## FINDINGS

The results and evaluation of the parameters of the sustainability of the model showed high multicollinearity with the variable control of corruption (VIF = 11,6). So, we have to exclude this variable from the regression and evaluated other independent variables: savings, interest rate on deposits, efficiency and quality of government regulation as institutional indicators.

The results of this regression equation demonstrate the suitability of the applied model. Thus, R<sup>2</sup> coefficient is 0.866, while the adjusted coefficient of determination also shows high value - 0.81. The evaluation of other statistical parameters by which to assess the adequacy of the model and the included variables that determine the dependent variable is assessed as adequate and meet the required standards for statistical correctness.

The results of this regression analysis are shown in next table:

**Table 1.** Results from the regression

Independent variables - X	(1)
X <sub>1</sub> – Gross savings (as % of GDP)	-2,720 (-2,823)***
X <sub>2</sub> – Deposit interest rate	-3,091 (-2,764)***
X <sub>3</sub> – Government effectiveness	1,415 (1,090)*
X <sub>4</sub> – Regulative Quality	2,712 (1,038)
Number of observations (n)	16
R <sup>2</sup>	0,866
Adjusted R <sup>2</sup>	0,807
Durbin - Watson	1,981

\*-10% level of confidence; \*\* - 5% level of confidence and \*\*\* - 1% level of confidence  
Source: own calculations using the software package XLSTAT, 2015

The statistical parameters of the independent variables confirm the same level of statistical significance ( $\alpha = 1\%$  confidence level) impact of the savings and interest rate on deposits on the capital market development in the country. The present negative relationship with the deposit interest rate is expected, but confusing is the result for the negative relationship between the saving and the development of the Macedonian Stock Exchange. Logical explanation of this is in the underdevelopment of the Macedonian Stock Exchange with small number of transactions and stock turnover. This deter and discourage economic agents to invest in financial instruments of the Macedonian Stock Exchange.

standard normal distribution, ie ranging from about -2.5 to 2.5.

([Http://databank.worldbank.org/data/reports.aspx?Report\\_Name=WGI-Table&Id=ceea4d8b](http://databank.worldbank.org/data/reports.aspx?Report_Name=WGI-Table&Id=ceea4d8b))

<sup>3</sup> (Regulative quality) - indicator of regulatory quality shows perceptions of the government's ability to formulate and implement appropriate policies and regulations that promote private sector development. And here it is talking about assessments as aggregate indicator, in units of standard normal distribution and move around -2.5 to 2,5. ([Http://databank.worldbank.org/data/reports.aspx?Report\\_Name=WGI-Table & Id = cee4d8b](http://databank.worldbank.org/data/reports.aspx?Report_Name=WGI-Table&Id=ceea4d8b))

They rather invest their available funds as deposits in banks with less profit and low risk. Variables that represent the efficiency of government and the quality of regulation confirms positive dependent relationship ( $X_3 = 1,415$  and  $X_4 = 2,712$ ) with the development of MSE, but statistically insignificant for the capital market development.

## **CONCLUSION**

Macedonian capital market in terms of its size and depth is far behind countries with developed financial markets. The liberalization of the capital market and reforms so far made it possible to increase the market capitalization of the capital market in the country, but still unsatisfactory. Since that economic growth is one of the most important prerequisites for the development of the capital market, and its development are influenced by many factors, in this paper using the econometric model, we determine the impact of the same internal factors. Specific contribution is the evaluation of the institutional factors on market development. Institutional indicators that are evaluated in the model confirms a positive impact on the capital market, but do not stand out as a statistically significant factor.

## **REFERENCES**

- Atje, R.- Jovanovic, B. (1993), Stock Markets and Development, *European Economic Review*, Volume 37, Issue 2/3, pp. 632-640.
- Bekaert G.- Harvey C. (1997), Emerging Equity Market Volatility, *Journal of Financial Economics*, Elsevier, Issue 43, pp. 29-77.
- Caporale M.- Howells G. P.- Soliman A.M. , Stock Market Development and Economic Growth: The Causal Linkage.
- Eliskovski M. (2012), Macroeconomic Determinants Of Development Of The Capital Market In The Republic Of Macedonia.
- Idowu, A.- Babatunde, M.A. (2012), Effect of Financial Reforms on Capital Market Development in Nigeria, *Asian Journal of Business and Management Sciences*, Volume 1, Issue 8, pp. 44-52.
- Fink G.- Haiss P.- Sirma H. (2006), Credit, Bonds, Stocks and Growth in Seven Large Economies, *EI Working Paper No. 70*.
- Hadzi-Mishev R. (2011), Limit Of Effective Portfolios Of The Macedonian Stock Exchange, *Website Of The Macedonian Stock Exchange*.
- Kemboi J.K.- Tarus, D.K. (2012), Macroeconomic Determinants of Stock Market Development in Emerging Markets: Evidence from Kenya, *Research Journal of Finance and Accounting*, Volume 3, Issue 5.
- Levine, R.- Zevros, S. (1998), Stock Markets, Banks and Economic Growth, *American Economic Review*, Volume 88, pp. 536-558.
- Yartey, C.A. (2008), The Determinants of Stock Market Development in Emerging Economies: Is South Africa Different?, *IMF Working Paper, WP/08/32*.

# EFFECTS OF EXPECTATIONS AND CONFIDENCE INDICES ON FINANCIAL MARKETS

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**Abstract:** Financial markets, financial decisions and risk, as well as the way in which stock prices and returns are estimated, are the most researched topics in financial literature. There are many economics and financial theories developed, discussed and modelled in the literature. An important part of these theories and models is assessing psychological factors, which affect investors and financial decisions. The study of Kahneman and Tversky (1979) showed that the psychology of investors affects stock prices. One of the first finance theories and models, also known as the traditional finance theory, states that the investors are rational and markets are efficient. On the other hand, the second one known as behavioral finance theory, states that markets are not efficient and investors are irrational, implying that psychological and emotional characteristics of investors affect investors' decisions.

This study firstly deals with anomalies in financial markets, rumors, decision making under uncertainty, investor psychology, investor sentiment, herd psychology and consumer confidence. Then it examines the investor sensitivity and the effects of consumer confidence on financial markets. Finally it analyzes the effect of consumer confidence indices on financial markets. As a result from this research, stock prices are expected to be influenced by consumer expectations and investor sentiment.

**Keywords:** Behavioral Finance, Confidence Index, Investor Responsibility, BİST 100

## INTRODUCTION

Financial markets, financial decisions and market operations have always been subject to research and still keep being up to date. The most researched topic in finance is about the risk and the predictability of stock prices and returns. Over the past years, many economics and finance theories have been developed, debated and plenty models have been built.

The Efficient Market Hypothesis (EMH), which emerged in 1960s, has achieved a great success both theoretically and empirically. Efficient Market Hypothesis suggest that investors are rational and they consider all the available information in the financial decision-making process. In this context it is impossible to gain abnormal return using all available information. However, market anomalies emerging in the marketplace, have caused the theories in economics and finance to be questioned. This in the same time has led to the shift of financial models from Efficient Market Hypothesis to behavioral finance since 1980s. According to researches, in many cases investors do not act rationally and as a result financial models do not fit the market. Transaction volumes, volatility, excessive and low responses, calendar and seasonal anomalies have been of the main topics observed in financial markets. In the same time the effects of human nature and human behavior on economics and financial markets as well as financial decisions have been and important topic of discussion.



Investor sentiment has gained momentum, especially after 1980s. Some Investors trading on financial markets are not rational, and sometimes they may make emotional decisions. Investors may trade according to the news instead of existing information. They also show low or excessive reaction to financial information which they have. When such behavior becomes systematic, it can pose a risk to financial markets.

Consumer confidence, an indicator of investor sentiment, has been an important and interesting concept in recent years and needs to be emphasized together with social capital. The ability of financial markets to function properly does not depend only on real variables. The aftermath of the financial crises experienced in recent years, has shown that the trust factor and the crisis of confidence have had a crucial role in deepening of the crisis. Even though trust is difficult to be defined, it has a big influence on financial markets.

This study will focus on the researches that examine investment sensitivity and the impact of consumer confidence on financial markets. The aim of this study is to determine the relationship between consumer confidence indexes and stocks in Turkey during 2007-2016 time period. To do so it uses subindexes of consumer confidence in order to determine their effect on stock returns.

Within the scope of this study, the data used in the analysis include BIST100 index returns, Consumer Expectation and Tendency Index, TSI Consumer Confidence Index, TCMB Real Sector Confidence Index, CNBCE-e Consumer Confidence Index and VIX. The frequency of the data used in this study is monthly within the timeline of January 2007 - December 2016. This study employs multiple regression, cointegration analysis, Granger causality, impulse response function of VAR analysis in order to analyze the relationship between BIST100 index returns and consumer confidence indices. As a result from these analysis, stock returns are expected to be influenced by consumer expectations and a long-term causal relationship is expected to be found.

## **LITERATURE**

Kahneman and Tversky (1979) found that the psychological factors effect investment decisions and stock prices which led to the field of behavioral finance. The Kahneman and Tversky's Expectation Theory paved the way to numerous researches investigating the relationship between investor psychology and stock prices. Many studies have determined the impact of investor sentiment on stock returns, especially on the US stock market. Investor sensitivity and psychology have provided insights into the phenomena, that can not be explained by traditional theories and hypotheses in financial markets.

A significant part of the studies that examine investor sentiment are about their impact on stocks. The starting point of investor sentiment theory is the "noise" concept in Black's (1986:532) financial markets. Black's conception of noise has been transformed into a theory by De Long, Shleifer, Summers and Waldmann (1990:703-738).

De Long, Shleifer and Waldmann (1990) analyzes the noise trading risk in financial markets. Irrational noise presented a market model in which traders affected prices with great luckiest beliefs and provided high expected returns.

Lee, Shleifer and Thaler (1991:75-109) investigates the relationship between investment trusts and investor sentiment. According to the results of the regression analysis, it is found that investor sensitivity and investment trusts are significantly related to each other.

Fama and French (1992:427-465) investigates the impact of investor sentiment on stock returns in the Chinese stock market using the three factor model. According to the analysis results, the investor's sensitivity helps to explain the missing part of the Fama-French model's definition of returns.

The model used in Barberis, Shleifer and Vishny (1998:307-343) explains investor sentiment with representation heuristics. According to the analysis results, in the long term (3-8 years), securities' prices showed a strong reaction in line with the news and the high value of securities returned to its average.

Elton, Gruber, and Busse (1998:477-500) studies the relationship between investor sentiment and stock returns. It employs regression analysis using investment trusts index, investor sentiment index and S&P Index data for the January 1969 - December 1994 time period. Analysis results show that the sensitivity of investors and investor sentiment were not important in the process of generating returns.

Baker and Stein (2002:1-39) examines the relationship between market liquidity and investor sentiment. It creates alternative theories and models to explain the relationship between liquidity growth and low yields. At the end of the study, investor sentiment was found to be correlated with liquidity, new share issuance and expected returns.

Barber, Odean and Zhu (2007:1-28) investigates investor sentiment and systematic rumor. In the study, the transactions of 66,465 consumers between January 1991-November 1996 and 665,533 investors from January 1997 to June 1999 were analyzed.

Verma, Baklacı and Soydemir (2008:1303-1317) examines the impact of individual and institutional investor sentiment on stock markets. The focus of this study was on rational and irrational elements of individual and institutional investors and their effect on stock returns. It uses survey data from Investors Intelligence as the corporate sensitivity index. Vector Autoregressive Analysis (VAR) method was applied to the questionnaire data. According to the analysis results, a significant positive effect of irrational sentiment on past stock market incomes was found.

Hwang (2011:382-401) investigates the impact of private investor sentiment on the securities prices. As a result, it shows that the population of the country changes the special sensitivity demands for countries and affects the securities' prices and firm investment policies.

Sohn (2013:1-30) investigates the effect of investor sentiment on stock returns. In this study, investors sensitivity is defined in terms of Keynes' definition of animal spirit or risks. Monthly New York, Nasdaq and AMEX stock indices for the period 1934-2005 as well as Baker and Wurgler's (2006) six sensitivity variables were used in the study. According to the results of the VAR analysis, it is seen that the investor's sensitivity can predict the stock returns and the effect is great in the stocks where the arbitrage is limited.

## **METHODOLOGY**

The aim of this study is to determine the relationship between consumer confidence indices and stock returns in Turkey during 2007-2016 time period. The above-mentioned studies focus on the main relationship between consumer confidence indices and stock returns. In this study, subindexes of consumer confidence indices are taken into consideration as well.

Some basic hypotheses of the research are shown below:

1.  $H_0$ : There is no relationship between the BIST-100 index return and the consumer confidence indices depending on time.  
 $H_1$ : There is a time-dependent relationship between the BIST-100 index return and consumer confidence indices.
2.  $H_0$ : There is no relationship between the BIST-100 index return and the foreign consumer confidence indices depending on time.

H<sub>1</sub>: There is a time-dependent relationship between the BIST-100 index return and the foreign consumer confidence indices.

3. H<sub>0</sub>: There is no causality relationship between BIST-100 index return and consumer confidence indices.

H<sub>1</sub>: There is a causal relationship between BIST-100 index return and consumer confidence indices.

The model uses CNBC-e Consumer Confidence Index, TSI Consumer Confidence Index, TCMB Real Sector Confidence Index and Chicago Option Exchange Volatility Index (VIX) series, in order to reflect investor sentiment in the country.

The following formula is used in the calculation of the indices:

$$E_t = \frac{F_{it} * N_{it} * H_{it} * K_{it}}{B_t}$$

Monthly proportional changes of selected data were used in the study. Monthly proportional change is calculated as follows:

$$\text{Monthly Exchange Ratio} = \frac{R_t - R_{t-1}}{R_{t-1}}$$

The validity of the assumptions of the regression method was examined in the analyzes. First, we check the stability of the data, the degree of correlation between the independent variables, the relationship between the error terms, and whether the variance of the error terms are constant over time. Then we use VAR analysis, Granger causality test, Impulse-Response function and Variance decomposition methods.

In the study, the Augmented Dickey-Fuller (ADF) unit root test developed by Dickey and Fuller (1981), was applied to the series and all series were found to be stationary. All series are stable and suitable for regression analysis.

**Table 1.** Regression Analysis Between BIST 100 and Indices

Dependent Variable: BISTYIELD				
Method: Least Squares				
Sample: 2007M01 2016M12				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CNBC	0.01805	0.1806	0.1259	0.9291
RSCI	0.66849	0.2681	2.6694	0.0141
TSI	0.32179	0.4976	0.6692	0.5321
C	0.01566	0.0102	1.6414	0.1249
R-squared	0.20316	Mean dependent var		0.01719
Adjusted R-squared	0.16787	S.D. dependent var		0.09087
S.E. of regression	0.08481	Akaike info criterion		-2.12219
Sum squared resid	0.45577	Schwarz criterion		-1.99571
Log likelihood	80.3729	Hannan-Quinn criter.		-2.07183
F-statistic	5.66545	Durbin-Watson stat.		2.50997
Prob(F-statistic)	0.00367			

When the coefficients of the regression analysis are examined, it is seen that the Reel Sector Confidence Index is statistically significant at the 2% significance level, and the CNBC-e Consumer Confidence Index and the TSI Consumer Confidence Index are not significant. According to the results of regression analysis; There is a statistically significant relationship between the monthly

changes in the TCMB Real Sector Confidence Index and the monthly changes in the BIST 100 index return rate. The adjusted coefficient of the regression model (Adjusted R-squared) is 0.1679.

In the field of finance, there may be cases where single equation models are inadequate for some events to be announced. Because there is a multifaceted and complex relationship between variables. In such cases, the model commonly used to explain these events is the VAR (Vector Autoregressive Model) Model.

The steps of VAR Model are stated below:

- Selection of variables,
- Provision of stability condition
- Identification of cointegration
- Determination of lag lengths
- Granger causality test
- Impulse-Response Analysis
- Variance Decomposition

The VAR model's impulse-response and variance decomposition results are useful in examining the dynamic relationships between variables. The impulse-response function measures the effects of the next period on each variable by a shock occurring during the period  $t = 0$  through the residual of the model variables. The variance decomposition shows the ratio of the variance of the predictive error that can be loaded into each of the variables for a given period of time for any variable. VAR analysis was applied to all variables in terms of long-term relationship and causality between the Consumer Confidence Indexes and the Chicago Option Exchange Volatility Index (VIX) and BIST 100 Index yield.

When the Augmented Dickey-Fuller (ADF) coefficients are examined, it is seen that the TCMB Real Sector Confidence Index variable is significant at 1% level. Before other analyzes, the ideal lag length must be determined before VAR analysis. In the Akaike Information Criteria (AIC) direction, the smallest is set to 3 (three).

Regression analysis shows the relationship between independent variables and dependent variables. But it does not show the causality of the relationship. Results of the Granger causality test between variables are presented in Table 2. According to the results of analysis, BIST 100 index turnover is the reason of Granger of TCMB Reel Sector Confidence Index.

**Table 2.** Granger Causality Relation

Pairwise Granger Causality Tests		
Sample: 2007M01 2016M12		
Lags: 2		
Null Hypothesis:	F-Statistic	Prob.
RSCI does not Granger Cause BIST	2.2381	0.1328
BIST does not Granger Cause RSCI	5.3263	0.0235
VIX does not Granger Cause BIST	2.0809	0.1513
BIST does not Granger Cause VIX	1.0825	0.3664
VIX does not Granger Cause RSCI	5.4081	0.0230
RSCI does not Granger Cause VIX	0.5089	0.6294

After determining the causality relation between the variables, the dynamic relations between the variables are examined by the impulse-response functions. According to the result of the Impulse-

Response Analysis, when a standard deviation shock occurs in the BIST 100 series, the initial response of the variable itself is 89.63 units. When 1 standard deviation shock occurs in the variables in the second period, the BIST 100 series reacts to the TCMB Real Sector Confidence Index variable 1.32 (+) and the BIST 100 series to VIX variable 2.13 (-).

The variance decomposition shows that the variance of estimation error of each variable occurs depending on the shocks of the other variables in the model. Results of the ten-year variance decomposition of the variables are presented.

The TCMB Real Sector Confidence Index reveals 6.87% and VIX 4.13%, while a significant part (85%) of the error variance of the changes in the BIST 100 index returns according to the results in the table is explained by itself.

**Table 3.** BIST 100, TCMB Real Sector Confidence Index (RSCI) ve Volatility Index (VIX) Variance Decomposition Analysis

Variance Decomposition of BIST: Period	S.E.	BIST	RSCI	VIX
1	0.08963	100.000	0.0000	0.0000
2	0.09567	91.2620	1.8951	4.2726
3	0.09662	86.5708	6.5170	4.1074
4	0.09824	85.7869	6.4564	4.0695
5	0.09911	85.2109	6.8110	4.1078
6	0.09921	85.0965	6.8031	4.1267
7	0.09925	85.0286	6.8638	4.1272
8	0.09926	85.0217	6.8643	4.1293
9	0.09926	85.0204	6.8647	4.1293
10	0.09926	85.0198	6.8653	4.1293

The results show that there is both short and long-term relationship between BIST 100 index and TCMB Real Sector Confidence Index and expectations variables.

## RESULTS

As expected, there is a relationship between consumer confidence and changes in BIST 100 index return rate. If consumer confidence increases, a rise in BIST index is expected. In the study, a causal relationship from BIST 100 index to consumer confidence was found. In other words, the increase in stock returns is positively reflected in the market.

According to the results of the Impulse-response analysis, the BIST 100 Index responds to a shock in the TCMB Real Sector Index in the direction of the first decrease in a direction of increase in shock resulting from the Expectation of Exchange and VIX.

An important finding in the study is that the Chicago Option Exchange Volatility Index (VIX) has an impact on changes in the BIST 100 index return rate. VIX is a closely watched display at financial markets abroad. In this respect, traders which are trading on financial markets need to be closely monitored.

The results of the study are presented below summarily:

- There is cointegration between variables and BIST 100 index yield. There is a long-run relationship between BIST 100 index yield and variables in model.

- There is one way Granger causality from the changes in BIST 100 index yield to TCMB Reel Sector Confidence Index.
- There is one way Granger causality from VIX (volatility index) to TCMB Reel Sector Confidence Index.
- BIST 100 index turnover is the reason for the Granger of the TCMB Real Sector Confidence Index. Stock prices affect consumer confidence.
- BIST 100 found that there are both short and long-term relationships between the changes in the index return and the expectations variables and the TCMB Reel Sector Confidence Index, which provides information about the general course of the economy.

## **CONCLUSION**

Financial markets and financial decisions have been the subject of many researches in the past and today. The risk and the predictability of stock price and returns are the most searched topics in finance literature. Many economics and finance theories have been developed, discussed and models have been built in the literature. An important part of these theories and models do not take into account the psychological factors that affect investors and financial decisions. Kahneman and Tversky's (1979) studies have shown that investor psychology also has an impact on stock prices. The first of these theories and models is the traditional financial theories which show that markets are efficient and investors are rational. The second is behavioral finance theories that indicate that markets are ineffective, investors may be irrational, and investors are influenced by psychological and emotional factors.

Numerous studies have been conducted to determine the impact of investor sentiment, especially on the US stock market stock returns. The most important problem in these studies is that investor sentiment can not be directly observed. In these studies, various variables assumed to represent investor sentiment were used. These variables include investment trusts, stock market trading volume, cash flows of mutual funds, IPO, Volatility Index (VIX) and so on.

Investor sensitivities and psychology have provided insights into phenomena that can not be explained by traditional theories and hypotheses in financial markets. With investor sentiment and psychology, it has become possible to understand the crises in the financial markets, to understand the anomalies and price bubbles, to make the financial and economical analyzes realistic, accurate and meaningful.

This study investigates the effect of consumer confidence indices, which represent investor sentiment, on stock returns. Regression models and VAR analysis were used to examine the impact of investor sentiment on the proportional change in BIST 100 index returns. In the study, data of January 2007-December 2016 period are used and in regression models, BIST 100 is used as dependent variable and the investor sensitivity representative variables are used as independent variables. The results of the analysis show that the investor's sensitivity has the power to influence stock returns and there is a long-term causality relationship. The results are consistent with the study of Fisher and Statman, Qiu and Welch, Korkmaz-Çevik and Arısoy in the literature. In addition, this study demonstrates the impact of investor sentiment and investor psychology on financial markets as well as macroeconomic variables. In addition, stock prices and returns affect consumer confidence.

There are some missing aspects of this work. It is not possible to determine the investor's sensitivity to the independent variables in the analyzes, since there are no direct measures of investor sentiment and psychology. In addition, using sectoral indices, it will be useful to reveal the investor's sensitivity on a sectoral basis.

## REFERENCES

- Baker, Malcolm- Jeremy C. Stein, (2002), "Market Liquidity as a Sentiment Indicator," pp. 1-39, <http://www.econ.yale.edu/~shiller/behfin/200204-11/baker-stein.pdf>.
- Baker, Malcolm- Jeffrey Wurgler, (2004), "Investor Sentiment and The Cross-Section Of Stock Returns", NBER Working Paper, No: W10449.
- Baker, Malcol-, Jeffrey Wurgler, (4 August 2006), "Investor Sentiment and The Cross-Section Of Stock Returns", *Journal of Finance*, Volume 61, pp. 1645-1680.
- Barber, Brad M.- Terrance Odean: "Systematic Noise", November 2007, pp.1-28, Ning, Zhu:, <http://faculty.gsm.ucdavis.edu/~nzhu/papers/systematicnoise.pdf>.
- Barberis, Nicholas- Andrei Shleifer, (1998), "A Model of Investor Sentiment" *Journal of Robert Vishny: Financial Economics*, Issue 49, pp. 307-343.
- Black, Fischer, (Jul. 1986), "Noise" *Journal of Finace*, Volume 41, Issue 3, pp. 529-543.
- De Long, J. Bradford- A. Shleifer, (1990), "Noise Trader Risk In Financial Summers, Lawrence H., R.J. Waldmann: Markets" *Journal of Political Economy*, Volume 98, Issue 4, pp. 703-738.
- Elton, Edwin J., J. Martin Gruber, (1998), "Do Investors Care About sentiment?" Jeffrey A. Busse : *The Journal of Business*, Volume 71, Issue 4, pp. 477-500.
- Fama, Eugene F, K.R. French, (1992), "The Cross-section Of Expected Stock Returns" *Journal of Finance*, Issue 47, pp. 427-465.
- Hwang, Byoung-Hyoun, 2011, "Country-specific Sentiment and Security Prices", *Journal of Financial Economics*, Issue 100, pp. 382-401.
- Kahneman, Daniel, Amos Tversky, (1979), "Prospect Theory: An Analysis of Decision Under Risk" *Econometrica*, Volume 47, Issue 2, pp. 263-292.
- Lee, Charles M. C., A. Shleifer, (March 1991), "Investor Sentiment and Closed- End Fund Richard H Thaler: Puzzle", *The journal Of Finance*, Volume 46, Issue 1, pp. 75-109.
- Sohn, Sung Bin, (2013), "What Does Sentiment Reflect: Animal Spirit or Risks", pp. 1-30, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2177181](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2177181).
- Verma, R., H.Baklacı, G. Soydemir (2008), "The Impact of Rational and Irrational Sentiments of Individual and Institutional Investors on DJIA and S&P 500 Index Returns" *Applied Financial Economics*, Volume 18, pp. 1303-1317.

# ECONOMIC SUSTAINABILITY OF ORGANIC FOOD PRODUCTION: RESEARCH ON ORGANIC FOOD CONSUMER BEHAVIOR IN THE REPUBLIC OF MACEDONIA

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**Abstract:** Thanks to its original concept, organic agriculture brings radical change and innovation based on new values of economically viable, environmentally sound and socially fair agriculture. This certainly contributes to its continuing development all over the world, which proves that mankind is awarded of the need for transition towards sustainable agro-food model. In this context, one of the main objectives of the Macedonian Agricultural Policy is to support organic agriculture by its three principles: economic, environmental and social sustainability.

Economic sustainability focuses on increased competition, increased market orientation and more efficient income support (focused on the consumer). In order to achieve this sustainability, it is necessary to have knowledge about the consumer's needs of organic food, that are affected by different factors. Having this on mind, the paper focus on relevance of gender and age for buying organic food in the country. Specifically, the paper analyzes the perceptions and preferences of consumers of organic food in order to get a clear picture of the activities to be undertaken by the stakeholders in organic food production.

Purpose of the paper is to examine whether there are significant differences between respondents of different gender and age in terms of individual factors and their impact to purchasing decision for organic food.

The survey is conducted in the city of Skopje, on a sample organic food consumers, segmented by the age and gender.

The expectation of the paper is to identify the gender and age differences in the frequency of organic food purchase, as well as the information and availability as decisive factors influencing the consumer purchasing decision on the Macedonian market. Intention of this study is to help market actors and policy makers to follow up the update consumers buying behavior and attitude and incorporate it in their developmental strategies, in order to improve economic sustainability of organic production in the Republic of Macedonia.

**Keywords:** sustainability, organic production, market, consumer behavior, Republic of Macedonia.



## **INTRODUCTION**

Organic agriculture, thanks to its genuine attributes and development potentials, is rightfully regarded as a land use system that can help in addressing several challenges mankind faces, such as poverty, loss of biodiversity and water pollution. In the same time, in today changing socio-economic and ecological environment, the demand for organic food products and the growth of organic food market leads to wide interest and public support.

Organic production as an integral part of the sustainable development is based upon its three principles: economic, ecological and social sustainability. Economic sustainability is tightly connected with the net income of organic agriculture that appears to be slightly higher than for conventional producers. Namely, in general, expenses are lower and the income is greater, due to the price premium for organic products. However, price premiums vary between crops and over time and with rapidly changing market conditions, the risk of price instability is always present. For example, a high demand and premium price for one crop will attract many organic producers to cultivate that crop. Accordingly, the market will then be flooded and the price will fall. In this sense, on long run, economic sustainability of organic agriculture needs to be concern about increased competition and market orientation with focus on consumer demands.

In order to secure sustainable development of organic agriculture, it is necessary to have knowledge of consumer's needs of organic food. Macedonian people have become acquainted with organic food in the last twenty years and thus the national organic food market should be considered as an emerging one. Getting profound understanding of Macedonian organic food consumer behavior is the right way to create an appropriate marketing approach that will increase consumption of organic food per capita and provide faster development of the national organic food market.

Given that the consumer needs are affected by different factors, this paper focus on the relevance of gender and age when buying organic food in the country. Specifically, the paper analyzes the perceptions and preferences of the organic food buyers, as well as motivations and barriers towards organic food, in order to get a clear picture of the activities to be undertaken by producers and traders of organic food, as well as policy makers.

The method of survey research is used on a sample of organic food consumers segmented by age and gender. The survey is conducted as field research in the national capital city of Skopje. Main purpose of the field research is to examine, if among the organic food consumers, there are significant differences between respondents of different gender and age in terms of individual factors that influence the decision to purchase organic food.

The paper provides some directions for the researchers and practitioners to get a complete overview of important factors (gender and age) that determine organic food consumption on the Macedonian market. Understanding these factors is of vital importance for successful marketing strategy, as well as for further sustainable development of organic food market in the Republic of Macedonia.

## **LITERATURE REVIEW**

In order to achieve the objectives outlined above, the literature review is based on sources about the theoretical aspects of organic food market and organic food consumers and some practical experiences and cases from the developed organic food markets.

Hamzaoui-Essousi and Zahav in the monography *Organic Food and Agriculture-New Trends and Developments in the Social Sciences*, notes that organic market is moving from a niche market to a

mainstream market within the agricultural industry (Reed M., 2012, p. 65). It's due to the emergence of sustainability in the food retailing industry translated in terms of support for local food producers, fair trade, healthy eating, and commitment to organic products, as well as help for the local community. For many consumers, the support of local farmers is considered a socially responsible behavior and partially reflects the belief that organic food is locally grown. An increasing number of organic buyers emphasize that local foods and sustainability are in direct relation with their motivation to buy organic food.

The authors point out that different decision with regard to organic food consumption will depend on internal and external factors affecting the decision process. Indeed, consumers might differ significantly with respect to use of and trust in information cues on organic food, knowledge and behavior towards organic food, as well as socio-demographic profile.

Numerous studies have focused on researches about consumer behavior in organic food. For instance, Grunet and Juhl reported that young consumers are more likely to buy organic food because the older consumer are more conservative in trying out new products.( Shi Wee and all, 2014, p. 384). However, Geen and Firth concluded that committed organic consumers tend to be older than the average population in UK. ( Shi Wee and all, 2014, p. 384). Thompson points out that demographic variables such as age, marital status, number and age of children and education are important variables in explaining consumer demand for organic food in UK. Researcher's results indicate that the probability of buying organic foods depends on price levels, store choice and consumer's demographic characteristics and education. (Irandoost M., 2016, p.79).

## **METHODOLOGY**

Research presented in this paper is based on findings obtained from a quantitative study. The method used is a questionnaire, distributed through a survey in the national capital city of Skopje, on a sample of organic food consumers, segmented by age and gender.

The basic measuring instrument used in this study is a structured questionnaire which consists of questions of closed-type, presented in form of multiple answer choice questions. Main idea behind the consumers' research was questioning about knowledge for organic food and information channels, buying habits, familiarity with the national organic logo, buying decision and frequency, as well as motivations and barriers towards organic products.

## **FINDINGS**

Organic food price is the major barrier for most of the people in the Republic of Macedonia to keep them away from buying. Other limiting factors for development of Macedonian organic food market are lack of immediate availability, limited assortments, lack of information, especially in media, lack of transparency and trust towards labels and certifications.

The results of the survey show that in term of gender, in the Republic of Macedonia women tend to be more familiar with meaning of organic food and more aware about recognition of the national organic logo. In term of age, research didn't find obvious differences between age groups, but in the same time shows that older consumers are more likely to purchase organic food. This is supported which the state that older individuals may be willing to buy organic food due to health-related reasons and availability of spare time for home cooking.

## CONCLUSION

Organic food market in the Republic of Macedonia is still in its infant stage. Therefore, there's a need to gain knowledge about organic food consumer's behavior. This paper examined organic consumption in country by the help of questionnaire distributed to organic food buyers and gives overview about their attitude and behavior towards organic food. Even among more aware and interested individuals, only a small percentage of them purchase organic food regularly, which means that there's gap between preferences and their actual buying behavior. Socio-demographic analysis indicates need for more research and development activities on organic agriculture combined with subsidies to enlarge the share of organic arable land and number of producers and products. Therefore, increase in production can fulfil some of consumers' need and reduce some barriers like, high prices, assortment, availability and accessibility on the market.

Additionally, certification and labelling schemes have to be not only information for the customers but also made a whole sector legible and accessible to market actors and regulations. Moreover, subsidy programs and information campaigns for organic agriculture needs to be directed towards increased institutionalization of production and distribution networks. Also, one of the finding from the research suggest that in order to have significant growth of the market for organic food products, mainstream retailers have to accept the challenge to offer organic products. This will certainly help to further increase the presence of organic food in the national food system as a whole.

Main conclusion is that for sustainable development of organic agriculture in the Republic of Macedonia, there is a need to carefully examine and consider barriers before proposing and implementing a policy.

## REFERENCES

- Aaker D.- Kumar V.- Day G. (2007), Marketing research 9<sup>th</sup> edition, John Wiley & sons, Inc.
- Blackwell R.- Miniard P.- Engel J. (2006), Consumer Behavior 10<sup>th</sup> edition, Thomson South-Western.
- Irandoost M. (2016), Modelling consumer's demand for organic food products: the Swedish experience, International Journal of Food and Agricultural Economics, Volume 4, Issue 3.
- National Strategy and Action Plan for Organic Farming 2007-2013, MAFWE, 2007
- National Strategy and Action Plan for Organic Farming 2013-2020, MAFWE, 2007
- Petkovska-Mirchevska T. (2001), "Menadzmentot i marketing-istrazuvanjeto na novi proizvodi", Skopje.
- Reed M. (2012), Organic Food and Agriculture – New Trends and Developments in the Social Sciences, In tech.
- Rhman K.M.- Noor N.M. (2016), Evaluating gaps in consumer behavior research on organic foods: a critical review under Bangladesh context, Journal of Marketing and consumer behavior in Emerging Markets, Volume 1, Issue 3.
- Sekovska B. (2009), „Razvoj na pazarot na organski proizvodi vo RM so poseben akcent na domashnata pobaruvachka“, Ekonomski razvoj god. 11 br.3, Skopje.
- Sekulovska N. (2002), Petkovska-Mirchevska T., "Vodic za marketing-istrazuvanje", Skopje.

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Shi Wee C- Ariff M.- Zakuan N.- Tajudin M.- Ismail K., Ishak., Consumers Perception, Purshase Intetnion and Actual Purshase Behavior of Orgenic Food Products, Integrative Business & Economics, [http://sibresearch.org/uploads/2/7/9/9/2799227/riber\\_b14-173\\_378-397.pdf](http://sibresearch.org/uploads/2/7/9/9/2799227/riber_b14-173_378-397.pdf), (20.2.2017)

Vehapi S., Dolicanin E. (2016), Consumers behavior on organic food: evidence from the Republic of Serbia, Economics of Agriculture 3/2016

# THE CORPORATE SUSTAINABILITY SOLUTION: TRIPLE BOTTOM LINE

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**Abstract:** Today, success of the enterprises is measured by not only their profit but also their benefits to society and environment. Triple Bottom Line (TBL) which is based on measurement of enterprise performance through economic, social and environmental parameters emphasizes that they must be accountable to not only stakeholders but also the other shareholders. TBL is focused on three dimensions: people, planet and profit. It supports the idea that an enterprise which operates just for profit purposes cannot be successful by ignoring the society and environment. This study aims at analyzing TBL in a theoretical infrastructure within corporate sustainability solutions of the enterprises.

**Keywords:** Triple Bottom Line, Corporate Sustainability, Sustainability Accounting

## INTRODUCTION

Today, as the global competition increases, long-term risks and opportunities cannot be measured by enterprises as financial reports which are prepared by the enterprises also reflect previous financial performances. Therefore; researches for alternative sources bring out instruments measuring not only financial performance but also environmental, social and economic performance in order to enlighten the futures of enterprises. Being aware of the fact that these dimensions affect the future and value of enterprises, investors now request information in these dimensions as well.

It is emphasized that sustainability is a sum of economic activities in proportion with ecological life support system as well as being not only an efficient but also a fair distribution of sources among existing and next generations. (Gray and Milne, 2017). Even though the concept of sustainability emerges in relation with environmental production, it is currently used to include economic, environmental and social dimensions.

## CORPORATE SUSTAINABILITY

The concept of sustainability is defined in Brundtland Report prepared by United Nations in 1987 as follows: "development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (Gabusiewicz, 2013:39).

Corporate sustainability can be defined as adapting economic, environmental and social factors into enterprise operations as well as corporate management principles and managing potential risks in order to create value in enterprises in long term (Senal and Ateş, 2012:85). Corporate sustainability can also be defined as operational strategies which enable fulfillment of current needs of enterprise and stakeholders and protection of natural and human resources which will be required by the enterprise in the future (Tüm, 2014:61).

Corporate sustainability shaped consumer expectations and other market dynamics requiring investments of enterprises in this area. So, sustainability became an integral part of enterprise strategies and operations with the help of all these developments (Tuna and Besler, 2015:175).

## SUSTAINABILITY ACCOUNTING

Information which is produced by accounting plays an important role in obtaining and developing information regarding social and environmental operations of the enterprises. In corporate sustainability, the most important information which constitutes a basis for sustainability strategy of the enterprise can be derived from sustainability accounting (Hernádi, 2012:27).

Sustainability accounting expands the borders of traditional accounting by considering environmental, social and economic costs which affect all the stakeholders. Sustainability accounting is the production, analysis and usage of monetized environmental and social information with the aim of improving environmental, social and economic performance of the company (Gabrusewicz, 2013:40-41).

Sustainability accounting aims at creating a sustainable structure in economic, social and environmental term. Sustainability accounting strengthens communication with the stakeholders by using reliable data and also helps the enterprises to develop policies regarding sustainability issues as well as applying and supervising these policies. (Tüm, 2014:70).

**Table 1.** Comparison of The Characteristics of Traditional and Sustainability Accounting Systems

Aspects for Comparison	Traditional Accounting System	Sustainability Accounting System
<b>Dimension</b>	-Economic (Financial) Situation	-Integrating Economy (Company), Society and Environment
<b>Target</b>	-Presenting General Economic Situation -Cost Management	-Presenting Sustainability Performance (Including Economic, Social and Environmental Performances)
<b>Field of Application</b>	-Financial Accounting -Management Accounting	-Sustainability Financial Accounting -Sustainability Management Accounting
<b>Method</b>	-Evaluation Processes -Cost Accounting	-Evaluating Sustainability Performance by Applying the Methods of Other Disciplines (Biology, Sociology) -Sustainability Balanced Scorecard
<b>Unit of Measurement</b>	-Money (Inventories Excluded)	-Money and Natural Units
<b>Forms of Accounts</b>	-Financial and Accounting Reports -Internal Reports	-Sustainability Reports and Accounts -Global Reporting Initiative
<b>Regulation Strictness</b>	-Compulsory Due to Legal Regulations (Financial Accounting) -Voluntary (Management Accounting)	-Not Regulated, Voluntary

Source: Fülöp and Hernádi, 2013

## TRIPLE BOTTOM LINE

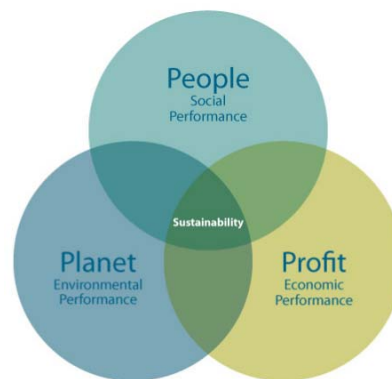
Triple Bottom Line (TBL) deals with the concept of sustainability in three dimensions as economic, social and environmental dimensions. In this regard, TBL is defined as the joint evaluation of economic, social and environmental sustainability which are the basis of sustainability as well as efficient use of the sources (Elkington, 1997:71). Dimensions which compose TBL were named by

Elkington as 3P when he worked for SustainAbility in 1995: People, Planet and Profit. (Elkington, 2004:2).

TBL is accepted as a social and ecological agreement between the enterprises and society. Since TBL is an accounting framework which combines enterprise performances in economic, social and environmental dimensions, it differs from traditional reporting system. Since there is less and less trust in financial reports today, major enterprises come face to face with their stakeholders' request of getting reliable information about their operations and performances. TBL approach provides more transparency and a larger framework to its stakeholders for their decision making process. Since everybody can participate in TBL processes such as workers or external stakeholders, they have a chance to increase their knowledge about the enterprise and develop their relations with the other stakeholders in the company (Roy and Mitra, 2015:33-34). So, enterprises become more transparent and more reliable. It's of high importance for enterprises to gain trust of their stakeholders.

Today, many enterprises are aware of the fact that economic achievement depends on social and environmental performance (Sarıkaya and Kara, 2007:227). Enterprises publish TBL reports in order to show their loyalty to sustainability applications (Öztürk and Özçelik, 2014:131).

Three dimensions of TBL which are shaped to report economic, social and environmental operations of the enterprise are indicated in Figure 1.



**Figure 1.** Triple Bottom Line 3P Formulation

### **Economic Bottom Line (Profit)**

Economic dimension of TBL framework represents the impact of organization's operation application on economic system (Alhaddi, 2015:8). Economic dimension is focused on economic value and associates growth of the enterprise with the growth of its economy (Arowoshegbe and Emmanuel, 2016:104).

### **Social Bottom Line (People)**

Social dimension of TBL framework represents the execution requirement of applications which are beneficial and fair to labor, human capital and society. Such applications as fair wage system and health insurance add value to society (Alhaddi, 2015:8).

### **Environmental Bottom Line (Planet)**

Environmental dimension of TBL framework is to direct next generations to applications which will not endanger environmental sources. Efficient use of energy sources is about decreasing greenhouse gas emissions and protecting ecological balance etc. (Arowoshegbe and Emmanuel, 2016:105).

## **REVIEW OF LITERATURE**

Fauzi et al (2010) suggest in their study that TBL should be measured by financial, social and environmental elements as a sustainable corporate performance. They also put forward that content of measurement elements should constantly be measured in order to adapt them to changes occurring in the market and society over time.

In their study, Glavas and Mish (2014) research market mentality of the companies applying TBL as well as execution of their missions and achievement of their goals. They conclude that companies applying TBL are transparent in their process, focus on cooperation advantage instead of being focused on competitive advantage and deliberately create new markets which other companies can also benefit from.

In their study, Roy and Mitra (2015) analyze annual corporate reports of social responsibility and sustainability of 15 energy companies which are included in BSE 500 index in Bombay Stock Exchange within the scope of TBL. They conclude that corporate TBL values of exemplary companies are gathered based on performance in terms of 3 main indicators as environmental, social and economic aspects.

## **CONCLUSION**

Enterprises can achieve real success if they consider sustainability applications as a combination of sources, expertise, opportunities and innovations from which all the stakeholders derive benefit, instead of considering them as a burden. Sustainability has environmental and social dimensions as well as economic dimension and all of these dimensions should jointly be taken into consideration and integrated into decision making mechanisms for an accurate sustainability strategy.

Sustainability accounting, a sub branch of accounting, is used in enterprises for supporting the application of sustainability processes and reporting to executive management as well as producing information regarding corporate sustainability.

Corporate sustainability adopts TBL approach. It is required not only to manage the impacts of economic, social and environmental impacts of corporate operations, but also to share them with the stakeholders in order to maintain corporate sustainability performance.

## **REFERENCES**

- Alhaddi, Hanan (2015), "Triple Bottom Line and Sustainability: A Literature Review", *Business and Management Studies*, Volume 2, September, pp. 6-10.
- Arowoshegbe, Amos O. – Emmanuel, Uniamikogbo (2016), "Sustainability And Triple Bottom Line: An Overview Of Two Interrelated Concepts", *Igbinedion University Journal of Accounting*, Volume 2, August, pp. 88-126.
- Elkington, John (1997), "Cannibals with Forks: The Triple Bottom Line of 21st Century Business", Oxford, Capstone Publishing.
- Elkington, John (2004), Enter the Triple Bottom Line, <http://www.johnelkington.com/archive/TBL-elkington-chapter.pdf> (10.02.2017)



- Fauzi, Hasan – Svensson, Goran – Rahman, Azhar Abdul (2010), ““Triple Bottom Line” as “Sustainable Corporate Performance”: A Proposition for the Future”, *Sustainability*, Volume 2, May, pp. 1345-1360.
- Fülöp, Gyula - Hernádi, Bettina Hódi (2013), “Quality Improvement in Accounting”, *Club of Economics in Miskolc*, Volume 9, Issue 2, pp. 41-51.
- Gabrusewicz, Tomasz (2013), “Sustainability Accounting – Definition And Trends”, *Research Papers Of Wrocław University Of Economics*, pp. 37-46.
- Glavas, Ante – Mish, Jenny (2014), “Resources and Capabilities of Triple Bottom Line Firms: Going Over Old or Breaking New Ground?”, *J Bus Ethics*, Volume 127, pp. 623-642.
- Gray, Rob; Milne, Markus, J. (2017), “Sustainability Reporting: Who’s Kidding Whom?”, <http://www.st-andrews.ac.uk/~csearweb/researchresources/dps-sustain-whoskidding.html> (22.02.2017).
- Hernádi, Bettina Hódi (2012), “Green Accounting for Corporate Sustainability”, *Theory Methodology*, Volume 8, Issue 2, pp. 23-30.
- Öztürk, Burcu Avcı – Özçelik, Funda (2014), “Sustainable Supplier Selection with A Fuzzy Multi-Criteria Decision Making Method Based on Triple Bottom Line”, *Business and Economics Research Journal*, Volume 3, pp. 129-147.
- Roy, Sudipta Sahar – Mitra, Sarbani (2015), “Corporate Triple Bottom Line Reporting: An Empirical Study on the Indian Listed Power Companies”, *SDMIMD Journal of Management*, Issue 6, September, pp.33-45.
- Sarıkaya, Muammer - Kara, F. Zişan (2007), “Sürdürülebilir Kalkınmada İşletmenin Rolü: Kurumsal Vatandaşlık”, *Yönetim ve Ekonomi*, Volume 2, pp. 221-233.
- Senal, Serpil - Ateş, Burcu Aslantaş (2012), “Kurumsal Sürdürülebilirlik için Muhasebe ve Raporlama”, *Muhasebe ve Denetim Bakış*, Volume 4, April, pp. 83-97.
- Tuna, Özlem – Besler, Senem (2015), “Kurumsal Sürdürülebilirlik Anlayışı ve Uygulamaları: Örnek Olay Çalışması”, *İ.Ü.Siyasal Bilgiler Fakültesi Dergisi*, Volume 52, March, pp. 173-199.
- Tüm, Kayahan (2014), “Kurumsal Sürdürülebilirlik Ve Muhasebeye Yansımaları: Sürdürülebilirlik Muhasebesi”, *Akademik Yaklaşımlar Dergisi*, Volume 1, pp. 58-81.

# INFLUENCE OF BUDGET DEFICIT ON ECONOMIC GROWTH - THE CASE OF THE REPUBLIC OF MACEDONIA

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**Abstract:** Balanced budget is very important for achieving long-term and stable economic growth. Moreover, the budget itself is a very powerful and useful tool and instrument for defining and realizing development policies. The usefulness and the efficiency of this instrument largely depend on whether it is balanced or in deficit. Structural budget deficit cannot be analyzed if abstracted and separated because it influences large number of macroeconomic trends. It is also under influence of numerous macroeconomic and fiscal factors, as for example the structure of public expenditure, structure of public revenues, government efficiency, level of tax evasion, level of wealth inequality etc.

The stands of economic theory differ when it comes to the influence the budget deficit has on the economic growth. According to some theoreticians this link is positive; according to others it is inverse one whereas according to third party of them there is a neutral connection between the budget deficit and the economic growth. The classic macroeconomic paradigm perceived budget deficit as an enemy of the economy due to the line of negative effects it causes. However, in the course of time governments accepted budget deficit as an instrument that can boost public investments which further lead to stimulating long-term economic growth. Namely, when it comes to the stabilization policies of a country, the idea about budget deficit can be stressed out, and the budget deficit representing a reflection of either the increase in public expenditure or the decrease of the distortive taxes, all for the purpose of having the economy maintain its trend of a stable and long-term growth.

It is this paper's aim to analyze the influence of structural budget deficit on the economic growth in the case of the Republic of Macedonia. With help of econometric modeling we will examine whether there is a connection between the budget deficit and public debt and what is the strength of that relationship.

In the context of the appropriate econometric model, budget deficit is represented as an independent variable, and the gross domestic product as a dependent variable. Meanwhile, there shall be inspected what is the possible influence and how significant it is and whether it is possible to be delivered in short or long term perspective. While testing the model, two basic tests are used i.e. Breusch-Godfrey test for serial correlation and Breusch-Pagan-Godfrey test for heteroskedasticity. By making use of the presented model there should be clarified what is the connection between structural budget deficit and economic growth in the Republic of Macedonia as a potential EU member country. A significant prerequisite for doing so is having a detailed examination of whether public finance provide basis that further contributes for short-term influence on economic performances thus boosting economic growth.

Larger number of empirical research point out that the level of budget deficit of over 3% of the gross domestic product leads to deceleration of economic growth. In cases when deficit is less than 1.5% of the GDP, it is neutral in respect to economic growth. This statement is not valid for the case of the Republic of Macedonia, because in 2003 budget deficit totaled 4.1% of the GDP and at the same time the growth rate of GDP was 2.9%. According to our findings, budget deficit should not be bigger than 6% of GDP in order not to have negative effect on the economic growth. This is also supported with the constructed econometric model, which simultaneously shows that much greater is the influence of other factors on the economic growth compared to the budget deficit. The results of the model show that on a level of importance of 5%, the budget is positively correlated with the GDP growth rate on a long-run. Decrease in budget deficit for 1% shall lead to increase in GDP growth rate for 0.35%. The value of the determinant coefficient is relatively low (17.44%), which shows us the low influence budget deficit has on the economy growth rate. Therefore, a conclusion can be drawn that by making use of budget deficit a relevant influence can be made on the economic growth in the long run.

*Key words:* Economic growth, budget deficit, influence, Republic of Macedonia.

## INTRODUCTION

A budget deficit is a common occurrence in modern times as governments could not sustain the corresponding level of revenues needed to support the budgetary requirements. The budgetary requirements are dictated by the rising needs and expectations of the people, government and the country in general.

The causal connection between the budget deficit and the economic growth can be perceived through the fact that positive economic growth generates additional public revenues. Therefore, the government is the one that should choose between pro- or counter-cycle fiscal policies. Negative economic growth causes contraction in the economy, and as a result of that it is certain that the expansive fiscal policy accompanied by large budget deficit is not appropriate in periods of economic growth.

Government should make a rational use of the unused resources if it wants to overcome the issues related to budget deficit. Most often providing funds through indebteding is not a good solution because it leads to increase in the public debt. Consequently, governments often decide to increase the rates of direct and indirect taxes or to introduce a new form of tax that is expected to increase the rates of public revenues and to reduce the budget deficit. The structure of fiscal policy should be appropriately formulated so as to enable the taxpayers to bear certain tax burden, and the tax incentives to alleviate the issue of tax evasion. The outcome of this all would be having higher tax income and lower budget deficit.

Economic growth has reversible influence on budget deficit. In fact, the best way to decrease budget deficit is to promote economic growth. If economy is in progress, then it is real to expect increased tax revenues without having the necessity to increase tax rates. Therefore, boosting economic growth is the least painful way to decrease budget deficit. Having all that in mind, governments should be careful when planning public revenues and expenditures i.e. when planning the budget deficit level, all for the purpose of creating preconditions for reaching the aimed level of economic growth.

We will put the focus of our research on the impact that the structural budget deficit has on the real growth rate of gross domestic product, as the most appropriate representative of the country's economic growth. Based on secondary data sources, we will use multiple regression analysis in order to determine whether that impact is positive or negative and what is its intensity.

## **LITERATURE REVIEW**

Most analysis and research in the area of public finance measure the cumulative impact that the budget deficit has on the economy. Back in the time when the throne of economic science was reserved for the classical macroeconomic school, the budget deficit was regarded as the great enemy of the economy due to a number of distortionary effects it causes.

There are three different views about the impact of budget deficits on economic growth. According to the Keynesians, there is a positive relationship between these two variables; neo-classicists believe that this is an inverse relationship while representatives of Ricardo's school defend the view that there is neutral connection between the budget deficit and economic growth. This issue explored many economic theorists over time. So Kneller, Gemmell, and Bleaney (1999) in their analysis indicated that budget deficits may have different effects on economic growth, depending on how they are created. They concluded that if the budget deficit is the result of reducing the distortionary taxes, the effect on economic growth will be positive, but if the budget deficit is a result of reduced non-distortionary taxes, economic growth will not be achieved.

Adama and Bevan (2005), analyzing the budget deficit of 45 developed countries found a close link between deficit and economic growth. Reducing the budget deficit to 1.5% of GDP causes a positive impact on the growth rate of GDP. Reducing the budget deficit below this limit did not initiate positive effects on economic growth. Moreover it can be harmful if the reduction is due to the significant fiscal contraction.

## **METHODOLOGY**

The research used secondary data sources for the balanced budget and the rate of growth of gross domestic product of the Republic of Macedonia for the period from 2000 to 2015. The relationship between budget deficit and economic growth will be determined with help of regression analysis. The analysis will determine whether there is an influence of the balanced budget on the real growth rate of the Macedonia's GDP.

It is well known, that the economic implications of the budget deficit can be identified by running a simple econometric tests of linear regression. With these tests there can be confirmed or denied the existence of correlation between the dependent variable and one or more independent variables. Also if their connection is tested, estimates of its strength can be made. In our case, the dependent variable will be expressed through the growth rate of real GDP, while the balance of the budget will be the independent variable.

To test the strength of the model and the relationship between economic growth and public revenues, we will approach to the analysis of variance (ANOVA). In determining the ANOVA, we expect an appropriate statistical value to be received. Our tests will implement the confidence interval of 95% (i.e. an accuracy of 95%) and the significance level of 5%. If the results are lower than the p-value that is equal on 5%, then a conclusion can be drawn that the model is significant in explaining the relationship. Otherwise the model is not significant.

## **FINDINGS**

Many empirical studies reveal that the budget deficit amounting to over 3% of GDP hinders economic growth, while the deficit of less than 1.5% of GDP is neutral or it has no effect on growth. For the last few decades, in the Macedonia's case relevant is the fact that excessive budget deficits were often accompanied by significant declines in gross domestic product. Namely, in the Macedonian economy the budget deficit should be higher than 6% of GDP in order to have negative implications for the economic growth rate.

The results of our econometric model show that at the level of statistical significance of 5%, the balanced budget is positively correlated with the rate of growth of GDP in the long term. By monitoring the coefficients it can be concluded that reducing the budget deficit by 1% would cause an increase in the rate of GDP growth by 0.35%.

The coefficient of determination is relatively low (0.17), which tells us that the budget deficit has little impact on economic growth in Macedonia. Hence there arises the additional conclusion that the rate of GDP growth is significantly influenced by other determinants.

## **CONCLUSIONS**

There is evidence that direct taxes on the revenue side of the budget have negative effects on economic growth. The strong negative impact resulting from direct taxation was evidenced by a series of empirical research and studies. This effect arises from the labor income taxation which could lead to pressure on wages. This causality between economic growth and the budget deficit arises from the fact that the positive economic growth generates additional public resources. Furthermore, governments will choose whether to adopt pro-cyclical or counter-cyclical fiscal policy. Because the negative economic growth arises from a decreased economic activity, it can be concluded that expansionary fiscal policy accompanied by a large budget deficit is not appropriate in periods of expansion in the economy.

The analysis of our model leads to the conclusion that the budget deficit is inversely proportional to the rate of economic growth. In other words, reducing the budget deficit by 1% would cause an increase in the rate of GDP growth by 0.35%. The impact of the budget deficit on the rate of economic growth is relatively low suggesting that the economic growth is under influence of other significant determinants. However, in our opinion, the fiscal policy can have an impact on economic growth in the long run.

The main findings indicate that the expenditure side of the budget affects long-term growth of the economy. Namely, the size of government spending has a negative effect on economic growth as opposed to public investments that have a positive impact.

The government is faced with the need for the most efficient use of uncommitted (unused) resources to overcome the budget deficit. Increasing the public debt to cover government spending is not a good solution. On the other hand increasing the money supply could stimulate purchasing power of the population, but on the other hand encourages inflation in the country. This is not an appropriate way to cover public expenses. Having in mind the previous mentioned, the government may increase rates in direct and indirect taxes or to introduce a new form of tax as a solution to increase public revenues. In that case the previous two negative effects are becoming irrelevant.

Fiscal policy makers should create effective and efficient policy for improving tax collection. However it is recommended that the entire process of taxation should be under control in order to ensure fair and equitable taxation and reduce the burden on taxpayers.

## **REFERENCES**

- Acosta, S. - Morozumi A. (2013), "Can a government Enhance Long-Run Growth by Changing the Composition of Public Expenditure?", IMF Working Paper 13/162, Washington DC., International Monetary Fund, pp. 8-10.
- Adama, C. - Bevan D. (2005), "Fiscal deficits and growth in developing countries", Journal of Public Economics, Volume 89, pp. 570-598.
- Afonso, A. - Rault. C. (2007), "Should we Care for Structural Breaks When Assessing Fiscal Sustainability?", Technical University of Lisbon, pp. 22.
- Agenor, P. (2010), "A Theory of Infrastructure- led Development", Journal of Economic Dynamics and Control, pp. 930-945.
- Ahmad, H. - Millar M. (2000), "Crowding-out and Crowdingin Effects of the Components of Government Expenditure", Contemporary Economic Policy, pp. 123-135.
- Aisen, A. - Hauner D. (2008), "Budget Deficit and Interest Rates", IMF Working Papers, Issue 42, pp. 5-20.
- Arestis, P. - Sawyer M. (2006), "The Intertemporal Budget Constraint and the Sustainability of Budget Deficits", University of Leeds, pp.55.
- Bergh, A. - Henkkerson M. (2011), "Government Size and Growth: A Survey and Interpretation of the Evidence", Journal of Economic Surveys, pp. 870-880.
- Carneiro, F. - Joao F. (2005), "Government Revenues and Expenditures in Guinea- Bissau", Journal of Economic Development, Texas, World Bank, pp. 17.
- Cebula, R. (2003), "Budget Deficit and Real Interest Rates: Updated Empirical Evidence on Causality", Atlantic Economic Journal, Issue 31, pp. 250-260.
- Durevall, D. - Henrekson M. (2011), "The Futile Quest for a Grand Explanation of Long-run Government Expenditure", Journal of Public Economics, pp. 710-720.
- Eisner, R. (1989), "Budget deficits: Rhetoric and Reality", Journal of Economics Perspectives, Volume 3, pp.73- 78.
- Fisher, S. (1993), "The role of macroeconomic factors in growth", Journal of Monetary Economics, Volume 32, pp. 484.
- Gebhard, K. - Silika P. (2006), "Sustainability of Swiss Fiscal Policy", CESIFO Working Paper 1689, Switzerland, University of St. Gallen, pp. 30-50.

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- Gemmell, N. - Au J. (2012), "Government Size, Fiscal Policy and the Level and Growth of Output: A Review of Recent Evidence", Working Paper in Public Finance 10/12, Victoria Business School, Wellington, pp.20.
- Gupta, S. - Baldacci E. (2005), "Fiscal policy, expenditure composition and growth in low- income countries", Journal of International Money and Finance, Volume 24, pp.440-460.
- Homes, J.M. - Otero J. (2007), "Are EU Budget Deficits Sustainable?", New Zealand, Waikato University, pp.18-35.
- Huynh, D. (2007), "Budget Deficit and Economic Growth in Developing Countries: The case of Vietnam", Kansai Institute for Social and Economic Research, pp. 33.
- Keho, Y. (2010), "Budget Deficits and Economic Growth: Causality Evidence and Policy Implications for WAEMU Countries", European Journal of Economics, Finance and Administrative Sciences, Issue 18, pp. 100-105.
- Keynes, J.M. (1936), "The General Theory of Employment, Interest and Money", Macmillan Cambridge University Press, Royal Economic Society, pp.10-20.
- Kneller, R. – Gemmell, N. – Bleaney, M. (1999), "Fiscal policy and growth: evidence from OECD countries", Journal of Public Economics, pp. 170.
- Kneller, R. – Misch, F. (2011), "What Does Ex- post Evidence Tell Us about the Output Effects of Future Tax Reforms?", Centre of European Economic Research, Mannheim, pp.10.
- Kukk, K. (2008), "Fiscal policy effects on economic growth: Short- run vs long run", TTUWPE No. 167, Department of Economics Tallinn University of Technology, Estonia, pp.15-20.
- Lozano, I. (2008), "Budget Deficit, Money Growth and Inflation: Evidence from the Columbian case", Barradores de Economia, pp. 5-20.
- Musgrave, R. A. (1989), Public Finance in Theory and Practice, 5<sup>th</sup> international edition, pp.22.
- Niepelt, D. (2007), "Starving the beast? Intra- generational conflict and balanced budget rules", European Economic Review, Volume 51, pp. 145.
- Saleh, S.A. (2003), "The Budget Deficit and Economic Performance", University Wollongong Economics Working Paper Series, Issue 12, pp. 20-40.
- Sill, K. (2005), "Do Budget Deficits Cause Inflation?", Business Review, pp.20-30.
- Vit, K. (2004), "The Possibilities of Budget Deficit Financing", Ministry of Finance of the Czech Republic, pp. 1-15.
- Zulal, S. (2007), "Endogenous Growth, Taxes and Government Spending: Theory and Evidence", Review of Development Economics, pp. 120-130.

# THE EFFECTS OF ENVIRONMENTAL ACCOUNTING EDUCATION ON STUDENTS' ENVIRONMENTAL CONSCIOUSNESS\*

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**Abstract:** *With environmental problems beginning to threaten people's future, the focus on environmental awareness has begun to emerge among people. This situation has also led many disciplines (e.g., economics, law, medicine, and accounting) to start working to prevent environmental problems. The studies that accounting science has made to prevent environmental problems have created the concept of Environmental Accounting. This study was conducted in order to reveal the effects of Environmental Accounting education, which is clearly required in the literature, on creating environmental consciousness in students. In the study carried out in line with this aim, we gave Environmental Accounting education to third-year students who are studying in the business administration, economics, public administration and public finance departments of Tokat Gaziosmanpaşa University Faculty of Economics and Administrative Sciences in the 2015-2016 academic year. Questionnaires were administered to third-year students who received Environmental Accounting education and fourth-year students who did not. The information obtained by the survey application was analyzed using the SPSS Statistics 23.0 program. As a result of the analysis carried out, it was concluded that students who received Environmental Accounting education had more environmental consciousness than student who did not receive Environmental Accounting education.*

**Keywords:** Environmental Consciousness, Environmental Accounting

## INTRODUCTION

Environmental problems arising from a number of reasons (e.g., rapid population growth, industrialization, unplanned urbanization, unconscious consumption, and destruction of forest areas) have begun to threaten the lives of all living things on Earth in the last quarter of the 20th century. The environmental problems that have been ignored by countries until this date have now become a common problem for all countries (Kırlıoğlu and Can, 2006: 1-2). Along with the environmental consciousness that began to emerge in humans since 1970, studies on global unity and regulations to prevent environmental problems have been accelerated. Conferences were held in Stockholm, Rio, Johannesburg, and numerous other cities with the participation of many countries order to prevent environmental problems (Keleş et al. 2009; Ertürk, 2009: 331; Turgut, 2009: 39). With these conferences, many scientists have started to work on preventing environmental problems.

A number of administrative, institutional, and individual measures were carried out to put pressure on businesses with large impacts on the emergence of environmental problems (Çavuş and Tancı, 2013:

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\* This study is derived from the master's thesis of "A Study to Reveal the Effects of the Environmental Accounting Course on Students' Environmental Awareness".



75). As a result of this pressure, businesses began to carry out a number of activities to minimize or completely eliminate the negative effects they have on the environment. These activities, which businesses have undertaken to protect the environment, created some costs for businesses. Traditional accounting systems failed to provide these emerging costs to the interest groups and the concept of Environmental Accounting emerged (Kırlioğlu and Can, 1998: 1-5).

The aim of this study is to determine the effects of Environmental Accounting education, which have a consensus on the necessity in the literature, on the environmental consciousness of students. For this purpose, a questionnaire was applied to third and fourth-year students who are studying in the business administration, economics, public administration and public finance departments of Tokat Gaziosmanpasa University Faculty of Economics and Administrative Sciences in the 2015-2016 academic year. We gave one hour Environmental Accounting education to third-year students in the relevant departments. No education was provided to fourth-year students. Analysis using the SPSS Statistics 23.0 program with information obtained from the survey application have proved that Environmental Accounting Education has significantly increased students' environmental consciousness.

## **LITERATURE**

Bebbington et al. (1994): In their work, they conducted a mail survey to finance directors of the top 1000 companies in the UK. 350 surveys were answered, and 181 of these surveys were found to be valid. According to the results of the survey, there is a homogeneity among accountants' attitudes towards the environment and that the company's environment-related thoughts are in contrast to company practices. They have also found that companies have a lack of information in Environmental Accounting practices, and that the combination of personal characteristics and training is the best result in terms of future implementation of Environmental Accounting practices

Sefcik et al. (1997): In their work, they explained how Environmental Accounting topics will be combined with existing courses and how Environmental Accounting will be an elective course. It is emphasized that the concept of Environmental Accounting should be added to courses curriculums or be given as elective courses in order to extend the scope of traditional accounting education proposed by the Commission on Accounting Education Exchange.

Stevenson (2002): In her work, she conducted a survey in 1998 on social and Environmental Accounting education in the accounting departments of universities in England to broaden and oversee the results of what Owen's academics had done in 1993. Stevenson reached the conclusion that there had been very little change throughout the five years. In addition, Environmental Accounting is the most prevalent topic in Social and Environmental Accounting and Environmental Accounting courses are given to students in accounting departments of universities due to the political importance of Social and Environmental Accounting topics. According to Stevenson, universities that do not offer Social and Environmental Accounting training have declared that they have too many lessons and time problems in their curriculum. Stevenson pointed out that there are many reasons for Social and Environmental Accounting education, and that the most important of these is the awareness of students about the obligations that expand on corporate behavior.

Yakhou and Dorweiler (2002): In their work, they tried to determine the level of application of Environmental Accounting education in colleges and universities in the United States. They had available answers from 122 of the questionnaires of 660 that were sent to department heads. According to the results of the questionnaire, it was found that very few schools taught Environmental Accounting education separately, and the concept of Environmental Accounting was generally given as a subject within the curriculum. It was emphasized that Environmental Accounting education gave students experience in interdisciplinary thinking and Environmental Accounting.

Çakar (2007): In his work, he focused on environmental sustainability, environmental problems and Environmental Accounting concepts. He emphasized the need for employees to understand ecological change in order to form an environmental company and the need for accountants to take environmental education.

Bengü and Can (2009): In their work, they questioned the basis of Environmental Accounting. In the study, some Environmental Accounting definitions in the literature were mentioned and it was emphasized that the scientific basis of Environmental Accounting, Environmental Reporting, and Audit concepts was social responsibility. According to the authors, education, and consulting services in Environmental Accounting will increase in the near future.

Zulkifli (2011): In her work, she tried to determine the perspectives of teachers who gave accounting education in private and public education institutions in Malaysia on the concept of social and Environmental Accounting. Teachers who responded to the survey stated that the concept of social and Environmental Accounting would increase the awareness of accounting students on corporate behavior, society, and the environment. The necessity of developing social and Environmental Accounting as an alternative approach in accounting education was emphasized.

Chang (2013): She carried out her work from an accountant's point of view in order to identify problems in the management of significant environmental costs. In accordance with this purpose, she investigated the current situation of managing the costs of electricity, water, and paper consumption in the three major universities in Taiwan. In the course of her work, she collected information using face-to-face interviews with the staff of these universities and by using accounting charts, annual reports, strategic plans, and sustainability reports on the internet. In her research, Chang concluded that a lack of environmental management accounting on key environmental costs in the three major universities in Taiwan. According to Chang, universities should provide environmental education to their students, and more importantly, they should apply these educational subjects in their own way.

Choubey and Pattanayak (2014): In their work, they tried to determine the perceptions of interest groups, such as executive department students, academics, industry practitioners, and representatives of regulatory agencies, on the inclusion of Environmental Accounting training in the curricula of executive departments in India. They conducted questionnaires to 178 executive department students and 220 other interest groups. In their work, Choubey and Pattanayak reached the conclusion that all interest groups emphasized the importance of Environmental Accounting education for executive departments in India. According to the researchers, it is necessary to raise the awareness of students about Environmental Accounting.

## **METHODOLOGY**

### **Purpose of the Study**

The main purpose of the study is to reveal the effects of Environmental Accounting education on the environmental consciousness of students. To this end, the impacts of Environmental Accounting education on the consciousness of students were measured, especially concerning environmental information, environmental accounting, and environmental legislations. The questions that the study seeks to answer are as follows.

- Does the level of knowledge of environmental information, environmental accounting, and environmental legislations differ for students who receive Environmental Accounting education as compared to those who do not? (Will be determined by t-test analysis)
- Is there a relationship among students' who received Environmental Accounting education level of knowledge about environmental information, environmental accounting, and environmental legislations? (Will be determined by correlation analysis)

### Scope and Constraints of the Study

The scope of the study concerns third and fourth-year students who study in the economics, business administration, public administration and public finance departments of Tokat Gaziosmanpaşa University Faculty of Economics and Administrative Sciences in the academic year of 2015-2016. Care has been taken to ensure that the selected departments are departments that provide basic accounting education, as well as third and fourth-year students who have completed basic accounting courses in these departments.

We gave Environmental Accounting education to third-year students who study in the economics, business administration, public administration and public finance departments of Tokat Gaziosmanpaşa University Faculty of Economics and Administrative Sciences, and after the education was provided, the questionnaire was implemented. The content of the Environmental Accounting education given to the students was prepared taking into consideration the content of the courses in the universities that provide the Environmental Accounting course in Turkey.

No education was given to the fourth-year students, and the questionnaire was applied in the normal term courses. The fact that both third and fourth-year students had less participation in the classes constitutes the most important limitation of the study. Due to monetary and temporal constraints, no questionnaire was applied to all third and fourth-year students.

### Model and Hypotheses of the Study

Sefcik et al. (1997) emphasized the necessity of Environmental Accounting education being given to university students as elective courses or compulsory courses. However, no study has been found in the literature to quantify the concrete effects of Environmental Accounting education on the environmental consciousness of the students. The model of this study is considered to be an important contribution to the accounting literature in that it is an unused model. The model of the study is shown in Figure 1.

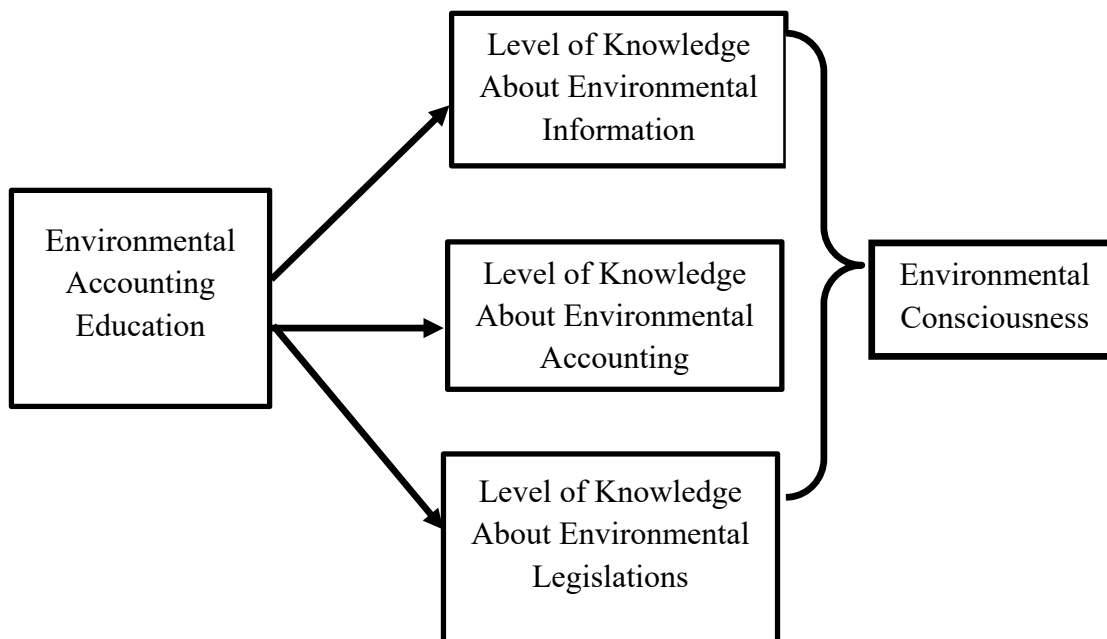


Figure 1. Model of the study

The model of the study suggests that the Environmental Accounting education given to students with basic accounting education has an impact on the level of knowledge about the environmental legislations, environmental information, and environmental accounting of the students and thus, constitutes an environmental consciousness in the students.

The hypotheses generated from the model of the study are as follows:

H1: There is a difference between the level of knowledge about the environmental information of students who receive Environmental Accounting education and those who do not.

H2: There is a difference between the level of knowledge about the environmental accounting of students who receive Environmental Accounting education and those who do not.

H3: There is a difference between the level of knowledge about the environmental legislations of students who receive Environmental Accounting education and those who do not.

H4: There is a relationship among students' who received Environmental Accounting education level of knowledge about environmental information, environmental accounting, and environmental legislations.

#### **The Universe and Sampling of the Study**

With the thought that the students of the Faculty of Economics and Administrative Sciences of the universities in Turkey should be future candidates for business owners, business managers and business personnel, third and fourth-year students in the economics, business administration, public administration, and public finance departments of Tokat Gaziosmanpaşa University Faculty of Economics and Administrative Sciences constituted the universe of the study. The sample size should be the smallest amount with the ability to represent the main mass. If the number in the target group is unknown;

$$n = \frac{t^2 \times p \times q}{d^2}$$

formula is used. In the mentioned formula:

n: The sample size, i.e., the number of individuals to sample,

p: The frequency of occurrence of the phenomenon being examined, i.e., the probability of actualization

q: The frequency of the absence of the phenomenon being examined, i.e., the likelihood of failure

t: The theoretical value from the t-table at a certain level of significance,

d: The accepted error rate according to the frequency of occurrence,

shows. A sample size of 384 persons for a main mass of 100.000.000 persons at a 95% confidence interval in the relevant formula would be sufficient to generalize the main mass (Yazıcıoğlu and Erdoğan, 2011: 84-89).

The easy sampling method was applied from non-random sampling methods in the study. The questionnaire was distributed to 1000 third and fourth-year students who study in the economics, business administration, public administration, and public finance departments of Tokat Gaziosmanpaşa University Faculty of Economics and Administrative Sciences; 888 questionnaires

were found to be suitable for analysis. A sample of 888 people sufficient value to generalize the universe.

### **Method**

This study is designed as a field study for collecting and analyzing data by questionnaire method. The questionnaire consists of three parts. In the first part, there are 6 questions about the demographic characteristics. In the second part, there are 17 questions that measure the knowledge level of the students about environmental information, and in the third part, there are 26 questions that measure the knowledge level of the students about environmental accounting and environmental legislations.

The questions in the environmental information section of the questionnaire were created using sources by Özdemir et al. (2004), Güven and Aydogdu (2012), Oğuz et al. (2011) and Şenyurt et al. (2011). The questions in the section on environmental accounting and environmental legislations were created using sources by the Bakkal (2014) and legal regulations related to environment in Turkey. Survey questions consist of 5 likert-type questions. The survey questions were asked and answered according to the following levels: 1 "Absolutely Disagree", 2 "Disagree", 3 "Neither Agree or Disagree", 4 "Agree", and 5 "Absolutely Agree".

Data obtained by the questionnaire were analyzed with SPSS Statistics 23.0. The induction method was applied in the study. Generalization about the universe was made by movement from the sample. In addition to being an applied research, it is also a descriptive work.

## **RESULTS**

In this part of the survey, the demographic characteristics of the students participating in the survey and findings obtained as a result of hypotheses tested using the necessary methods are included.

### **Reliability Analysis Findings**

The purpose of the reliability analysis is to reveal the level of interrelation of the questions constituting the desired concept. The Cronbach Alpha Method was applied when the reliability of the questionnaire sections of the research was analyzed. This is usually due to the use of this technique in the likert-type survey questionnaire. In order for the questions that make up the concept to be reliable, the Cronbach Alpha value should be .70 and above (Seğer, 2013: 177-179).

The reliability analysis data obtained for the relevant sections of the survey used to measure the environmental consciousness level of the students in the study are shown in Table 1.

**Table 1.** Reliability Analysis Data Related to Survey Sections

<b>Survey Section</b>	<b>Cronbach Alpha Value</b>	<b>Number of Observations</b>
Environmental Information	.822	17
Environmental Accounting	.658----->.684	13----->12
Environmental Legislations	.751	13

When looking at Table 1, it is seen that the Cronbach Alpha values of the questionnaire, which constitutes parts of the environmental information and environmental legislations, are more than .70, i.e., the level of reliability. As a result of these values, it is concluded that 17 questions constituting the environmental information section of the questionnaire, and 13 questions constituting the section of the environmental legislations are reliable. When looking at Table 1, it is seen that Cronbach Alpha value of 13 questions constituting the environmental accounting section of the questionnaire is lower than .70. From the results obtained from the analysis, it is understood that the "Businesses' works towards the environment provides a long-term cost savings" statement reduces the Cronbach Alpha value of environmental accounting questions. The question representing this expression was removed and a reliability analysis was conducted again. It is concluded that the Cronbach Alpha value obtained for the remaining 12 questions is very close to .70, which is the reliability level, and that the remaining questions about environmental accounting are partly reliable.

### Findings Related to Demographic Characteristics

Demographic findings related to the students participating in the survey are included in this section. The data related to the demographic characteristics of the students participating in the survey are shown in Table 2.

**Table 2. Demographic Characteristics of the Survey Participants**

<b>Demographic Feature</b>	<b>Demographic Feature Separation</b>	<b>Number and Percentage of Students</b>
Class	Third-Year	385 (%43)
	Fourth-Year	503 (%57)
Department	Business Administration	216 (%24)
	Economics	247 (%28)
	Public Administration	253 (%29)
	Public Finance	172 (%19)
<b>Total Number of Students Attending the Survey</b>		<b>888</b>

According to Table 2, there are 385 third-year students and 503 fourth-year students that constitute the 888 students who participated in the survey. 43% of the students who participated in the survey are third-year students who received Environmental Accounting education given by us, and 57% of the students who participated in the survey are the fourth-year students who did not receive related education. The number of students who participated in the survey that did not receive Environmental Accounting education is greater than the number of students who received Environmental Accounting education.

According to Table 2, 216 of the 888 students who participated in the survey are studying in the business administration department, 247 in the economics department, 253 in the public

administration department, and 172 in the public finance department. 29% of the students who participated in the survey are students of the public administration department, 28% in economics, 24% in business administration, and 19% in public finance. Participation in the survey was greatest among the public administration department's students, and the least amount of participation came from the students of the public finance department.

### **Findings about Hypothesis Testing**

In this part of the study, an Independent Samples t-test was conducted to test the first three hypotheses of the study.

Since the t-test allows comparison only between two groups, the t-test was used to compare the students who received Environmental Accounting education with those who did not receive Environmental Accounting education. If the value of the significance level, p, which corresponds to the t-value calculated in the interpretation of the t-test results, is less than 0.05 at the 5% significance level, "there is a meaningful difference in terms of the concept analyzed between the two groups (variables) being compared" comment is made. If the p-value is greater than 0.05, "there is no significant difference between variables (groups) in terms of the analyzed concept" comment is made (Altunşik et al. 2004: 175-176). The t-test results for the relevant hypotheses are shown in Table 3.

**Table 3. Results of T-Test**

<b>Survey Section</b>	<b>Class</b>	<b>Number</b>	<b>Mean</b>	<b>t value</b>	<b>p value</b>
Environmental Information	Third-Year	385	2.0657	-12.831	.000
	Fourth-Year	503	2.5356		
Environmental Accounting	Third-Year	385	2.5851	-9.952	.000
	Fourth-Year	503	2.9221		
Environmental Legislations	Third-Year	385	2.3678	-16.533	.000
	Fourth-Year	503	2.9515		

According to Table 3, it is concluded that there is a significant difference among the level of knowledge about environmental information, environmental accounting, and environment legislations of 4th-year students who did not receive environmental accounting education and those who received environmental accounting education due to  $p < 0.05$ . When we look at the answers to the questions in the environmental information, environmental accounting, and environmental legislations sections of the questionnaire, it is observed that third-year students receiving Environmental Accounting education have higher level of knowledge about environmental information, environmental accounting, and environmental legislations than fourth-year students without Environmental Accounting education.

In the light of these results, "H1: There is a difference between the level of knowledge about the environmental information of students who receive Environmental Accounting education and those who do not.", "H2: There is a difference between the level of knowledge about the environmental accounting of students who receive Environmental Accounting education and those who do not.", and "H3: There is a difference between the level of knowledge about environmental legislations of students who receive Environmental Accounting education and those who do not." hypotheses were accepted.

Correlation analysis was applied to test "H4: There is a relationship among students' who received Environmental Accounting education level of knowledge about environmental information,

environmental accounting, and environmental legislations.” hypothesis, which is the relationship hypothesis of the study.

Correlation is a statistical method used to determine the degree and direction of the relationship between variables, regardless of whether the variables are dependent or independent. Correlation values are between "-1" and "+1", and this value indicates the degree and direction of the relationship. The negative correlation means that the relationship between the variables is inversely proportional and the positive is that the relationship between the variables is directly proportional (Durmuş et al. 2011:143-144).

Correlation analysis results for the relevant hypothesis are shown in Table 4.

**Table 4.** Correlation Analysis Results

	Environmental Information	Environmental Accounting	Environmental Legislations
Environmental Information	1	.376**	.473**
Environmental Accounting	.376**	1	.544**
Environmental Legislations	.473**	.544**	1

\*\* Relationship between variables at significance level 0.01

According to Table 4, it is seen that there is a positive correlation between the level of knowledge about environmental information and environmental accounting of students with Environmental Accounting education at the level of 0.376. It is also seen that there is a positive correlation between the level of knowledge about environmental information and environmental legislations of students with Environmental Accounting education at the level of 0.473. Finally, it is seen that there is a positive correlation between the level of knowledge about environmental accounting and environmental legislations of students with Environmental Accounting education at the level of 0.544.

In the light of the results obtained, “H4: There is a relationship among students' who received Environmental Accounting education level of knowledge about environmental information, environmental accounting, and environmental legislations.” hypothesis was accepted.



After testing the hypotheses, the final state of the research's model is shown in Figure 2.

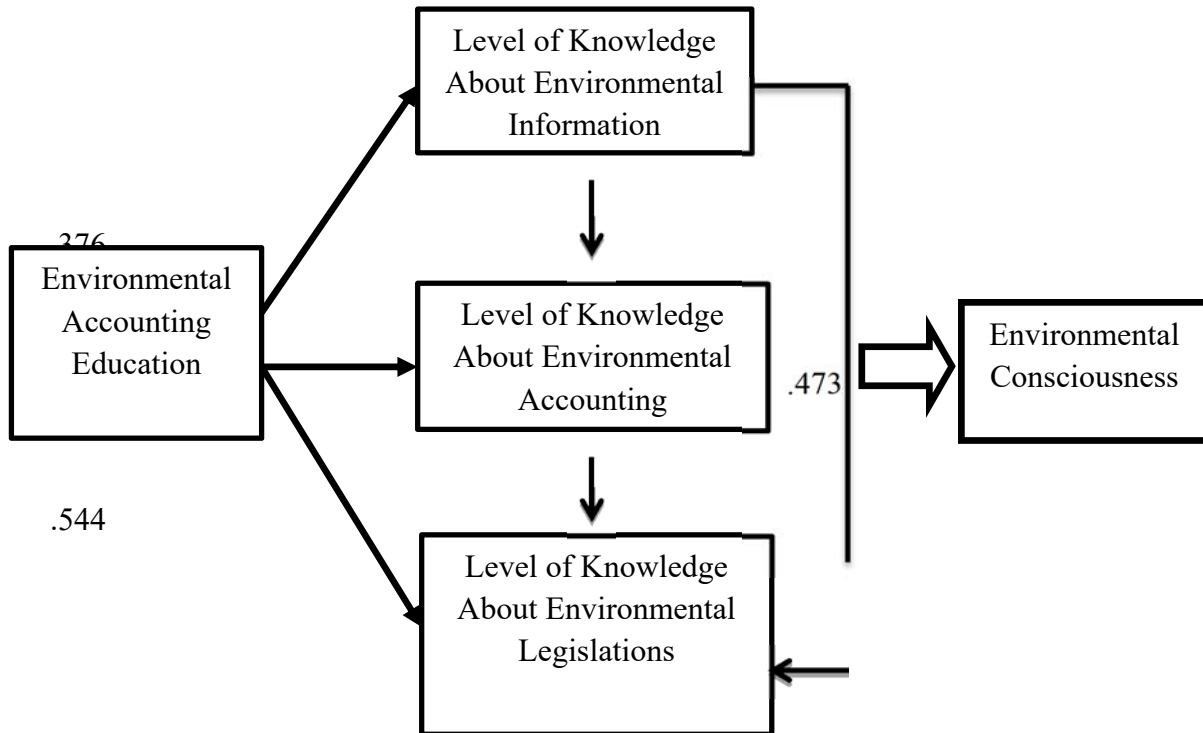


Figure 2. Final model of research

According to Figure 2, Environmental Accounting education affects students' level of knowledge about environmental information, environmental accounting, and environmental legislations, thus also affecting environmental consciousness. There is a positive relationship among the level of knowledge about environmental information, environmental accounting, and environmental legislations of students who received Environmental Accounting education. This positive relationship was also found between the level of students' knowledge about environmental accounting and environmental legislations.

## CONCLUSION

The concept of Environmental Accounting, which has not yet been fully developed, has gained momentum in recent years. Kırlioğlu and Can (2006), Harrison and Lamberton (2007), Kırlioğlu and Fidan (2010), Ahmad (2012), Güner (2012), Kaya (2013), Kırlioğlu and Zeytin (2015): In their work, they emphasized that voluntary Environmental Accounting practices will be mandatory in the future. Choubey and Pattanayak (2014) pointed out that the students of the School of Economics and Administrative Sciences, who are future business owners, business managers, and business personnel candidates, should take an Environmental Accounting course. The purpose of this study is to determine the effects of Environmental Accounting education on the environmental consciousness of students, which is emphasized in the literature. To this end, we gave one-hour Environmental Accounting education to third-year students in the economics, business administration, public administration and public finance departments of the Faculty of Economics and Administrative Sciences of Tokat Gaziosmanpaşa University in the academic year of 2015-2016. In order to measure the effects of Environmental Accounting education on the environmental consciousness of students, a questionnaire was distributed to students who both did and did not receive this education. As a result of the analysis that used the information obtained by the survey method, Environmental Accounting education has been successful in increasing the environmental consciousness of students.

No study has been found in literature about the effects of Environmental Accounting education on the environmental consciousness of students prior to this work. This study is the first study to reveal the effects of Environmental Accounting education, which is required by Yakhou and Dorweiler (2002), Stevenson (2002), Çakar (2007), Lodhia (2010), Zulkifli (2011), Chang (2013), and Hiçyorulmaz (2015), on the environmental consciousness of students. Along with increasing environmental awareness from the other side, the importance of the work carried out towards the prevention of environmental problems is increasing day by day. In this context, this study is thought to be a guide to future studies in terms of both providing the opportunity to reveal the effects of environmental education on students' environmental consciousness in the accounting literature and contributing to the prevention of environmental problems.

## REFERENCES

- Ahmad, Afzal (2012), "Environmental Accounting and Reporting Practices: Significance and Issues: A Case From Bangladeshi Companies" *Global Journal of Management and Business Research*, Volume 12, Issue 14, pp.118-127.
- Altunışık, Remzi - Coşkun, Recai - Bayraktaroğlu, Serkan - Yıldırım, Engin (2004), *Sosyal Bilimlerde Araştırma Yöntemleri – SPSS Uygulamalı, Sakarya Kitapevi, Sakarya.*
- Bakkal, Aysun (2014), "Çevre Muhasebesi Uygulamalarının Bilecik İşletmelerinde Uygulanması Üzerine Bir Çalışma" (Master Thesis), Bilecik Şeyh Edebali Üniversitesi Sosyal Bilimler Enstitüsü, Bilecik.
- Bebbington, Jan - Gray, Rob - Thompson, Ian - Walters, Diane (1994), "Accountants' Attitudes and Environmentally - Sensitive Accounting" *Accounting and Business Research*, Volume 24, Issue 94, pp.109-120.
- Bengü, Haluk - Can, Ahmet Vecdi (2009), "Çevre Muhasebesinin Muhasebenin Temel Kavramlarından "Sosyal Sorumluluk Kavramı" Bağlamında Temellendirilmesi" *Celal Bayar Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Volume 7, Issue 1, pp.155-160.
- Chang, Huei Chun (2013), "Environmental Management Accounting in the Taiwanese Higher Education Sector Issues and Opportunities" *International Journal of Sustainability in Higher Education*, Volume 14, Issue 2, pp.133-145.
- Choubey, Balram - Pattanayak, Jamini Kanta (2014), "Designing a Course Curriculum on Environmental Accounting: Viewpoint of Indian Stakeholders" *The IUP Journal of Accounting Research & Audit Practices*, Volume 13, Issue 3, pp.7-24.
- Çakar, Ulaş (2007), "Çevreci Şirket ve Çevre Muhasebesi" *Mali Çözüm Dergisi*, Volume 83, Issue 4, pp.81-92.
- Çavuş, Mustafa Fedai - Tancı, Neslihan (2013), "Yeşil İşletme ve Çevre Yönetim Sistemleri" *Üçüncü Sektör Sosyal Ekonomi*, Volume 48, Issue 1, pp.73-82.
- Durmuş, Beril - Yurtkoru, E. Serra - Çinko, Murat (2011), *Sosyal Bilimlerde SPSS'le Veri Analizi*, Beta Basım Yayım Dağıtım A.Ş., İstanbul.
- Ertürk, Hasan (2009), *Çevre Bilimleri*, Ekin Basım Yayın Dağıtım, Bursa.

- Güner, Mehmet (2012), “Yöneticilerin Kişisel Değerlerinin Çevre Muhasebesi Tutumlarına Etkisi Üzerine Bir Araştırma” (PhD Thesis), Atatürk Üniversitesi Sosyal Bilimler Enstitüsü, Erzurum.
- Güven, Ezgi - Aydoğdu, Mustafa (2012), “Çevre Sorunlarına Yönelik Farkındalık Ölçeğinin Geliştirilmesi ve Öğretmen Adaylarının Farkındalık Düzeylerinin Belirlenmesi” Öğretmen Eğitimi ve Eğitimcileri Dergisi, Volume 1, Issue 2, pp.185-202.
- Harrison, L. Jennifer - Lamberton, Geoff (2007), “Who’s Doing Environmental Accounting? A Survey of NSW Dairy Farms” Rural Society, Volume 17, Issue 2, pp.182-195.
- Hiçyorulmaz, Ela (2015), “Çevre Muhasebesi ve Çimento Fabrikalarının Çevre Muhasebesine Olan Duyarlılığı: Çorum Votorantim Çimento Fabrikası Uygulaması” (Master Thesis), Hitit Üniversitesi Sosyal Bilimler Enstitüsü, Çorum.
- Kaya, Nurullah (2013), “Çevresel Muhasebe Açısından Uluslararası Muhasebe Standartlarına Bakış” Akademik Bakış Dergisi, Volume 34, Issue 16, pp.1-19.
- Keleş, Ruşen - Hamamcı, Can - Çoban, Aykut (2009), Çevre Politikası, İmge Kitapevi Yayınları, Ankara.
- Kırlioğlu, Hilmi - Can, Ahmet Vecdi (1998), Çevre Muhasebesi, Değişim Yayınları, Adapazarı.
- Kırlioğlu, Hilmi - Can, Ahmet Vecdi (2006), “Çevresel Muhasebede Kavramsal Tartışmaların Gelişimi ve Analizi” Muhasebe ve Finansman Dergisi, Volume 32, Issue 7, pp.1-12.
- Kırlioğlu, Hilmi - Fidan, Meral Erol (2010), “Organize Sanayi Bölgeleri İçinde ve Dışında Faaliyet Gösteren İşletmelerin Çevre-Atık Yönetimi ve Muhasebesi Konularında Mevcut Durum ve Farklılıkları (Sakarya İlinde Bir Araştırma)” Muhasebe ve Denetime Bakış, Volume 32, Issue 1, pp.1-28.
- Kırlioğlu, Hilmi - Zeytin, Mustafa (2015), “Belediyelerde Çevre Muhasebesi ve Raporlama: Marmara Bölgesinde Bulunan Belediyeler Üzerine Bir Durum Analizi” Akademik Sosyal Araştırmalar Dergisi, Volume 3, Issue 10, pp.753-777.
- Lodhia, Sumit (2010), “Teaching a Sustainability Accounting Course in an Australian University: Insights for Sustainability Accounting Education” Journal of The Asia Pacific Centre for Environmental Accountability, Volume 16, Issue 1, pp.15–22.
- Oğuz, Dicle - Çakıcı, Işıl - Kavas, Safiye (2011), “Yüksek Öğretimde Öğrencilerin Çevre Bilinci” SDÜ Orman Fakültesi Dergisi, Issue 12, pp.34-39.
- Özdemir, Oya - Yıldız, Ayşe - Ocaktan, Esin - Sarışen, Özlem (2004), “Tıp Fakültesi Öğrencilerinin Çevre Sorunları Konusundaki Farkındalık ve Duyarlılıkları” Ankara Üniversitesi Tıp Fakültesi Mecmuası, Volume 57, Issue 3, pp.117-127.
- Seçer, İsmail (2013), SPSS ve LISREL ile Pratik Veri Analizi – Analiz ve Raporlaştırma, Anı Yayıncılık, Ankara.
- Sefcik, E. Stephan - Soderstrom, S. Naomi - Stinson, H. Christopher (1997), “Accounting Through Green - Colored Glasses: Teaching Environmental Accounting” Issues in Accounting Education, Volume 12, Issue 1, pp.129-140.

Stevenson, Lorna (2002), "Social and Environmental Accounting Teaching in UK and Irish Universities: A Research Note on Changes Between 1993 and 1998" Accounting Education, Volume 11, Issue 4, pp.331-346.

Şenyurt, Arzu - Temel, Ayla Bayık - Özkahraman, Şükran (2011), "Üniversite Öğrencilerinin Çevresel Konulara Duyarlılıklarının İncelenmesi" S.D.Ü. Sağlık Bilimleri Enstitüsü Dergisi, Volume 2, Issue 1, pp.8-15.

Turgut, Nükhet Yılmaz (2009), Çevre Politikası ve Hukuku, İmaj Yayınevi, Ankara.

Yakhou, Mehenna - Dorweiler, P. Vernon (2002), "Environmental Accounting Coverage in the Accounting Curriculum: A Survey of U.S. Universities and Colleges" Journal of Education for Business, Volume 78, Issue 1, pp.23-27.

Yazıcıoğlu, Yahşi - Erdoğan, Saniye (2011), SPSS Uygulamalı Bilimsel Araştırma Yöntemleri, Detay Yayıncılık, Ankara.

Zulkifli, Norhayah (2011), "Social and Environmental Accounting Education and Sustainability: Educators' Perspective" Journal of Social Sciences, Volume 7, Issue 1, pp.76-89.

# THE SUCCESS ON COST ACCOUNTING COURSE OF STUDENTS REGISTERED TO OPEN EDUCATION IN ATATURK UNIVERSITY

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**Abstract:** The aim of the study is to determine whether there is a relationship between the age, gender, enrollment forms, Cumulative Grade Point Averages (CGPAs) and Cost Accounting I course achievement grades of the students who took the course of Cost Accounting I at Atatürk University Open Education Faculty (ATA-OEF) Business Administration Undergraduate Program and whether there is a relationship between the notes from Accounting, Period End Accounting Transaction and Corporate Accounting courses and the grades taken from Cost Accounting I course. As a result of the study in which the T test, Anova test and correlation analysis were performed, it has been determined that only 7.6% of the students who took the course of Cost Accounting I passed the final exam and the CGPAs were found to be high in parallel with the letter grades received by most of the students.

**Keyword:** Accounting Education, Cost Accounting I, Open Education Faculty

## INTRODUCTION

Accounting practices in today's world, where economic relations have become more complex every day, have become an important issue that has been discussed in the dimension of education and teaching and in many scientific studies and meetings (Kutlu, 2015:1). In general sense, education is the process of raising people according to specific purposes. In a broader sense, education can be defined as education, training of a person in any field of activity, education, moral, cultural and technical knowledge related to the field or helping the development of individual person, giving him knowledge and skills and ensuring sensitivity and harmony to collective and innovative. Learning occurs as a result of interaction between the teaching staff and the student, as a result of the facts of education, teaching and learning, and for a specific purpose of teaching (Fidan,2012: 4; Zaif and Karapınar, 2002: 111-112).

Vocational education, which is one of the branches of education, is the period of acquiring knowledge, skills and behaviors that the profession requires (Ataman, 2007: 1). The main aim of accounting education, which is a vocational education, is to transfer the students with the knowledge and skills required by the profession. In accounting education theory and practice are inseparable parts (Gönen, 2016: 67). At every stage of education, basic information given beforehand should be comprehended together with new information to be given, to be integrated with each other and to be reinforced with the applications to be made (Demirkan, 2001: 54).

Accounting education in Turkey is offered at secondary and higher education institutions in secondary education institutions at the level of associate degree, bachelor's degree, master's degree and doctorate degree and it is tried to train qualified human power needed in accounting field (Tugay ve Ömürbek, 2014: 55). One of the higher education institutions where accounting education is given in Turkey is the Open Education Faculty. "Higher Education Center with Letters" was established in 1974 as a result of meeting the need for human development needed for development in Turkey, reducing the need for increased education, eliminating the accumulation of higher education, utilizing communication technology and providing mass education services. Then, with the Higher Education Law No. 2547, which was enacted in 1981, the Faculty of Open Education was established in Anadolu University. Thus, since 1982, distance education studies have started to be offered by this faculty. In 2010, Open Education Faculty was established in Atatürk University and Open and Distance Education Faculty was established in Istanbul University and these faculties started education in 2011 ([www.egitimtercihi.com](http://www.egitimtercihi.com), 2017).

Open and distance education, which is a widespread educational model in developing countries as well as developed countries, it serves for two important purposes as ensuring that wider masses in developing countries have educational opportunities and facilitating training flexibility and accessing to training in developed countries (Hançer, 2017).

In Turkey, traditional accounting education is usually carried out within the day and hour determined within the classroom and is usually conducted as a single source of information for a single teacher (Sürmeli, 2007: 30). Also, education in open education is carried out through textbooks which provide self-learning, supportive lectures given by means such as radio, television, video, etc., which provide support to books, and academic advising system, which enables students to communicate with the instructors of the students when necessary (Hakan, 2017: 60).

The aim of the study is to analyze the achievements of the students who are registered in ATA-OEF in which the learning techniques are more limited in terms of the instructor and who take the course of Cost Accounting I from various perspectives.

## **METHODOLOGY**

The main mass of our study is the students who take the course of Cost Accounting I registered in ATA-OEF in fall semester of 2016-2017 academic year. In ATA-OEF, education is not given centrally and courses are presented to the students through online written materials. 15-25-minute summary videos (for each unit) are prepared for some courses and they are presented as tools to help students to learn on their own, but there are no summary videos of Cost Accounting I course. Because accounting knowledge is a scientific discipline with a different technique and a different logic, it is difficult for the students to have knowledge of this field with their individual studies. At this point, enriching the content in order to facilitate the understanding of the course will be one of the factors that can be effective in the success of the course. In addition, the level of perception, previous level of knowledge, interest in the subject, personal characteristics, and even the generation in which the individual is trained can play an active role in the success of the course (Onat ve Akın, 2016: 149). The aim of the study in this context is to determine whether the demographic characteristics and some personal characteristics of the students taking the course of Cost Accounting I are influential on the success or not and to determine whether there is a relation between Cost Accounting I course achievement grade and General Accounting, Period End Accounting Transactions, Company Accounting success grades. Cost Accounting I course that constitutes the subject of our study is included in the ATA-OEF Business Undergraduate Program.

Cost Accounting I course which is topic of our study placed in Business Administration program of ATA-OEF. Cost Accounting I course is one of the courses being taught in 3rd grade and it takes 419 students. Students are required to take the General Accounting course of accounting courses in first

grade in fall semester, End of Term Accounting course in first grade in spring semester and Company accounting semester in second grade spring semester before taking the course of Cost Accounting I. Since our study grades were made in February, which is the opening period, students are excluded from the scope of our research on Cost Accounting II which they will take in spring semester.

In ATA-AOF, the relative evaluation system is applied as the evaluation system and the lower limit of the courses (AL value) is 30 in fall semester of 2016-2017 education. Both the mid-term and final/make-up exams are conducted face-to-face as a test and 4 wrong answers delete 1 right answer during the exams.

The contribution of the visa exam to the average of the course is 30%, and the contribution of the final/make-up exam to the average of the course is 70%. 1-3 and 2-4 thresholds are applied in the upper grading system. In other words, one student who failed in a course in the first year cannot take course from in the third grade and the student who failed in a lesson in the 2nd grade cannot take course of the fourth grade. (For example, a student who has taken the course of Cost Accounting I has passed General Accounting and End of Term Accounting courses. Success grades are applied as letter grades and CGPAs are calculated at 4.00. I

## **FINDINGS**

In the study, T test and ANOVA test were applied to determine whether there was a difference between some demographic characteristics of the students who took the course of Cost Accounting I and the notes they got from Cost Accounting I course by using the data taken from the data processing center of ATA-OEF. In addition, Pearson Correlation coefficient is used to determine whether there is a relationship between the grades taken by the students taking the course of Cost Accounting I and the grades obtained from General Accounting, Period-End Accounting and Corporate Accounting courses.

Gender and age of students taking Cost Accounting I course are presented in Table 1.

**Table 1.** Gender and Age of Students Taking Cost Accounting I Course

		<b>Number</b>	<b>%</b>
<b>Gender</b>	Female	157	37.5
	Male	262	62.5
<b>Age</b>	younger than 25	135	32.2
	between 25-29	112	16.7
	between 30-34	73	17.4
	between 35-39	52	12.4
	over 40	47	11.2
<b>TOTAL</b>		419	100.0

As it can be seen in Table, while 37.5% of the students who took the course of Cost Accounting I were female and 62.5% of the students were male, 32.2% of the students who took courses were younger than 25, 16.7% is between the ages of 25-29 and 29.4% of them are between the ages of 30-34, 12.4% are of 35-39 years and 11.2% are over 40 years old.

In Turkey, students can enroll in different forms at the Open Education Faculty. The enrollment forms and CGPAs of the students are shown in Table 2.

**Table 2.** Types of Registration and CGPAs in ATA-OEF for Students in Cost Accounting I (2015-2016)

		Number	%
<b>Types of Registration</b>	Second University (student)	26	11.0
	Second University (graduated)	14	5.7
	Higher Pass Examination	220	52.5
	Higher Pass Examination (additional placement)	80	19.1
	Foreign Student Exam (YÖS)	41	9.8
	Other	8	1.9
<b>CHPAs of the Fall Semester of 2015-2016 Academic Year</b>	less than 1.50	29	6.9
	between 1.50-1.99	100	23.9
	between 2.00-2.49	169	40.4
	between 2.50-2.99	89	21.2
	more than 3.00	32	7.6
<b>Total</b>		419	100.0

16.7% (11% + 5.7%) of the students who took the course of Cost Accounting I were within the scope of the second university, 71.6% were registered through Higher Pass Examination (52.5% + 19.1%) and 9.8% of them were registered through Foreign Student Examination and the remaining 8% is registered through the Business Administration Program without passing the examination (from Vocational High School) and within the scope of horizontal transfer. In the spring semester of the 2015-2016 academic year, 6.9% of the students who took the course of Cost Accounting I from the students enrolled in the Business Undergraduate Program had CGPA is below 1.50, 23.9% of them have the scores between 1.50 and 1.99, 40.3% of them have between 2.00-2.49, 21.2% of them have between 2.50-2.99 and 7.6% of them have over 3.00. When evaluated generally, 30.8% (6.9% + 23.9%) of the students were below the general achievement average that is to say of 2.00; the overall CGPA of 69.2% is over 2.00.

## CONCLUSION

Accounting courses at universities are a difficult field for both educators and students who have not received any training before in terms of teaching. Especially without the teaching staff, it is becoming increasingly difficult to understand and learn the lessons in accounting on their own. The students who take the course of Cost Accounting I registered in ATA-OEF which is the main body of the study are trying to learn only through written materials. The written materials of ATA-OEF are presented online to the students. A book for each course is designed for 14 weeks and a student unit is offered every week. Each unit consists of contents, goals, introduction, subject expressions and 10 evaluation questions in order to make it easier for students to learn by themselves and to be uniform. In addition, it highlights important points in the subject (shown in brown italics) and summarizes the most important points on each page, not exceeding 20 words on the side of the page. In addition to the online books for General Accounting, Period-End Accounting and Corporate Accounting courses that students receive before taking the course Cost Accounting I, there are also 15-25 minute videos supporting the related courses.



In the study, the reason for the selection of Cost Accounting is that it is an accounting course offered only as educational material to the students. In this context, as a result of the study carried out to analyze the success situations of the students who took the course of Cost Accounting I, which had only textbook material, from various angle, it was determined that only 7.7% of the students who took the course after the final examination of Cost Accounting I were found to have passed the lesson. It is one of the factors affecting the failure of the students in the evaluation system of the Council of Higher Education, which is the application of the 4 wrongs delete 1 right answer in the examinations. The number of students viewing the course book/ units is very low. For example, while the first unit was being displayed by 254 of the 419 students (61%), the second unit was displayed by 208 students (49.6%) and the third unit by 199 students (47.5%). The number of being viewed of the units decreased every week according to the previous week. The number of students viewing the unit at 14th week was 74 (17.7%). This situation shows the decrease in interest of the students who is interested in the course even at the beginning. In summary, the indifference of the student to the course material is another factor that affects the success of the course. In addition to the factors related to the failure of the course, the most important factor in the low success rate is the fact that the course has numerical content and it is difficult to learn on its own. As a result, it is necessary to apply different teaching systems to the students, especially considering the characteristics of the courses in distance education.

**Note:** As the make-up examinations for the fall semester of the 2016-2017 academic year will be held on 4-5 March 2017 in ATA-OEF, the pass-fail or success status of the students is not finalized. If the report is accepted, the analysis will be done again.

## REFERENCES

- Ataman, Ümit (2007), “Muhasebe Mesleği ve Meslek Yüksekokullarından Muhasebe Eğitimi”, Anadolu Bil Meslek Yüksekokulu Dergisi, Issue 5, pp.1-17.
- Demirkan, Şefika (2001), “Muhasebe Eğitim Yöntemleri”, Muhasebe Eğitiminde Yeni Ufuklar, XX. Türkiye Muhasebe Eğitimi Sempozyumu, Antalya, pp.51-66.
- Fidan, Nurettin (2012), Okulda Öğrenme ve Öğretme, 3. Baskı, Pegem Akademi, Ankara.
- Gönen, Seçkin (2007), “Önlisans Düzeyinde Eğitim Gören Öğrencilerin Muhasebe Eğitiminden Beklentilere Yönelik İzmir ve Denizli İllerinden Bir Araştırma”, Uluslararası Alanya İşletme Fakültesi Dergisi, Volume 8, Issue 2, pp.67-78.
- Hakan, Ahmet, “Eğitim Sorunlarının Çözümünde Açıköğretim”, <http://w2.anadolu.edu.tr/aos/kitap/IOLTP/1266/unite04.pdf>, pp.57-69 (17.02.2017).
- Hançer, Ahmet Murat, “Dünya’da Açık ve Uzaktan Öğrenme”, <http://uzaktanogrenme.net/yetiskin-ogrenmesi/>, (18.02.2017)
- <http://www.egitimtercihi.com/ayindosyasi/12194-uzaktan-egitim-dunyada-ve-turkiye-de-giderek-yayginlasiyor.html>, (17.02.2017).
- Kutlu, Hüseyin Ali (2015), “Muhasebe Eğitiminde “Alternatif Ölçme ve Değerlendirme Yöntemleri” Üzerine Görüşler”, Journal of Accounting, Finance and Auditing Studies, Volume 1, Issue 4, pp.1-22.
- Onat, Osman Kürşat- Akın, Osman (2016), “Y Kuşağı ve Muhasebe Eğitimi-Durum Tespiti ve Öneriler: Mehmet Akif Ersoy Üniversitesinde Bir Araştırma”, EUL Journal of Social Sciences, Volume 7, Issue 2, pp.144-161.

Sürmeli, Fevzi (2007), “Muhasebe Eğitiminde E Değişimi Yakalamak”, Muhasebe ve Finansman Dergisi, Issue 33, pp.28-30.

Tugay, Osman-Ömürbek, Vesile (2014), “Meslek Yüksekokullarında Verilen Muhasebe Derslerinin Uygulamada Kullanılma Düzeyi ve Yeterliliği Üzerine Bir Araştırma”, Niğde Üniversitesi İİBF Dergisi, Volume 7, Issue 3, pp.53-74.

Zaif, Figen- Karapınar, Aydın (2002), “Muhasebe Eğitiminde Değişim İhtiyacı”, Gazi Üniversitesi İİBF Dergisi, Issue 3, pp.111-134.

# PERCEPTION OF FORENSIC ACCOUNTING EDUCATION AS A TOOL FOR ANTI-FRAUD IN LIBYA

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**Abstract:** The harm of financial fraud and other financial disputes have raised the awareness of forensic accounting which can provide significant aid in preventing, investigating and resolving these issues. Forensic accountants provide these services with knowledge of legal requirements. The purpose of this study was to collect information about the opinions of accounting academicians on the perception and the need of forensic accounting education at universities in Libya, also their willingness to implement it to detect and deter fraud. Using combined data set consisted of information on forensic accounting benefits and education for a random sample of academicians in Libyan universities. The study resulted that there was high demand for and high interest in forensic accounting education and practice in Libya, also they were willing for the proposed forensic accounting topics to be incorporate into accounting curriculum in Libya.

**Keywords:** *Forensic Accounting, Accounting Education and Fraud.*

## INTRODUCTION

Fraud is an intent act. Fraud is a global phenomenon that has increased every day (Abdou, Delamaire, Pointon, 2009). Fraud is spread in both developed and developing countries.

Forensic accounting is process of collecting and analyzing of data to reconstruct, detect, or support a claim of financial fraud. However, forensic accounting includes of litigation support and investigative accounting techniques. Litigation support provides assistance of all nature in existing or pending litigation. It deals primarily with issues related with the quantification of economic damages, while investigative accounting is associated to the investigation of criminal matters. The main steps in forensic analytics are data collection, data preparation, data analysis and reporting, therefore, investigating corporate fraud cases is one of the highest priorities of forensic accountants (Nigrini, 2011).

Public is wary of fraud that led to use forensic accounting to stop this issue which destroys many countries. Therefore, the forensic accounting becomes more important to control the practices, and responsibilities. In addition, it looks for the wrong doings and to make strict control on that place to prevent happening of such events.

Therefore, that highlight the need to incorporate forensic accounting education in the accounting curriculum at university level. Many research has shown that there are universities that started offering forensic accounting courses while others have introduced full academic programs in the area (Smith and Crumbley, 2009). Because, the awareness of forensic accounting helps to fight corruption. Libya has not taken any particular action to introduce and popularize forensic accounting. Then, it would be testified the perception of the forensic accounting and its expected role for anti-fraud.

### **Forensic Accounting**

Forensic accounting can be defined as the science of gathering and presenting financial information in a form that will be accepted by a court of jurisprudence against perpetrators of economic crimes (Renzhou, 2011).

Many economists, analysts and experts have argued the importance and extent of the influence of the concept of forensic accounting in many aspects of economic, legal and social efforts to the benefit of individuals, institutions and societies as a whole in the developed and developing countries alike.

The Association of Certified Fraud Examiners (ACFE) (2012) refers to this definition of forensic accounting as “fraud examination”. Yet, the terms of the fraud examination (fraud auditing) is a subset of forensic accounting.

### **Forensic Accounting Services**

Forensic accounting has three major aspects (Akyel, 2012, 81-83):

1. **Litigation Support Consulting:** It is described as professional or accounting support for case. To collect necessary documents to support or refute case. To revise the related documents to make examination of case and the statements. To report the strong and weak points.
2. **Fraud Examination (Investigative Accounting):** A typical investigative accounting assignment would be an investigation of employee theft. The different types of complex fraud due to the technology and complicated business transactions, therefore it seems impossible for a non-expert to detect and prevent them. They can be solved by experts and have occupational knowledge on the subject.
3. **Expert Witness:** An expert witness is a specialist who has special knowledge, skill, training or experience is qualified to provide testimony about matters that exceed the common knowledge of ordinary people.

### **Forensic Accounting Education**

The education of a forensic accountant should cover all skills, knowledge and abilities needed to effectively discharge the expected duties. Forensic accounting is known as a practice that uses technology and techniques to investigate, assess and expose, financial issues and fraudulent activities involved in the areas of accounting, finance, management, and other business areas where illegal financial acts or financial disputes might take place. Understanding the role and expectations of a forensic accountant is fundamental to the design of an appropriate educational program.

In 2008, DiGabriele said that forensic accountants should possess various combinations of skill and knowledge in accounting, auditing, law, and investigation techniques. If the one wants to be a profession in the field of forensic accounting then he/she should have knowledge and skills that are related to the field, after taking the basic principles and skills:

Criminology; the legal, regulatory, and professional environment; and ethics.

Fraud and forensic accounting, misappropriated asset, fraud and falsified financial statements.

Forensic services and other litigation services and advisory require knowledge, skills, training, and education to be done successfully.

There are academicians preferred to integrate forensic accounting topics in the existing accounting courses, whereas the certified fraud examiners preferred to be trained as a separate program. Some

universities have been teaching forensic accounting as course of its regular accounting program and that made good result.

### **Fraud**

Fraud is a significant threat that cause of damage the economy and financial stability of the country. Fraud is also recognized as “the acts in which the power of the higher position is used for personal gain in a manner that contravenes the rules of the law” (Nguyen and Dijk, 2012).

International Professional Practices Framework (IPPF) (2014) defines fraud as:

“Any illegal act characterized by deceit, concealment or violation of trust. These acts are not dependent upon the threat of violence or physical force. Frauds are perpetrated by parties and organizations to obtain money, property or services; to avoid payment or loss of services; or to secure personal or business advantage”

Nowadays, the worst issue in the business is fraud that made many firms started restrict systems in way to stop this issue. Smith and Crumbley (2009) stated that fraud occurs when a person has accessible data sets. The data collected through logs and user behavior, can be a great advantage for fraud detection in order to learn from the recent schemes.

Fraud has strong effects socially, politically and economically in all countries. Fraud undermines financial situation for the firms and countries, also it slows down the development and improvement on them. Fraud attacks the financial foundation of firms and countries by destroying the real situation of the firms, perverting the rule of law and creating fraudulent information. Economic development is stunted by the fraud because of discouraging the businesses within the country to overcome the start-up costs.

Due to the increase and integration in business, fraud become very complex and even more difficult to detect, therefore, there are many organizations and individuals have asked for professional to deal with such issue.

### **Practical Studies**

Brooks and Labelle (2006) had offered and designed forensic accounting programs. Also, they provided some exploratory evidence on the type of services currently rendered by investigative and forensic accountants in Canada.

In 2011, Islam, Rahman and Hossan made a study about using forensic accounting as tool for detecting fraud and corruption in Bangladesh. The sample size of this study was 100. This study examined the application of forensic accounting in Bangladesh and recommended steps that should be taken for improving the utilization of forensic accounting as an effective tool for anti-fraud and corruption in Bangladesh.

Daniels, Ellis and Gupta (2013) tested the perceptions regarding the relative importance of fraud and forensic topics to include in the accounting curriculum. The samples were CPAs who were registered in AICPA (the American Institute of Certified Accountants) and the mailing list of educators. Finally, this study can assist educators and administrators in the selection process of fraud related topics to include in the accounting curriculum.

Handley and Mohamed in 2014 made a study that examined the potential means available to company managers, auditors and regulators of preventing, detecting and reacting to financial statement fraud in Malaysia. Research was conducted by means of interviews with company managers, auditors and regulators. It was found that management integrity and the development of internal systems to prevent fraudulent reporting was very high. However, the probability of financial statement fraud is reduced

by regulators. Regulations that were set to deter and react to cases where such frauds are detected helped to reduce the number of the cases.

Ramadhan (2015) studied the perceptions of certified accountants about the awareness, demand, benefits, relevance and contents of forensic accounting education in a developing country in Bahrain. The study concluded that all respondents are familiar with forensic accounting and they expect demand on forensic accounting to increase in the future.

### **Research Rationales And Motivations**

The topic of forensic accounting has gotten attention for business people due to financial fraud which dominance the news in the past few decades. In addition, fraud is the most dangerous phenomenon which caused a lot of difficulties to many countries to fix their economy. Also, it opened a lot of discussions calling for establishment of strict forensic accounting mechanisms to eliminate this phenomenon.

Moreover, the attention has increased about the problem of fraud in the world especially after the recession in many regions and the pass for social effects of fraud in the world. The fraud has destroyed the wealth of many countries in the world.

Similarly fraud has increasingly become a major problem in Libya, according to Zakari and Menacere (2012) corporate businesses in Libya is rife with fraud and embezzlement. In addition, Libya was ranked 146th out of 170 countries on Transparency International's 2016 corruption perception index.

Despite the efforts for facing the fraud, the fraud rates has been steadily increasing due to the interaction of economic and social, political and administrative factors in Libya. Even though, the forensic accounting has not been taught in Libyan universities and practiced in the Libyan firms. Therefore, the main question of this research is, "What is the academicians' perception about teaching forensic accounting to constrain fraud?"

### **Importance Of The Research**

The main role of forensic accounting is to detect, deter and control fraud. Studying the forensic accounting will help to identify what various respondents perceive the importance of forensic accounting mechanisms and their acceptance to be implemented in Libya for anti-fraud. Therefore, it is expected that the research will contribute to the knowledge of several points regarding forensic accounting.

## **RESEARCH METHODOLOGY AND SAMPLING**

To achieve the objectives of this study, the data was collected based on questionnaire and it was distributed randomly over academicians. It is assumed that academicians are more likely to be familiar with forensic accounting topic than other accounting professions in Libya. There are 11 universities were connected in Libya. The questionnaire consists of two parts:

Part one provides information about the perceived benefits future and the demand on forensic accounting.

Part two covers the relative important topics related to a forensic accounting course. A list of (26) topics relating to the forensic accounting services, were included in the questionnaire. The selection of topics was based on previous studies in different countries around the world about forensic accounting education such as Brooks and Labelle (2006); Rezaee, Ha and Lo (2014) and Daniels, Ellis and Gupta (2013). The proposed topics are measured on a five-point Likert scale rated from 1 = strongly disagree to 5 = strongly agree.

### **Internal Consistency Reliability**

Cronbach alpha is one of the most popular reliability statistic test. It is a tool for assessing the internal consistency (average correlation) of items in a questionnaire. The higher the alpha, the more reliable the test is. Nunnally and Bernstein (1994) stated that 0.7 and above is acceptable. Thus, Cronbach alpha was used to evaluate the internal consistency reliability associated with scores derived from the scale. This study were distributed among three general categories of forensic accounting education (forensic accounting, fraud investigation and corporate governance). The results of testing the data show that for each of the three group and overall, it is more than the minimum required (0.7), and they are respectively 0.737, 0.780 and 0.932. Also the overall average is 0.915. Thus, it proves that internal consistency about the items is in high level.

## **RESULTS AND ANALYSIS**

This section discusses the major findings and ties them with the research main questions. The following parts discuss and summarize the major findings of the study in order to determine the level of perception of the forensic accounting education in Libya and the acceptance to be taught for anti-fraud. The study adopted simple random sampling technique to draw the samples from the four groups of respondents as shown in the below table. The overall study sample size was 40 and they were the majority of academicians in Accounting in Libya.

The 32.5% of respondents were lecturers and 32.5% were professors. The researchers were 15% and the graduate students were 20%. 60% of respondents were males and 40% were females.

The following table (3) shows the professional qualification for the respondents. 45% of the respondents were CPA, while the 5% of them were CFA (They took the certification out of Libya). The rest of respondents had another professional qualifications.

**Table 1. Benefits of Forensic Accounting Education - Percentage Distribution of Responses and Descriptive Statistics**

<b>Question</b>	<b>Strongly agree (5)</b>	<b>Agree (4)</b>	<b>Neutral (3)</b>	<b>Disagree (2)</b>	<b>Strongly disagree (1)</b>	<b>Mean</b>	<b>Std.</b>
a. Strengthen the credibility of financial reporting	20	42.5	30	7.5	0	3.75	.870
b. Promote responsible corporate governance	35	60	5	0	0	4.30	.564
c. Increase demand on forensic accountants who possess forensic accounting skills	20	30	45	2.5	2.5	3.63	.925
d. Make students more desirable in the marketplace	20	55	15	10	0	3.85	.864
e. Satisfies society's demand for forensic accounting	27	45	17.5	7.5	2.5	3.88	.992
f. Prepare students to engage in fraud examination	15	47.5	25	0	12.5	3.53	1.154
g. Prepare students to engage in litigation support consulting	32.5	50	17.5	0	0	4.15	.700
h. Prepare students to engage in expert witnessing	35	47.5	17.5	0	0	4.18	.712

As it shows in the table 1, the academicians were asked to evaluate their perceptions about the benefits of forensic accounting education and it shows that all of which were in the agree side because the means for all questions were above average (3) rating.

Moreover, the benefits of forensic accounting education averaged the most highest ones were: "Promote responsible corporate governance", "Prepare students to engage in expert witnessing" and "Prepare students to engage in litigation support consulting" (means respectively are 4.30, 4.18 and 4.15), which indicate that the respondents connect the forensic accounting with legal application of accounting in firms such as corporate governance and prepare students to engage in litigation support and expert witnessing. The standard deviation for all benefits is low indicating that there is no dispersion about benefits of forensic accounting education.

**Table 2.** Proposed Topics in a Forensic Accounting Course

	Minimum	Maximum	Mean	Std.
1. Analytical review procedures	2	5	3.69	.731
2. Bribery and corruption investigation	3	5	4.10	.672
3. Careers in forensic accounting	1	5	3.54	.854
4. Conducting internal investigations	1	5	3.69	.800
5. Conflicts of interest investigating techniques	3	5	3.90	.552
6. Financial statement fraud	4	5	4.26	.442
7. Fraud detection and deterrence programs	2	5	4.10	.672
8. Intellectual property fraud	3	5	4.35	.533
9. Internal control evaluation	3	5	4.20	.516
10. Interview skills and legal aspects of interview	2	5	4.03	.620
11. Professional standards pertaining to forensic accounting	3	5	4.15	.427
12. Security and privacy	4	5	4.38	.490
13. Techniques in locating hidden assets	4	5	4.50	.506
14. Business valuations	3	5	4.38	.586
15. Compliance with applicable laws and regulations	3	5	4.18	.683
16. Corporate governance	3	5	4.31	.521
17. Earnings management	3	5	4.38	.544
18. Effective report writing	3	5	4.28	.560
19. Expert testimony and expert witness techniques	3	5	4.41	.549
20. Knowledge of the legal system	3	5	4.11	.649
21. Legal elements of fraud	3	5	4.16	.594
22. Litigation consulting techniques	3	5	4.15	.432
23. Principles of ethics	2	5	3.93	.694
24. Resolution of allegations of misconduct	2	5	4.07	.572
25. Rules of evidence	3	5	3.95	.605
26. Shareholder litigation	2	5	3.87	.732

As it shows in the table 2, there are 26 topics were selected for forensic accounting education and they indicate that respondents understood all topics related to forensic accounting education. Moreover, all the means of the topics were above the average 3 rating. It is interesting to know that all respondent gave the highest rank to the techniques in locating hidden assets, due to the bribery and corruption was the extremely highest frequent in Libya. Moreover, the standard deviations are low indicating that



there is some consensus among the respondents regarding the importance of each topic in forensic accounting education.

## **CONCLUSION**

This study confirmed that respondents' awareness was high about forensic accounting education as tool for anti-fraud. In addition, the study tested the expectation of the respondent about the future demand and benefits of forensic accounting education via proposed topics and it resulted that the respondents highly realized the important of forensic accounting in the business environment as tool to increase the confidence in the country.

They also realized that forensic accounting is valuable for accounting students because it helps in framing the future direction and role of forensic accounting education and application. The study also concluded that education influence the level of awareness in terms of recognizing the benefits of forensic accounting. Moreover, the study found that the majority of respondents believed that forensic accounting topics should be incorporated in accounting curriculum universities. The course of forensic accounting that is taught at the undergraduate level should contain all topics that were proposed in this study.

However, it may be there are two limitations to the study. First, this study includes only twenty six proposed topics to be taught to the students, which give them the necessary skills and knowledge to prevent and detect financial fraud. Thus, the 26 topics may not cover all topics related to forensic accounting. Second, the results of the study are based on the responses of questionnaire, which may be limited by the view and subjectivity of academicians who teach accounting.

## **REFERENCES**

- Abdou, Hussein - Delamaire, Linda - Pointon, John (2009), "Credit card fraud and detection techniques: a review", *Business Perspectives*, Available from: <http://www.businessperspectives.org> (07.04.2016).
- ACFE (Association of Certified Fraud Examiners) (2012), *Report of Nations on Occupational Fraud and Abuse*, Available from: <http://www.acfe.com/> (08.04.2016.)
- Akyel, Nermin (2012), "Forensic Accounting Training: A Proposal for Turkey", *Social and Behavioral Sciences*, Volume 55, pp. 77 – 86, Available from: <http://www.sciencedirect.com> (09.04.2016).
- Brooks, Leonardo J. - Labelle, Real (2006), "CAP Forum on Forensic Accounting in the Post-Enron World: Education for Investigative and Forensic Accounting", *CAP*, Volume 5, Issue 2, Available from: <http://www.sciencedirect.com> (07.04.2016).
- Daniels, Bobbie - Ellis, Yvonne - Gupta, R. D. (2013), "Accounting Educators and Practitioners' Perspectives on Fraud and Forensic Topics in the Accounting Curriculum", *Journal of Legal, Ethical and Regulatory Issues*, Volume 16, Issue 2, Available from: <http://www.sciencedirect.com> (07.04.2016).
- DiGabriele, James (2008), "Implications of regulatory prescriptions and audit standards on the evaluation of forensic accounting in the audit process", *Journal of Applied Accounting Research*, Volume 10, Available from: <http://www.sciencedirect.com> (07.04.2016).
- Handley, Moorison, - Mohamed, Norazida (2014), "Financial statement fraud risk mechanisms and strategies: the case studies of Malaysian commercial companies", *Social and Behavioral*

- Sciences, Volume 145, pp.321 – 329, Available from: <http://www.sciencedirect.com> (07.04.2016).
- IPPF (International Professional Practices Framework) (2014), " Fraud Detection Using Data Analytics in the Banking Industry", Available from <http://www.acl.com/>, (18.11.2016).
- Islam, Jahirul – Rahman, Habibur – Hossan, Takdir (2011), “Forensic Accounting as a Tool for Detecting Fraud and Corruption: An Empirical Study in Bangladesh”, ASA University Review, Volume 5, Issue 2, Available from: <http://www.asaub.edu.bd/>, (07.04.2016)
- Nigrini, Mark (2011), “Forensic Analytics Methods and Techniques for Forensic Accounting Investigations”, Wiley & Sons, Inc, UK.
- Nguyen and Dijk, (2012), " Fraud, growth, and governance: Private vs. state-owned firms in Vietnam", Journal of Banking & Finance, Volume 36, pp. 2935–2948, Available from: <https://www.scribd.com> , (08.04.2016).
- Nunnally - Bernstein (1994), “Psychometric Theory”, 3 edition, McGraw-Hili, Inc, United States of America, Available from: <http://www.sciencedirect.com>, (08.04.2016).
- Ramadhan, Sayel (20015), “Certified Accountants' Perceptions of Forensic Accounting Education: The Case of Bahrain”, International Journal of Finance and Accounting, Volume 4, pp. 109-118, Available from: <http://www.sciencedirect.com>, (08.04.2016).
- Rezaee, Zabihollah; Ha, Michael and Lo, Daniel (2014), “China Needs Forensic Accounting Education”, Open Journal of Social Sciences, Volume 2, pp. 59-65, Available from: <http://www.scirp.org/journal/jss/> , (08.04.2016).
- Renzhou, Dong (2011), “Research on Legal Procedural Functions of Forensic Accounting”, Energy Procedia, Volume 5, pp.2147–2151, Available from: <http://www.sciencedirect.com>, (08.04.2016).
- Smith, G. - Crumbey, D. (2009), “How Divergent are Pedagogical View Toward the Fraud/Forensic Accounting Curriculum”, Global Perspectives on Accounting Education, Issue 6, pp. 1-24, Available from: <https://gpae.bryant.edu>, (09.04.2016).
- Zakari, Mohamed - Menacere, Karim (2012), “The challenges of the quality of audit evidence in Libya”, African J. Accounting, Auditing and Finance, Volume 1, No. 1, Available from: <https://www.inderscience.com>,(09.04.2016).

# THE REDUCTION MODEL PROPOSAL FOR PARAMETER NUMBER REQUIRED FOR PORTFOLIO OPTIMIZATION

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**Abstract:** *The aim of the study is to implement a model proposal in order to be able to create optimal portfolios using the models of Mean-Variance and Single Index portfolio optimization with fewer parameters. In the study, optimum portfolios were established according to the Mean-Variance and Single Index Models by using the daily data between the years 2010-2016 of the Dax Index, which represents the German market index, and the stocks in the Dax index. In addition, optimal portfolios were created according to the Mean-Variance and Single Index Models by using the stocks determined by the number of parameters reduction model required for the proposed portfolio optimization. The values of the optimal portfolios created were compared and the result was that portfolio values that were created by using all the stocks and the stocks obtained from the model resultant are the same. Another significant result is that by using the proposed model, we save 72% of the parameters for Mean-Variance Model and 49% of the parameters for the Single Index Model for the related data.*

**Keywords:** Mean-Variance, Single Index, Portfolio Optimization

## INTRODUCTION

Until the 'Portfolio Selection' work, which was published in 1952 by Markowitz, who laid the foundation of the Modern Portfolio Theory, the portfolio building process was based on simple diversification. Until that date, it was thought that the risk of the portfolio could be reduced by simple diversification, which means increasing the number of securities in the portfolio. Markowitz developed this understanding and described the portfolio creation process as a process beginning with observations and experiences, continuing with the foreseen future performance of the securities and ending with the selection of the securities to be included in the portfolio. Markowitz stated that investors should select the portfolio that provides the highest return at any risk level or that has the lowest risk at any given rate of return. Mean-variance model was developed by Markowitz because this selection method and the ability to reduce portfolio risk could not be realized using simple diversification method. According to this model, the risk of the portfolio can be reduced considerably due to the inclusion of securities with low correlation value in the portfolio. Markowitz states that an efficient frontier can be established with all possible optimal portfolios that can be created with the securities considered to be invested and that investors should select the portfolio that best suits their risk and return expectations from the portfolio on this efficient frontier (Markowitz, 1952: 77-91).

Markowitz (1955), in his work titled 'The Optimization of a Quadratic Function Subject to Linear Constraints', has made the concept of 'Efficient Frontier', which he developed theoretically in the

Mean-Variance Model, practical. He has stated that investors can create efficient frontier for possible portfolios using Quadratic Programming under certain constraints. Sharpe (1963), developed the Single Index Model, a new model to overcome the difficulties in implementing the Mean-Variance Model developed by Markowitz because it contains too many parameters. Sharpe stated that some of the factors (Gross National Product, some price indexes, market indexes, etc.) significantly affect the price of securities. According to Sharpe, the number of parameters required for portfolio optimization can be significantly reduced through the relationship between securities and any factor determined. Elton et al. (1976), in their work, developed the Single Index Model created by Sharpe and turned that model into a portfolio optimization model. Elton and colleagues have indicated that investors can perform portfolio optimization with a number of formulas without using Quadratic Programming, which is used to realize the Mean-Variance Model.

Models have been developed by Treynor (1965), Sharpe (1966) and Jensen (1968-1969) to evaluate the performances of the created portfolios. The model developed by Jensen is called Jensen's Alpha in the literature and emphasizes the alpha variant called the cut-off point, which is the result of the regression process between the historical returns of the securities and the market index (Karan, 2013: 207-208). A number of portfolio performance assessment models have also been developed using alpha-variant, which has been clearly identified by Jensen as important. The aim of this study is to implement a model proposal that can reduce the number of parameters required for Mean-Variance and Single Index Models, using the alpha variant, which is emphasized in the literature. Within the scope of the aim of the study, analyzes were carried out using the Microsoft Office Excell 2010 Program with daily data between 2010-2016 of the Dax Index representing the German market and stocks in the Dax index. According to the information obtained as a result of the analyzes performed, it is possible to create optimum portfolios which can be formed according to the Mean-Variance and Single Index Models with all the stocks included in the index by using fewer parameters.

## METHODOLOGY

In this study, which is performed to decrease the number of parameters required for Mean-Variance and Single Index portfolio optimization models, the daily return ratios of Dax Index representing the German market and the stocks in the Dax index using the 2010-2016 daily data were calculated with the help of Microsoft Excell 2010 program. The relevant data has been obtained from <https://tr.investing.com/> (Date of access: 08.01.2017). The names and transaction codes of the stocks, which were reached in full data set, and the market index in the related data set are given in Table 1.

**Table 1. Dax Index and Stocks Information in the Data Set**

<b>Name</b>	<b>Transaction Code</b>	<b>Name</b>	<b>Transaction Code</b>
Allianz	ALVG	Heidelbergcement AG O,N,	HEIG
BAYER AG	BAYGn	Henkel & Co KGaA AG Pref	HNKG_p
Beiersdorf AG	BEIG	Infineon Technologies AG	IFXGn
Bayerische Motoren Werke AG	BMWG	Linde AG	LING
Commerzbank AG	CBKG	Deutsche Lufthansa AG	LHAG
Continental AG	CONG	Merck KGaA	MRCG
Daimler AG	DAIGn	Munchener Ruck AG	MUVGn
Deutsche Bank AG	DBKGn	Pro Sieben	PSMGn
Deutsche Post AG	DPWGn	RWE AG	RWEG
Deutsche Telekom AG	DTEGn	SAP SE	SAPG
E,ON AG	EONGn	Siemens AG	SIEGn
Fresenius Medical Care AG & Co	FMEG	ThyssenKrupp AG	TKAG
<b>DAX</b>	<b>GDAXI</b>		

The formula used to calculate the daily rate of return is as follows (Sharpe et al., 1999: 140).

$$Return = \frac{(End-of-period\ value)-(Beginning-of-period\ value)}{Beginning-of-period\ value}$$

Using the daily return ratios of the stocks and the Dax Index in the data set, optimum portfolios were created according to the Mean-Variance and Single Index models. By using Quadratic Programming, optimum portfolios constructed according to Mean-Variance Model; the optimal portfolio constructed according to the Single Index Model was created by using mathematical expressions in the model. The formulas and application steps of mean-variance and quadratic programming are as follows.

*First Step:* The expected return rate and standard deviations of each stock are calculated using the daily return ratios of the stocks. The formulas used in calculations are as follows (Oğuz, 2001: 6-8).

$$ER = \frac{\sum_{t=1}^n R_t}{n}, \quad \sigma = \sqrt{\frac{\sum_{t=1}^n (R_t - ER)^2}{n}}$$

$ER$  : Expected return,

$R_t$  : Rate of return during the period  $t$ ,

$n$  : The total number of periods,

$\sigma$  : Standard deviation,

*Second Step:* Using the quadratic programming, portfolios that will maximize the expected rate of return at the same risk level as the Dax Index and the Sharpe ratio, which represents the market risk premium to be obtained against a single unit risk, was constructed according to the Mean-Variance Model. The formulas used during the creation of optimal portfolios are as follows (Markowitz, 1952: 81; Markowitz, 1955: 5-22).

$$w^V = \begin{bmatrix} w_1 \\ w_2 \\ w_3 \\ \vdots \\ w_n \end{bmatrix} : \text{The vector showing the weight of the securities in the portfolio,}$$

$$ER^V = \begin{bmatrix} ER_1 \\ ER_2 \\ ER_3 \\ \vdots \\ ER_n \end{bmatrix} : \text{The vector showing the expected return ratios of securities,}$$

$$ER_p = \sum_{i=1}^n ER_i * w_i = ER^V w^V = \begin{bmatrix} ER_1 \\ ER_2 \\ ER_3 \\ \vdots \\ ER_n \end{bmatrix} \begin{bmatrix} w_1 \\ w_2 \\ w_3 \\ \vdots \\ w_n \end{bmatrix}$$

$ER_p$ : Expected return rate of the portfolio,

$ER_i$  : Expected rate of return for  $i$ 'th securities,

$w_i$  : The weight of the i'th securities in the portfolio,

$$CM = \begin{bmatrix} Cov_{i,i} & \dots & \dots & \dots & Cov_{i,n} \\ \dots & \dots & \dots & \dots & \dots \\ Cov_{n,i} & \dots & \dots & \dots & Cov_{n,n} \end{bmatrix} : \text{Matrix showing the correlation between all securities}$$

$$\sigma_p = \sqrt{\sum_{i=1}^n \sum_{j=1}^n w_i * w_j * Cov_{i,j}} = w^V w^V CM = \begin{bmatrix} w_1 \\ w_2 \\ w_3 \\ \vdots \\ w_n \end{bmatrix} \begin{bmatrix} w_1 \\ w_2 \\ w_3 \\ \vdots \\ w_n \end{bmatrix} \begin{bmatrix} Cov_{i,i} & \dots & \dots & \dots & Cov_{i,n} \\ \dots & \dots & \dots & \dots & \dots \\ Cov_{n,i} & \dots & \dots & \dots & Cov_{n,n} \end{bmatrix}$$

$\sigma_p$  : The standard deviation of the portfolio,

$w_i$  : The weight of the i'th securities in the portfolio,

$w_j$  : The weight of the j'th securities in the portfolio,

$Cov_{i,j}$  : The covariance coefficient between i'th and j'th securities,

$CM$  : Covariance matrix,

$w^V$  : The vector showing the weight of the securities in the portfolio,

$n$  : Total number of securities,

The constraints involved in quadratic programming are as follows.

$$\min \sigma_p = \sqrt{w^V w^V CM} = \sum_{i=1}^n \sum_{j=1}^n w_i w_j \sigma_{i,j}$$

$$\sum_{i=1}^n w_i ER_i \geq ER_d,$$

$$\sum_{i=1}^n w_i = 1,$$

$$w_i \geq 0,$$

$$i = 1,2,3, \dots \dots \dots n$$

$ER_d$  : Determining the level of expected rate of return,

$ER_i$  : Expected rate of return for i'th securities,

$w_i$  : The weight of the i'th securities in the portfolio,

$w_j$  : The weight of the j'th securities in the portfolio,

$n$  : Total number of securities,

$\sigma_{i,j}$  : The covariance coefficient between i'th and j'th securities,

$w^V$  : The vector showing the weight of the securities in the portfolio,

$CM$  : The covariance matrix,

The formula used when calculating the Sharpe Ratio is as follows (Sharpe et al., 1999: 846)

$$\text{Sharpe Ratio} = \frac{ER_p - R_f}{\sigma_p}$$

$ER_p$ : Expected return rate of the portfolio,

$R_f$  : Risk-free interest rate,

$\sigma_p$  : The standard deviation of the portfolio,

The application steps of the Single Index Model and the formulas it contains are as follows.

*First Step:* A regression process is performed between realized historical daily returns of securities and Dax Index in the data set, and the alpha, beta and error variance values of each stock are calculated.

*Second Step:* Using the calculated alpha, beta and error variance values, the expected return rate and standard deviation of each stock are calculated. The formulas used in calculations are as follows (Sharpe, 1963: 281-284).

$$ER_i = a_i + B_i * ER_m$$

$$\sigma_i = \sqrt{B_i \sigma_m^2 + \sigma_{ei}^2}$$

$ER_i$  : Expected rate of return for i'th securities,

$a_i$  : The alpha value of i'th securities,

$ER_m$  : Expected rate of return of the market index,

$\sigma_i$  : The standard deviation of the i'th securities,

$\sigma_m^2$  : The variance of the market index,

$\sigma_{ei}^2$  : The error variance of the i'th securities,

$B_i$  : The beta value of the i'th securities,

*Third Step:* The  $S_i$  value of each stock is calculated using the following formula (Kıyılar and Eroğlu, 2004: 5).

$$S_i = \frac{ER_i - R_f}{B_i}$$

$ER_i$  : Expected rate of return for i'th securities,

$B_i$  : The beta value of the i'th securities,

$R_f$  : Risk-free interest rate,

*Fourth Step:* Stocks are sorted from small to large according to their  $S_i$  values. The  $C_i$  value of each share is calculated according to the order in which the sorting process occurs. The formula used in calculations is as follows (Kaya and Kocadağlı, 2012: 25).

$$C_i = \frac{\sigma_m^2 \sum_{i=1}^n \frac{(ER_i - R_f) * B_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 * \sum_{i=1}^n \left( \frac{B_i^2}{\sigma_{ei}^2} \right)}$$

$ER_i$  : Expected rate of return for i'th securities,

$B_i$  : The beta value of the i'th securities,

$R_f$  : Risk-free interest rate,

$\sigma_m^2$  : The variance of the market index,

$\sigma_{ei}^2$  : The error variance of the i'th securities,

$n$  : Total number of securities,

*Fifth Step:* The  $S_i$  and  $C_i$  values of each stock are compared and the stocks with the  $S_i$  value greater than the  $C_i$  value are included in the portfolio. The  $C_i$  value of the last stock that was included in the portfolio was determined as the  $C^*$  threshold value. The value of  $Z_i$  used to determine the weight of the stocks included in the portfolio with the help of  $C^*$  threshold value is calculated for each stock. The weights of the stocks in the portfolio are calculated through  $Z_i$  values. The formulas used in calculations are as follows (Birgili and Tuna, 2010: 7).

$$Z_i = \frac{B_i}{\sigma_{ei}^2} * \left( \frac{ER_i - R_f}{B_i} - C^* \right)$$

$$w_i = \frac{Z_i}{\sum_{i=1}^n Z_i}$$

$w_i$ : The weight of the i'th securities in the portfolio,

$Z_i$  : The Z value of the i-th security,

$ER_i$  : Expected rate of return for i'th securities,

$R_f$  : Risk-free interest rate,

$B_i$  : The beta value of the i'th securities,

$\sigma_{ei}^2$  : The error variance of the i'th securities,

$C^*$  : Threshold value

$n$  : Total number of securities,

*Last Step:* Expected return and standard deviation values of the portfolio are calculated using the following formulas (Elton et al., 1976: 1351; Karan, 2013: 241).

$$ER_p = \sum_{i=1}^n w_i * ER_i$$



$$\sigma_p = \sqrt{[\sigma_m^2 * (\sum_{i=1}^n w_i * B_i)^2] + [\sum_{i=1}^n w_i^2 * \sigma_{ei}^2]}$$

$ER_p$  : Expected return rate of the portfolio,

$\sigma_p$  : The standard deviation of the portfolio,

$w_i$  : The weight of the i'th securities in the portfolio,

$B_i$  : The beta value of the i'th securities,

$ER_i$  : Expected rate of return for i'th securities,

$\sigma_m^2$  : The variance of the market index,

$\sigma_{ei}^2$  : The error variance of the i'th securities,

The following steps have been carried out in order to be able to create optimal portfolios based on Mean-Variance and Single Index Models using fewer parameters.

*First Step:* A regression process is performed between historical daily return rates of stocks and Dax Index in the data set, and the alpha values of each stock are determined.

*Second Step:* The averages of the alpha values of the stocks are taken and the  $a^*$  threshold value is determined.

*Third Step:* Stocks with alpha values greater than the  $a^*$  threshold were determined and optimum portfolios were established according to the Mean-Variance and Single Index Models using these stocks.

Finally, in this study, optimum portfolio values created using all stocks in the data set and the stocks determined by the model proposed by us are compared and the information obtained is interpreted.

## RESULTS

Table 2 provides information on the optimum portfolios that gives the maximum Sharpe Ratio and expected return at the same risk level as the Dax Index using all stocks in the data set according to the Mean-Variance Model.

**Table 2.** Optimum Portfolio Information Generated by Mean-Variance Model with All Stocks in Data Set

	Portfolio Makes Maximum Sharpe Ratio	Portfolio That Gives the Maximum Expected Return at the Same Risk Level as the Dax Index
Expected Return	0,000893351	0,000885325
Variance	0,000173102	0,000169956
Standard Deviation	0,013156819	0,013036713
Sharpe Ratio	0,066203746	0,066198084
Number of Stocks Included in the Portfolio	7	7

Table 3 provides information on the optimum portfolios that gives the maximum Sharpe Ratio and expected return at the same risk level as the Dax Index using twelve stocks determined using the parameter reduction method recommended by us for portfolio optimization according to the Mean-Variance Model.

**Table 3.** Optimum Portfolios Created According to Mean-Variance Model with Twelve Stocks in Data Set

	Portfolio Makes Maximum Sharpe Ratio	Portfolio That Gives the Maximum Expected Return at the Same Risk Level as the Dax Index
Expected Return	0,000893351	0,000885325
Variance	0,000173102	0,000169956
Standard Deviation	0,013156819	0,013036713
Sharpe Ratio	0,066203746	0,066198084
Number of Stocks Included in the Portfolio	7	7

From Table 2 and Table 3, it can be seen that optimum portfolio values formed by using all stocks in the data set can be reached by using twelve stocks which are obtained by proposed method of reducing the number of parameters required for the portfolio optimization. The optimal portfolio generated according to the Mean-Variance Model with all stocks in the data set was realized by using 324 parameters in total, 24 expected returns, 24 standard deviations and 276 covariances. The optimal portfolio generated according to the Mean-Variance Model with twelve stocks, which are obtained by proposed method by us, was realized by using 90 parameters in total, 12 expected returns, 12 standard deviations and 66 covariances. Our model provides a 72% parameter saving for an investor who wants to perform portfolio optimization according to the Mean-Variance Model using stocks in the relevant data.

Using the Single Index Model, optimum portfolio information generated by all stocks in the dataset is given in Table 4.

**Table 4.** Optimum Portfolio Information Based on Single Index Model with All Stocks in Data Set

	Portfolio Makes Maximum Sharpe Ratio
Expected Return	0,000876718
Variance	0,000161635
Standard Deviation	0,012713579
Sharpe Ratio	0,06895919
Number of Stocks Included in the Portfolio	7

Using the Single Index Model, optimum portfolio information generated by twelve stocks which are obtained by proposed method of reducing the number of parameters required for the portfolio optimization is given in Table 5.

**Table 5.** Optimum Portfolios Created According to Single Index Model with Twelve Stocks in Data Set

	Portfolio Makes Maximum Sharpe Ratio
Expected Return	0,000876718
Variance	0,000161635
Standard Deviation	0,012713579
Sharpe Ratio	0,06895919
Number of Stocks Included in the Portfolio	7

From Table 4 and Table 5, it can be seen that optimum portfolio values formed by using all stocks in the data set can be reached by using twelve stocks which are obtained by proposed method of reducing the number of parameters required for the portfolio optimization. The optimal portfolio constructed according to the Single Index Model with all the stocks included in the data set were realized by using 74 parameters in total including 24 alpha, 24 beta, 24 error variances, 1 market index return and 1 market index standard deviation. The optimal portfolio constructed according to the Single Index Model with twelve stocks, which are obtained by proposed method by us, were realized by using 38 parameters in total including 12 alpha, 12 beta, 12 error variances, 1 market index return and 1 market index standard deviation. Taking into account the mathematical calculations in the Single Index Model, the transaction liability will also be significantly reduced through the model we propose. Our model provides a parameter saving of 49% for an investor who wants to perform portfolio optimization according to the Single Index Model by using the stocks in the relevant data. According to the information obtained as a result of the analyzes carried out, it can be said that the number of parameters required for Mean-Variance and Single Index portfolio optimization models can be significantly reduced by using the proposed model.

## CONCLUSION

With the Mean-Variance Model developed by Markowitz, the concept of portfolio optimization has gained a new dimension. With this work of Markowitz, Traditional Portfolio Theory has left its place to Modern Portfolio Theory. After Markowitz's study, studies on the concept of portfolio optimization has been increased and new models emerged. The Single-Index Model was developed by Sharpe in order to overcome some shortcomings of the Mean-Variance Model, and the Single Index Model, which developed by Sharpe, was transformed into a portfolio optimization model by Elton and Gruber. Although there are a lot of portfolio performance evaluation methods in the literature, the portfolio optimization method is limited to Mean-Variance and Single Index Models. The Single Index Model, developed to reduce the number of parameters required by the Mean-Variance Model and remove quadratic programming, only creates the optimum portfolio with the maximum Sharpe Ratio. Although Mean-Variance Model is critically criticized in the literature for the number of parameters it requires, it provides users with great advantages in terms of flexibility. Using the Mean-Variance Model, portfolios providing the highest expected returns at a specified risk level or providing the lowest risk at a specified expected return level can be established. The aim of this study is to implement a new model proposal to ensure that optimal portfolios that can be constructed using Mean-Variance and Single Index Models can be created using fewer parameters. According to information obtained from the analysis carried out under this purpose, it can be clearly stated that the optimum portfolio values that can be formed by means of Mean-Variance and Single Index Models can be reached by using the model of decreasing the number of parameters recommended by us. Future work may be undertaken to develop the proposed model. Since no studies have been found to reduce the number of parameters required for portfolio optimization in the literature, it is considered that this study will provide significant contributions to the literature.

## REFERENCES

- Birgili, Erhan-Tuna, Gülfen (2010), “Markowitz ve Tek Endeks Modellerinin Uygulanması: İmkb 30 Endeksi Üzerinde Karşılaştırmalı Analiz”, Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Volume 15, Issue 3, pp.1-18.
- Elton, J. Edwin-Gruber, J. Martin-Padberg, W. Manfred (1976), “Simple Criteria for Optimal Portfolio Selection”, The Journal of Finance, Volume 31, Issue 5, pp.1341-1357.
- Jensen, C. Michael (1968), “The Performance of Mutual Funds in the Period 1945-1964”, Journal of Finance, Volume 23, Issue 2, pp.389-416.
- Jensen, C. Michael (1969), “Risk, Pricing of Capital Assets, and the Evaluation of Investment Portfolios”, The Journal of Business, Volume 42, Issue 2, pp.167-247.
- Karan, M. Baha (2013), Yatırım Analizi ve Portföy Yönetimi, Gazi Kitabevi, Ankara.
- Kaya, Cansın-Kocadağlı, Ozan (2012), “Etkin Sınır ve Beta Katsayı Kısıtlı Portföy Seçim Modeli Üzerine Bir Uygulama”, İstanbul Ticaret Üniversitesi Fen Bilimleri Dergisi, Volume 11, Issue 22, pp.19-35.
- Kıyılar, Murat-Eroğlu, Ergün (2005), “Tek Endeks Modeli ve Modelin İstanbul Menkul Kıymetler Borsasında Uygulanması”, İşletme Fakültesi İşletme İktisadi Enstitüsü Yönetim Dergisi, Volume 16, Issue 52, pp.7-25.
- Markowitz, Harry (1952), “Portfolio Selection”, The Journal of Finance, Volume 7, Issue 1, pp.77-91.
- Markowitz, Harry (1955), “The Optimization of a Quadratic Function Subject to Linear Constraints”, Naval Research Logistics Quarterly, Volume 3, pp.111-133.
- Oğuz, Yasemin (2001), “Portföy Optimizasyonu”, (Yüksek Lisans Tezi), İstanbul Teknik Üniversitesi Fen Bilimleri Enstitüsü, İstanbul.
- Sharpe F. William-Alexander Gordon J.-Bailey Jeffery V. (1999), Investments, Prentice Hall Publisher, United States of America.
- Sharpe, F. William (1963), “A Simplified Model For Portfolio Analysis”, Management Science, Volume 9, Issue 2, pp.277-293.
- Sharpe, F. William (1966), “Mutual Fund Performance”, The Journal of Business, Volume 139, Issue 1, pp.119-138.
- Treynor, L. Jack (1965), “How to Rate Management of Investment Funds”, Harvard Business Review, Volume 43, Issue 1, pp.63-75.
- <https://www.investing.com>, (08.02.2017).

# A NEW EFFICIENT FRONTIER EXPERIMENT IN INVESTMENT ANALYSIS

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**Abstract:** *The surge in financial markets and the increase in the variety of financial instruments that have increased with the collapse of the Bretton wood system has complicated the portfolio building process of investors. In 1952, with Harry Markowitz's "Portfolio Selection" study, Traditional Portfolio Theory was replaced by Modern Portfolio Theory. In Modern Portfolio Theories, where Markowitz was founded, there are two different efficient frontier creation models that investors can use in their optimal portfolio creation process. The first of these models is the efficient frontier model, which can be formed by expected returns and standard deviations of the portfolios using the Markowitz's Mean-Variance Model, and the other is the efficient frontier model developed by Sharpe, including the risk-free interest rate. The aim of the study is to create a new efficient frontier that investors can use in the portfolio optimization process by using the alpha variant that expresses the potential expected return or, in other words, whether or not the financial instruments are valued with real value, and the standard deviation variant, which is the criterion of volatility. Within the scope of this aim, analyzes were carried out using the daily data between the dates of 2010-2016 of 46 stocks in BIST 50 which are fully accessible. According to the analysis results, it can be said that an efficient frontier for the portfolio optimization can be established by using the alpha and standard deviation variables of the securities and the investment can be made in the optimum portfolio located on this efficient frontier.*

**Keywords:** Efficient Frontier, Portfolio Optimization

## INTRODUCTION

According to the Modern Portfolio Theory, investors are willing to invest in the lowest risk at the same expected level of return and the highest level of return at the same risk level (Demirtaş and Güngör, 2004:105). In the literature, the portfolios that constitute the best risk-return relationship are considered as optimal portfolios. The curve that combines optimal portfolios is also called efficient frontier. Investors can access the best portfolios for themselves using the efficient frontier (Ceylan and Korkmaz, 1993:129). The curves that show the relationship between investors' risk and return preferences on a risk and return-oriented graph are called indifference curves. At the same time, these curves also show which risk level investors are expecting for return. Indifference curves have three basic characteristics.

- Every point on the same indifference curve provides the same benefits for investors.
- On the risk-return graph, the north-west portfolio yields more returns than the portfolio that is farther north-west.

- Since the marginal benefit decreases as the risk increases, the slope of the indifference curves becomes more steep to the return line as it goes to the right on the graph (Birgili and Tuna, 2010: 2).

The alpha variant in Sharpe's (1963) study, which was first published in the literature, has been used frequently in portfolio performance evaluation methods with the work performed by Jensen (1969). The alpha value, which can be calculated using the past period return of securities and the index representing the market in which securities are traded in the regression analysis, indicates whether the securities are valued above or below their true value. A positive alpha value means that the price of the security is below its actual value. Future prices of securities that are priced below their actual value will likely increase. A negative alpha value indicates that the price of the security is above its actual value. Future prices of securities that are priced above actual value will likely decrease (Karan, 2013:165-169).

There are two different efficient frontier models developed by Harry Markowitz and William Sharpe in the literature. In order to establish the efficient frontier developed by Markowitz, the Mean-Variance Model developed by Markowitz needs to be used. The expected return of the portfolio from the parameters required to establish the efficient frontier is calculated using formula number 1.

$$ER_p = \sum_{i=1}^n ER_i * w_i \quad (1)$$

In formula number 1;

$ER_p$ : Expected return the portfolio,

$ER_i$  : Expected return of the i'th securities,

$w_i$  : The weight of the i'th securities in the portfolio,

$n$ : The total number of securities in the portfolio,

represents (Aksoy and Tanrıöven, 2007: 611).

As shown in formula 1, the weighted average of the expected returns of each security in the portfolio gives the expected return of the portfolio. The method used to calculate the expected return is not valid when calculating the risk for the portfolio. In other words, the weighted average of the standard deviations of the financial assets making up the portfolio does not give the standard deviation (risk) of the portfolio (Tosun and Oruç, 2010: 480). The calculation of the portfolio risk requires the covariance or correlation values between the securities (Markowitz, 1952: 80).

In portfolio optimization, covariance is used to determine the relationship between the return rates of financial instruments. The numerical magnitude of the calculated covariance value does not have any meaning. The relation of the variables to each other is interpreted according to whether the calculated covariance value is positive, zero or negative. Covariance with a positive value means that the variables move in the same direction, while negative values have a covariance that the variables move in the opposite direction. In other words, negative covariance means that one of the variables increases the rate of return while the rate of return of the other variable decreases. Equivalence of covariance value to zero means that there is no relation between variables (Küçükkocaoğlu, 2002: 2). Correlation value needs to be calculated in order to determine the degree of relation between variables. The correlation value varies between -1 and +1. -1 correlation value indicates that there is a perfect inverse relationship between two variables, +1 correlation value indicates that there is an excellent correlation between the value of the variables, and 0 correlation value indicates that there is no relation between the variables (Karan, 2001: 139-140). According to Markowitz, investors need to avoid securities that are highly correlated with each other when they form portfolios. In addition, according to Markowitz, the risk of portfolio could be reduced by means of inclusion of securities with low or negative correlations in the portfolio (Markowitz, 1952: 89).

The covariance and correlation values required to calculate the standard deviation of the portfolio and the standard deviation value from the parameters required to establish the efficient frontier are calculated using formulas number 2, 3 and 4 (Abay, 2013: 183; Sharpe et al., 1999: 165-166)

$$\sigma_p = \sqrt{\sum_{i=1}^n \sum_{j=1}^n w_i * w_j * \sigma_i * \sigma_j * Cor_{i,j}} \quad (2)$$

$$Cov_{i,j} = \sum_{t=1}^n (R_i(t) - ER_i) * (R_j(t) - ER_j) \quad (3)$$

$$Cor_{i,j} = \frac{Cov_{i,j}}{\sigma_i * \sigma_j} \quad (4)$$

In formulas number 2,3 and 4;

$\sigma_p$  : The standard deviation of the portfolio,

$w_i$  : The weight of the i'th securities in the portfolio,

$w_j$  : The weight of the j'th securities in the portfolio,

$\sigma_i$  : Standard deviation of the i'th security,

$\sigma_j$  : The standard deviation of the j'th security,

$Cor_{i,j}$  : The coefficient of correlation between i'th and j'th securities,

$Cov_{i,j}$  : The covariance coefficient between i'th and j'th securities,

$R_i(t)$  : The return of the i'th securities at time t,

$R_j(t)$  : The return of the j'th securities at time t,

represents.

Sharpe (1963) proposed a diagonal model in order to create a simpler portfolio, suggesting that transactions become more complex as the number of financial instruments increases in the Mean-Variance Model developed by Markowitz. According to Sharpe, the yield of financial instruments can be calculated as a consequence of the relation to some basic economic factors. In this model, the expected returns, variances, standard deviations, covariances, and correlations of securities can be calculated by means of the relationship between any factor identified as some price indices, gross national product, etc. and the securities considered to be included in the portfolio, and optimal portfolios can be constructed using less data. Markowitz's efficient frontier includes optimal portfolios that can only be created with risky assets. Sharpe notes that investors can also invest in risk-free assets, and as a result, efficient frontier may change. The efficient frontier developed by Sharpe is a straight line starting at risk-free interest and extending tangentially to the efficient frontier of Markowitz. The mathematical expression of the efficient frontier created by Sharpe is shown in formula number 5 (Özdemir and Giresunlu, 1995: 55-56; Karan, 2013: 178-201).

$$ER_p = R_f + \left(\frac{ER_m + R_f}{\sigma_m}\right) \sigma_p \quad (5)$$

In formula number 5;

$ER_p$  : The expected return of the portfolio,

$R_f$  : Risk-free rate,

$ER_m$  : The expected return of the market portfolio,

$\sigma_m$  : The total risk of the market portfolio,

$\sigma_p$  : The total risk of the portfolio,

represents.

Formulas number 6, 7, 8, 9, and 10 are used to calculate the expected return, risk, and variance of stocks (Karan, 2013: 204-233; Kıyılar ve Eroğlu, 2005: 20).

$$ER_i = a_i + B_i * ER_f \quad (6)$$

$$\sigma_i^2 = B_i \sigma_m^2 + \sigma_{ei}^2 \quad (7)$$

$$\sigma_{ij} = B_i * B_j * \sigma_f^2 \quad (8)$$

$$B_i = \frac{\sigma_{if}}{\sigma_f^2} \quad (9)$$

$$B_j = \frac{\sigma_{jf}}{\sigma_f^2} \quad (10)$$

In formula number 6, 7, 8, 9 and 10;

$ER_i$  : The expected return of the i'th securities,

$a_i$  : The alpha of the i'th securities,

$ER_f$  : The expected return of the selected factor,

$\sigma_i^2$  : The variance of the i'th security,

$\sigma_f^2$  : The variance of the selected factor,

$\sigma_{ei}^2$  : The error variance of the i'th securities,

$\sigma_{ij}$  : The covariance coefficient between the i'th and j'th securities,

$\sigma_{if}$  : The covariance coefficient between the return of i'th securities and the selected factor,

$\sigma_{jf}$  : The covariance coefficient between the return of j'th securities and the selected factor,

$B_i$  : The beta of the i'th securities,

$B_j$  : The beta of the j'th securities,

represents.

Formulas number 11, 12 and 13 are used to calculate the expected returns and risks of portfolios on the efficient frontier developed by Sharpe (Karan, 2013: 235).



$$ER_p = \sum_{i=1}^n w_i * ER_i \quad (11)$$

$$\sigma_p = \sqrt{B_p^2 * \sigma_f^2 + \sum_{i=1}^n w_i^2 * \sigma_{ei}^2} \quad (12)$$

$$B_p = \sum_{i=1}^n w_i * B_i \quad (13)$$

In formulas number 11, 12 and 13;

$ER_p$  : The expected return of the portfolio,

$ER_i$  : The expected return of the i'th securities,

$w_i$  : The weight of the i'th securities in the portfolio,

$\sigma_p$  : Standard deviation of the portfolio,

$\sigma_f^2$  : The variance of the selected factor,

$\sigma_{ei}^2$  : The error variance of the i'th securities,

$B_i$  : The beta of the i'th securities,

$B_p$  : The beta of the portfolio,

represents.

The purpose of studying the literature knowledge given, in addition to the efficient frontiers that can be created according to Modern Portfolio Theories, is to develop a new efficient frontier created by the different variables that investors can use. Along with the efficient frontier developed, investors are thought to be able to take advantage of the potential benefits of low priced financial instruments in the market for optimal portfolios. In the study, analyzes were carried out through the Microsoft Excell 2010 program using the daily data between the dates of 2010-2016 of 46 stocks in BIST 50 that are fully accessible. With the information obtained from the analysis, alpha and standard deviation variables can be used to establish an efficient frontier in the portfolio creation process and investors can evaluate their savings according to their own risk perceptions using this efficient frontier.

## METHODOLOGY

Investors can invest in optimal portfolios with the help of efficient frontiers created by Markowitz and Sharpe. In addition to these two models, investors are thought to be able to obtain an efficient frontier by using alpha variable, which expresses the potential price increases of the financial instruments, obtained by the regression analysis and the standard deviation variable. With the efficient frontier created using alpha and standard deviation variables investors can get the best benefit at the risk level appropriate to their character (Can, 2007: 92-93).

In order to carry out the analyzes in the study, daily data between the dates of 2010-2016 of the 46 stocks in BIST 50 which can be accessed as a full set of data are used. The relevant data has been obtained from <https://tr.investing.com/> (Access Date: 09.02.2017). The transaction codes of the stocks in the data set are given in Table 1.

**Table 1.** Transaction Codes of Stocks in Data Set

AKBNK	TAVHL	BJKAS
ARCLK	TKFEN	DOHOL
BIMAS	TOASO	ECILC
CCOLA	TUPRS	EGEEN
DOAS	THYAO	FENER
ENKAI	TTKOM	GOLTS
EREGL	TCELL	GOODY
FROTO	HALKB	GUBRF
SAHOL	ISCTR	KORDS
KRDMD	VAKBN	MGROS
KCHOL	ULKER	TSKB
OTKAR	YKBNK	TATGD
PETKM	AFYON	TRKCM
SODA	AEFES	VESTL
GARAN	ASELS	
SISE	BAGFS	

As a first step in the study, a regression process was performed between the stock returns in the data set and the daily returns of the BIST 100 index, which is explicitly stated in the literature that represents the Turkish market index, between 2010 and 2016, and the alpha values of each stocks were calculated. As a second step, the return ratios for each stock are calculated using formula number 6. As a third step, the quadratic programming model was used with Microsoft Excell 2010 program to create efficient frontier with the alpha and standard deviation variables of the stocks in the data set. The formulas and excell display in the model used are as follows.

	A	B	C	D	.....	AS	AT	AU	AV
1		AKBNK	ARCLK	BIMAS	.....	TATGD	TRKCM	VESTL	
2	Avarage(Ex pected) Return	$ER_1$	$ER_2$	$ER_3$	.....	$ER_{44}$	$ER_{45}$	$ER_{46}$	
· · · ·	Covariance Matrix	$Cov_{1,1}$	$Cov_{1,2}$	$Cov_{1,3}$	.....	$Cov_{1,44}$	$Cov_{1,45}$	$Cov_{1,46}$	
		.....	.....	.....	.....	.....	.....	.....	
		.....	.....	.....	.....	.....	.....	.....	
		$Cov_{46,1}$	$Cov_{46,2}$	$Cov_{46,3}$	.....	$Cov_{46,44}$	$Cov_{46,45}$	$Cov_{46,46}$	
49	Weights of securities in portfolio	$w_1$	$w_2$	$w_3$	.....	$w_{44}$	$w_{45}$	$w_{46}$	SUM(B49:A U49)
50	Alpha Value	$a_1$	$a_2$	$a_3$	.....	$a_{44}$	$a_{45}$	$a_{46}$	
51	Alpha Value of the Portfolio				SUMPRODUCT(B49:AU49;B50:AU50)				
52	Expected Return of the Portfolio				SUMPRODUCT(B49:AU49;B2:AU2)				

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53	Variance of the Portfolio	SUMPRODUCT(MMULT (B49:AU49;B3:AU48);B49:AU49)	
54	Standard Deviation on the Portfolio	SQRT(SUMPRODUCT(MMULT (B49:AU49;B3:AU48);B49:AU49))	
55	Alpha/Standard Deviation	SUMPRODUCT(B49:AU49;B50:AU50)/ SQRT(SUMPRODUCT(MMULT (B49:AU49;B3:AU48);B49:AU49))	

The restrictions in Excell are as follows.

$$AV49 = 1, \quad B49: AU49 \geq 0$$

As the fourth step, the lowest and highest standard deviation values were calculated by using the above-mentioned excell table and the portfolios giving the highest alpha in this standard deviation range were established. In addition, the portfolio with the highest alpha/standard deviation value was found. As a final step, efficient frontier was established with portfolios, which have various alpha/standard deviation values, and the resulting results were interpreted.

## RESULTS

The lowest and highest risk portfolios have been established to create efficient frontier using the alpha and standard deviation of stocks. In addition, the portfolio with the maximum alpha/standard deviation value was also constructed. The stocks included in the portfolio and the weights of these stocks in the portfolio are given in Table 2.

**Table 2.** Shares in Portfolios and Their Weights in Portfolio

Stocks	Daily Avarage(Expected) Return	Alpha	Standard Deviation	Portfolio with the lowest standard deviation	Portfolio with the highest standard deviation	Portfolio with the highest alpha/standard deviation value
AKBNK	0,000146	-0,000276	0,022522099	0	0	0
ARCLK	0,000936	0,000645	0,020659257	0	0	0
BIMAS	0,000189	-0,000015	0,024434905	0,066619184	0	0
CCOLA	0,000717	0,000514	0,022508881	0,053105911	0	0,01441765
DOAS	0,000764	0,000419	0,028396049	0	0	0
ENKAI	0,000048	-0,000180	0,020205997	0,07316384	0	0
EREGL	0,000318	0,000057	0,021240736	0,020599455	0	0
FROTO	0,000892	0,000637	0,02087245	0,011093104	0	0
SAHOL	0,000475	0,000125	0,02032701	0	0	0
KRDMD	0,000621	0,000290	0,024006264	0	0	0

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KCHOL	0,000816	0,000495	0,018931781	0	0	0
OTKAR	0,001452	0,001204	0,022490874	0,020414012	0	0,336510132
PETKM	0,000255	0,000026	0,027845721	0,028106226	0	0
SODA	0,000886	0,000670	0,020750423	0,058900524	0	0,043075224
GARAN	0,000340	-0,000094	0,021962739	0	0	0
SISE	0,000620	0,000323	0,021426224	0	0	0
TAVHL	0,000852	0,000608	0,021968008	0,023147064	0	0
TKFEN	0,000377	0,000091	0,021075624	0	0	0
TOASO	0,001214	0,000902	0,023616015	0	0	0,084739405
TUPRS	0,000666	0,000394	0,019778472	0,022373424	0	0
THYAO	0,000187	-0,000153	0,02270599	0	0	0
TTKOM	0,000244	0,000023	0,018027803	0,102586382	0	0
TCELL	0,000090	-0,000121	0,017149001	0,173049746	0	0
HALKB	0,000145	-0,000288	0,023143924	0	0	0
ISCTR	0,000134	-0,000273	0,021709547	0	0	0
VAKBN	0,000246	-0,000186	0,022546855	0	0	0
ULKER	0,001081	0,000866	0,021173547	0,070256674	0	0,178649508
YKBNK	0,000257	-0,000154	0,021493607	0	0	0
AFYON	-0,000548	-0,000835	0,050999773	0	0	0
AEFES	0,000236	0,000053	0,02035323	0,103244496	0	0
ASELS	0,000501	0,000248	0,028724765	0,009520385	0	0
BAGFS	-0,000435	-0,000718	0,032457079	0	0	0
BJKAS	0,000680	0,000454	0,03660751	0,003180659	0	0

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DOHOL	0,000147	-0,000077	0,025158787	0,046014655	0	0
ECILC	0,000269	0,000000	0,020484837	0,003166919	0	0
EGEEN	0,002342	0,002067	0,032789497	0	1	0,34260808
FENER	0,000342	0,000152	0,030536632	0,034578625	0	0
GOLTS	0,000719	0,000401	0,027353297	0	0	0
GOODY	0,000940	0,000637	0,036705492	0	0	0
GUBRF	0,000324	0,000029	0,030783628	0	0	0
KORDS	0,000747	0,000519	0,020702352	0,047115025	0	0
MGROS	0,000200	-0,000109	0,022779049	0	0	0
TSKB	0,000117	-0,000192	0,022770263	0	0	0
TATGD	0,000552	0,000305	0,020467201	0,029701756	0	0
TRKCM	0,000448	0,000161	0,020409366	0	0	0
VESTL	0,000839	0,000511	0,027055655	0	0	0

Table 2 shows the expected returns, alpha and standard deviation values of each stock. The first of the generated portfolios is the one with the lowest standard deviation. According to Table 2, BIMAS (6.6%), CCOLA(%5,3), ENKAI(%7,3), EREGL(%2), FROTO(%1,1), OTKAR(%2), PETKM(%2,8), SODA(%5,9), TAVHL(%2,3), TUPRS(%2,2), TTKOM(%10,2), TCELL(%17,3), ULKER(%7), AEFES(%10,3), ASELS(%0,9), BJKAS(%0,3), DOHOL(%4,6), ECILC(%0,3), FENER(%3,4), KORDS(%4,7), TATGD(2,9) shares are included in the portfolio with the lowest standard deviation. The stock with the most weight in the relevant portfolio is TCELL with 17% weight and the stocks with the lowest weight are ECILC and BJKAS with 0.3% weight. The second of the generated portfolios is the one with the highest standard deviation. According to Table 2, only the AEGEN stock is included in the portfolio with the highest standard deviation with 100% weight. The third from the generated portfolio is the portfolio with the highest alpha/standard deviation. According to Table 2, the portfolio with the highest alpha/standard deviation includes CCOLA(1.4%), OTKAR(%33,6), SODA(%4,3), TOASO(%8,4), ULKER(%17,8), EGEEN(%34,2) stocks. The stock with the most weight in the relevant portfolio is EGEEN with 34,2% weight and the stock with the lowest weight is CCOLA with 1,4% weight. The efficient frontier created by the optimum portfolios using alpha/standard deviation values is given in Figure 1.

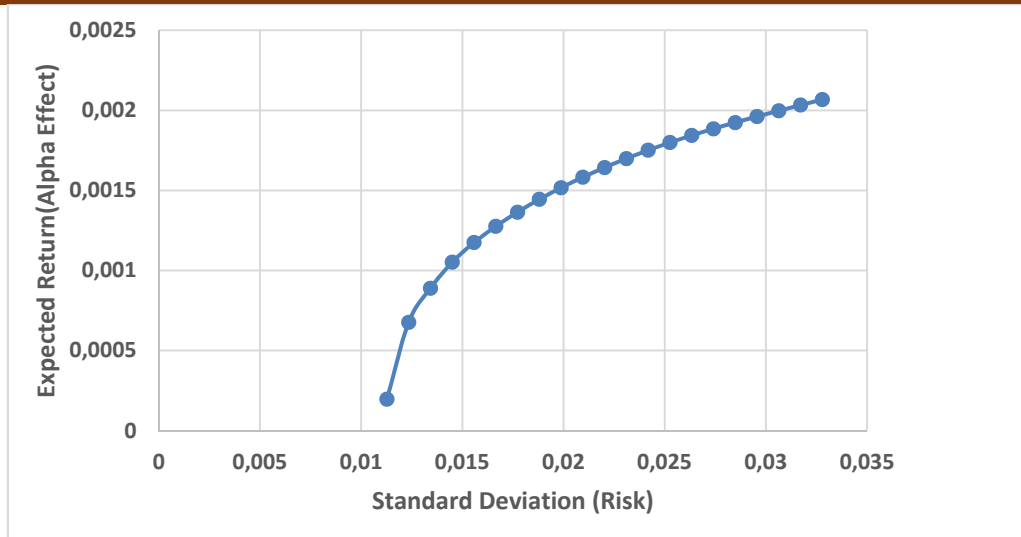


Figure 1. Efficient Frontier Generated by Alpha / Standard Deviation

From Figure 1, it can be seen that the efficient frontier created by using the alpha and standard deviation values of the stocks in the data set starts with the portfolio with the lowest standard deviation and ends with the portfolio with the highest standard deviation. By using this efficient frontier, investors can easily create optimal portfolios that maximize their benefits at the risk level that is most appropriate for them. It can be said that the new efficient frontier model created is superior to the efficient frontiers developed by Markowitz and Sharpe in order to keep the potential return expectation (reaching the real value of the under-valued financial instrument) in the forefront.

## CONCLUSION

Rational investors want to invest in the portfolio with the highest return at a certain risk level and the lowest risk at a given return level, according to Modern Portfolio Theories. The increase in the numbers, the yields, the risks and the complexity of the financial instruments make the business of investors very difficult. When investors invest in optimal portfolios on efficient frontiers developed by Markowitz and Sharpe, investors will get more benefits than other alternatives. In addition to these models, an efficient frontier has been established with optimum portfolios by standard deviation and alpha variables which express the difference between the real values of the financial instruments and the market values. In this model, attention is paid to the importance of low valued financial instruments in the market and it is ensured that they are taken into account when creating optimal portfolios. As a result of the analyzes made with the stocks listed in BIST 50 in our work, efficient frontier were drawn by establishing optimal portfolios that yield the highest alpha in the lowest and highest standard deviation ranges with stocks with different alpha values. Portfolios on the efficient frontier are defined as those that provide the highest benefit for investors, while those that are below are said to be low-yielding portfolios. As a result, investors can create efficient frontier and create highly useful portfolios with the relationship between alpha and standard deviation of low valued financial instruments, according to the proposed model. It can be said that the new efficient frontier model created is superior to Markowitz and Sharpe's efficient frontier models in terms of keeping the potential return expectations (reaching the true value of the under-valued financial instrument) on the front. In addition, the arbitrage pricing model has stated that all financial instruments will come to their true values and contributes to the consistency of the model developed by us in this information.

## REFERENCES

- Abay, Ramazan (2013), "Markowitz Karesel Programlama İle Portföy Seçimi: İmkb 30 Endeksinde Riskli Portföylerin Seçimi", Ç.Ü. Sosyal Bilimler Enstitüsü Dergisi, Volume 22, Issue 2, pp.175-194.
- Aksoy, Ahmet-Tanrıöven, Cihan (2007), Sermaye Piyasası Yatırım Araçları ve Analizi, Gazi Kitabevi, Ankara.
- Birgili, Erhan-Gülfen, Tuna (2010), "Markowitz ve Tek Endeks Modellerinin Uygulanması: İmkb 30 Endeksi Üzerinde Karşılaştırmalı Analiz", Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Volume 15, Issue 3, pp.1-18.
- Can, Tuncay (2007), "Kuadratik Programlama Yöntemiyle Markov Geçiş Matris Değerlerinin Belirlenmesi", Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi, Volume 21, Issue 1, pp.89-101.
- Ceylan, Ali- Korkmaz, Turhan (1993), Uygulamalı Portföy Yönetimi, Ekin Kitabevi Yayınları, Bursa.
- Demirtaş, Özgür-Güngör, Zülal (2004), "Portföy Yönetimi ve Portföy Seçimine Yönelik Uygulama", Havacılık ve Uzay Teknolojileri Dergisi, Volume 1, Issue 4, pp.103-109.
- Jensen, C. Michael (1969), "Risk, Pricing of Capital Assets, and the Evaluation of Investment Portfolios", The Journal of Business, Volume 42, Issue 2, pp.167-247.
- Karan, M. Baha (2001), Yatırım Analizi ve Portföy Yönetimi, Gazi Kitabevi, Ankara.
- Karan, M. Baha (2013), Yatırım Analizi ve Portföy Yönetimi, Gazi Kitabevi, Ankara.
- Kıyılar, Murat-Eroğlu, Ergün (2005), "Tek Endeks Modeli ve Modelin İstanbul Menkul Kıymetler Borsasında Uygulanması", İşletme Fakültesi İşletme İktisadi Enstitüsü Yönetim Dergisi, Volume 16, Issue 52, pp.17-25.
- Küçükkocaoğlu, Güray (2002), "Optimal Portföyün Seçimi ve İMKB Ulusal-30 Endeksi Üzerine Bir Uygulama", Active-Bankacılık ve Finans Dergisi, Issue 26, pp.74-91.
- Markowitz, Harry (1952), "Portfolio Selection", The Journal of Finance, Volume 7, Issue 1, pp.77-91.
- Özdemir, Erhan-Giresunlu İ.Müfit (1995), "Sharpe Tek İndeks Modeli İle Portföy Seçimi", İstanbul Üniversitesi İşletme Fakültesi İşletme İktisadi Enstitüsü Dergisi, Volume 6, Issue 21, pp.55-60.
- Sharpe F. William-Alexander Gordon J.-Bailey Jeffery V. (1999), Investments, Prentice Hall Publisher, United States of America.
- Sharpe, F. William (1963), "A Simplified Model For Portfolio Analysis", Management Science, Volume 9, Issue 2, pp.277-293.
- Tosun, Ömür-Oruç, Eda (2010), "Portföy Büyüklüğünün Portföy Riski Üzerine Etkileri: İmkb-30 Üzerinde Test Edilmesi", Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Dergisi, Volume 15, Issue 2, pp.479-493.
- <https://www.investing.com>, (09.02.2017).

# THE RISKS THAT WILL THREATEN GOING CONCERN AND CONTROL RECOMMENDATIONS\*

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**Abstract:** *Evaluating going concern is an important issue concerning not only business owners or managers but also auditors. The aim of the study is to identify the main risks threatening going concern and develop control recommendations for these risks. To this end, through individual interviews, a survey was conducted with the owners or managers of the SMEs operating in Kırşehir Organized Industrial Zone. The data obtained from the survey was analyzed via SPSS 20.0. The results revealed that 89.2 percent of the SMEs are family businesses, while 73 percent are small-sized businesses. The risks that SMEs frequently encounter are exchange risk, credit risk, economic crisis risk, interest rate risk and liquidity risk, respectively. It was found that to avoid these risks, the SMEs mainly manage stocks effectively, yet they do not make use of derivative products and they cannot maintain a strong liquidity position. Three control recommendations the SMEs do not follow much are the written family constitution, shareholders' agreement, and 7/24 fraud report line. In order for the businesses to operate effectively for many years, it is necessary that the related parties especially the business managers attach importance to corporate risk management and effective internal control. This study is expected to contribute to the SMEs in terms of improving risk management and internal control.*

**Keywords:** *Risk, Internal Control, Going Concern, SMEs.*

## INTRODUCTION

Businesses are open systems that interact with the events occurring in the internal and external environment. The environment in which businesses operate changes constantly. Domestic and foreign economic, political and social developments, especially technological change, threaten the businesses while offering new opportunities to them. The risk arising from unexpected events leads to threat, while the risk arising from change brings uncertainty and the risk that can be used in favor of the business brings opportunities (Koç and Uzay, 2015: 206). Therefore, the businesses need to be managed more professionally so that they can maintain their presence and take advantage of the available opportunities.

The going concern concept in accounting is based on the assumption that the businesses will continue their operations without a certain period of time. The financial statements are normally prepared on the assumption that a business is a going concern and will continue in operation for the foreseeable future (Conceptual Framework, Art. 4/1). Some risks have the potential to threaten the going concern if necessary measures are not taken in due time. These risks are called as significant and effective risks. The meaning of the word risk is insecurity (<http://www.tdk.gov.tr/>, 2017). Risk is defined as “the

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effect of uncertainty on objectives” (ISO 31000, 2015: 13). The most important feature of risk is that it arises from the uncertainty of the future and changes quickly (Akçakanat, 2012: 33).

Going concern of enterprises depends on their ability to manage risks (Karacan and Savcı, 2011: 52). Risk management is defined as “coordinated operations to direct and control an organization with regard to risk” (ISO 31000, 2015: 20). Businesses wishing to develop their competitive power, to strengthen their institutional structure, and to achieve sustainable development must be willing and diligent in terms of building effective risk management systems (Özsoy, 2012: 166).

Risks are various and are classified in different ways. Within the most general classification, risks are divided into two as systematic and non-systematic risks (Türel, 2008: 12). Systematic risks concern the entire economy and they cannot be intervened by business management. Non-systematic risks, on the other hand, are encountered by every business because of their inherent characteristics (Usta and Demireli, 2010: 26). Economic crisis risk, interest rate risk, and exchange risk are the systematic risks, while fraud risk, reputation risk, management risk arising from being a family business, strategic risk, operational risk, low profit margin risk and bankruptcy risk are the non-systematic risks.

The results of the survey conducted by Deloitte (2017) with the CFOs of European countries revealed that the most significant risks in Turkey are the geopolitical risks, devaluation of Turkish Lira, breakdown in cash flow and increase in input prices (Deloitte, 2017: 11). In Turkey, mainly, financial risks are managed (Topçu, 2013: 143), and these risks are the most common and influential risks in terms of corporate risk management (Topçu, 2013: 36). Financial risk involves exchange risk, interest rate risk, credit risk and liquidity risk (Yüzbaşıoğlu, 2003: 5). Fraud risk is defined as the possibility of the business management and employees to intentionally abuse their power and responsibilities. Reputation risk has the potential to tarnish the image of a business for various reasons. Also, it cannot be transferred (Arslan, 2008: 37) and be assessed quantitatively (Küçüközmen, 2012).

Family businesses are among the most problematic businesses in terms of risk management. Feelings of trust which constitute the basis of the management style of family businesses, the unprofessional management style, insufficient internal controls on, for example, segregation of duties due to operating with a limited number of personnel, lack of capital, and other risks all cause these businesses to be vulnerable to risks. The pressure of family members to turn the income to fortune and uninstitutionalized management understanding in family businesses, and lack of balance between family and business are among the most important factors that hinder the going concern of a business.

Effective management of risks depends on being informed about the risks that are faced, evaluating the effects of these risks, and managing the meaningful ones. In this sense, businesses need to create mechanisms through which they can eliminate, minimize or transfer the risks they face, or they can take the risk (Keskin, 2010: 38). One prerequisite for the going concern of businesses is designing, managing and improving an internal control system (Türedi and Koban, 2016: 155). Internal control system is a structure focusing on the risks within businesses and protecting businesses against any errors, fraud, and problems that may occur as a result of authorization, reporting and information processing (Türedi et al., 2015: 6). An effective risk management and internal control system require knowledge, effort and experience. Businesses failing in this regard harm themselves and the economy of the country due to the waste of resources.

In order to increase the awareness of businesses regarding risk management, a regulation was made in Turkish Commercial Code (TCC) numbered 6102. Based on this new law, the administrative board of the publicly-traded businesses are liable to establish an expert Committee for the Early Detection of Risks, to run and improve the system in order to diagnose the risks that threaten the existence, improvement and survival of the business in time, to take the necessary measures against the risks that were identified, and to manage the risks. In other businesses, this committee needs to be established when the auditor renders it necessary and reports it to the administrative board through a written document (TCC, art. 378/1).

Moreover, according to the Turkish Commercial Code No 6102, it is mandatory for the businesses to clearly identify in their annual reports the possible risks that may be encountered, and the administrative board's risk assessment is included in the report (TCC, art. 516/1). Risk management aims not to eliminate all the risks faced by the businesses but to take the risks that are calculated and compatible with the risk appetite which will contribute to their sustainable growth (Özsoy, 2012: 175). Risk appetite is the level of risk that the business thinks is acceptable (Bozkurt, 2010: 19). The senior business management is responsible for managing the business in accordance with the risk appetite within the framework of corporate risk management.

Another regulation about the going concern assumption is included in ISA 570 "Going Concern" standard. The relevant standard requires the board of management to prepare its general purpose financial statements using the going concern assumption (art. 2). The auditor's responsibility is to obtain sufficient and appropriate audit evidence about the appropriateness of management's use of the going concern assumption in the preparation of the financial statements and to conclude whether there is a significant uncertainty about going concern (art. 6.) The uncertainties regarding going concern and the fact that they are expressed sufficiently in the financial statements affect the opinion the auditor will express.

The explanations show that the attitudes of business owners or managers towards risks and internal control mechanisms they have developed for risks have critical importance for going concern. As the majority of large-scale businesses are thought to act more carefully on risk management with the effect of legal regulations, the significant risks occurring in the SMEs were examined within the scope of the study. Identifying the risks that have the potential to threaten the going concern of the SMEs and the control mechanisms they have developed against such risks constitute the main aim of the study. It is expected that the study will contribute to the SMEs in terms of improving risk management and internal control.

## **LITERATURE REVIEW**

When the studies in the literature are examined, it is seen that they generally focused on the financial problems of the SMEs. The reason is that financing is an important factor for SMEs in terms of going concern and growth. It is asserted that the most serious financial problems of the SMEs are cash shortage, market stagnation and high loan interest, and undercapitalization is on the basis of this problem (Uçkun, 2009: 121). It is stated that in Turkey, the SMEs use bank loans as their main financing source for their operations. (Erol, 2010: 175-176; Özkılınc, 2014: 5838). Due to high interest rates, limited credit limits and short maturities, SMEs use low amount of loans they received mostly to pay off periodic debts, and thus, they can only solve periodic financial problems (Hacıevliyagil, 2016: 47; Coşkun, 2012: 446). According to Kutlu and Demirci, the financial problems such as inability to follow developments in finance world closely, limited auto-financing possibilities, collateral problems in getting loan, low credit volumes and high credit costs and inability to get in the capital market prevent SMEs from having a strong financial structure and reduce their competitive power (Kutlu and Demirci, 2007: 187). Kaya (2014) found that 66.7 percent of the SMEs operating in Elazığ had problems in financing and those problems were caused by difficulty of using credit, low sales profitability, inadequate equity and increase in costs. Providing long-term and low-interest loans to the SMEs, minimizing collateral and other formalities in using credit were among the solutions developed for the financial problems (Kaya, 2014: 193-222).

As the problems experienced by the SMEs have financial roots, it is seen that researchers mainly focused on the financial risks that emerged or may emerge in the SMEs. The studies that focused on the risks in the SMEs and risk management can be summarized as follows:

Brustbauer (2016) found that the SMEs do not have a reliable mechanism and sufficient resources that support the risk management activities and that the SMEs adopt a passive risk management approach.

The study further revealed that particularly the family businesses have less developed risk management mechanisms and that business ownership structure affects the risk management practices.

Uzay and Erdoğan (2015) investigated the reasons why the businesses, which operate in Kayseri province of Turkey and which made suspension of bankruptcy application between 2007 and 2014, encountered the risk of bankruptcy. They found that management risk and liquidity risk are the most important risks that lead to bankruptcy. Moreover, industry risk, credit risk, exchange risk, operation risk, legal risk and political risks are influential in causing businesses to enter into bankruptcy.

Falkner and Hiebl (2015) made the systematic analysis of the 27 studies on the SMEs risk management, and they found that the main risks that emerge in the SMEs are interest rate risk, raw material price risk, e-business and technological risk, supply chain risk, growth risk, and management and employee risk. Furthermore, they revealed that the characteristics of the SME owners have an important impact on work strategies.

Shanmugam, Ali and Haat (2012) conducted a survey with the owners of the SMEs in Malaysia, and they reached the conclusion that if the SMEs have an effective internal control, risk management practices, and appropriate fraud preventing measures, then their performance is influenced positively.

Bayrakdaroğlu, Sarı and Heybeli (2012) conducted a study to determine the risk perceptions and risk management policies of the SMEs operating in Denizli Organized Industrial Zone. Their study showed that the SMEs are mostly exposed to exchange rate risk (47%) and liquidity risk (22%). To avoid the exchange rate risk, the SMEs mostly use the method of constant follow-up and analysis of exchange rate position, while to avoid the liquidity risk, they use the method of converting short-term financial means into cash and maintaining liquid assets.

In order to determine the financial risk perceptions of the SMEs operating in provinces of Isparta and Burdur, Demir and Önem (2012) conducted a study and found that 46.2 percent of the SMEs are exposed to exchange rate risk as they do foreign trade, and 96.2 percent of the SMEs face credit risk as they make credit sale, and 10.8 percent of the SMEs are exposed to liquidity risk as they finance their activities with foreign resources. The SMEs mostly use credit cards as financial means and they eliminate the credit risk with 63.8 percent through credit card use.

Emir (2011) conducted a study to determine the general condition of the SMEs operating in the province of Samsun. This study revealed that the increase in raw material prices and the risk of not being able to sell the product are the major risks the SMEs encounter. The study further highlighted that the SMEs frequently experience the cash flow problem and accounting and financial table deficiencies as they do not have a regular and effective financial planning and budgeting, and they have difficulty getting credit from banks due to the financial problems they experience. Another finding of the study is that the SMEs are not aware of the risk management tools.

Gül et al. (2010) conducted a study in order to determine the risk and uncertainty perceptions of the SMEs operating in the province of Karaman. The results revealed that of the 28 SMEs in the study, three SMEs enjoy the risk environment, while 10 SMEs are afraid to be in an environment with risks and uncertainties. The study found that the 46.4 percent of the SMEs consider uncertainty during the planning process, while 25 percent of them consider exchange rate, and 14.3 percent of them consider political instability. The SMEs encountering a risk factor in the market decrease their investments, implement risk management, receive financial support, and decrease the number of employees with 46.4 percent, 21.4 percent, 7.1 percent, and 7.1 percent, respectively.

## **METHODOLOGY**

Going concern of SMEs depends on recognizing the risks they face, and the control mechanisms and managerial skills they will develop for these risks. The main aims of the study are:

- to identify the main risks threatening going concern,
- to discuss what control procedures could be applied to reduce the effects of such risks,
- to learn the perspective of a certain number of business owners about the risks that threaten going concern and about controls.

To reach the aims of the study, the owners or managers of the SMEs operating in Kırşehir Organized Industrial Zone were interviewed individually and a survey was conducted. According to the information gathered from Kırşehir Organized Industrial Zone Directorate, there have been 52 businesses in the zone as of May 2017. The study included 44 SMEs as one business was not an SME; three businesses ceased their production activities, and four businesses are used only as warehouses. Of the 44 SMEs, 37 conceded to fill out the survey. The survey is composed of three parts. Section 1 includes ten questions to have a general idea about the SMEs. Section 2 includes 12 questions about the risks the SMEs encounter, and Section 3 includes 25 questions aiming to reveal the perspectives of the SMEs about the proposed control recommendations. SPSS 20.0 software program was used to evaluate the survey forms and to analyze the findings. Descriptive statistics was used as a method of analysis.

## **FINDINGS AND CONCLUSION**

The most significant characteristic that makes a risk an important factor is that it changes very quickly. Risk, which feeds on uncertainties, which has different types, and which changes so fast, is a big threat for different types of businesses operating in the sector. Big-sized businesses set up an expert Committee for the Early Detection of Risks to reveal the risks that threaten the going concern, to take the necessary measures against the risks, and to protect themselves. Compared to the big-sized businesses, the SMEs do not have a strong internal control system; they maintain their activities with a lower capital and profit margin; their owners or shareholders are from the same family, and they are managed by the decisions of a limited number of shareholders. Consequently, they are defenceless in the face of risks. Due to these features, SMEs have higher chance of running financial risks, fraud risks, management risks stemming from being a family business, strategic risks, operational risks, low profit margin risk, reputation risk and bankruptcy risk. If these risks are not managed well, the SMEs will have lower going concern rates.

This study, which was conducted to reveal the risks the SMEs face in terms of going concern and to determine the level of implementation of the control recommendations offered to deal with these risks, yielded some significant results. According to the findings, the SMEs in Kırşehir Organized Industrial Zone which participated in the study mainly operate in food products, and chemical products and plastic sector. The majority of the businesses are small-sized family enterprises with an annual net sales revenue of one million TL to eight million TL, and they have been operating for more than four years. 46 percent of the SMEs in the study pay taxes regularly, and thus, they do not need to benefit from tax amnesty. Exchange risk (70.3%), credit risk (64.9%) and economic crisis risk (64.9%) are the risks the SMEs encounter the most. As the SMEs buy the raw materials in foreign currency, they face exchange rate risk, and thus the production costs increase. Moreover, 94.6 percent and 78 percent of the SMEs reported that they have never faced bankruptcy and reputation risk, respectively.

Any change that does not seem to be a risk for now can have a profound effect on businesses in a short-time and may lead to the termination of business activities. For this reason, it is necessary for the SMEs to take some precautions and to create a strong internal control mechanism within the business irrespective of the frequency of encountering risks.

When the findings on the implementation level of the recommendations offered to avoid different risk types and the level of agreement with these recommendations are examined, it is seen that the majority of the SMEs do not have a written family constitution, a shareholders' agreement, and a fraud report

line. Moreover, the SMEs benefit little from derivative products to avoid financial risks. Except for these three recommendations, the level of implementation of the remaining control recommendations and the level of agreement with all the recommendations offered to avoid risks are fairly high, which indicates that the SMEs in the study have developed a risk management culture.

The study revealed that the majority of the SMEs are not informed about the presence of family constitution, shareholders' agreement, and fraud report line. Family constitution, the examples of which can be seen in big-sized businesses like Koç, Sabancı, Eczacıbaşı, İnci, Altınbaş Holding, AGT and Suntekstil Corporation, is signed by the family members (Deloitte, 2016: 12) and is considered to be necessary for the continuity of business. Family constitution, which is evaluated as one of the most significant steps of institutionalization, means that the business activities are not run randomly, but within certain rules that help the shareholders meet on the common ground (PwC: 21). This constitution involves the features that need to be possessed by the family members in business, their authorities and responsibilities, the frame of the relationships they will have with each other and with the employees, the partnership structure of the business, and the changes that could occur in this structure.

Shareholders' agreement can be considered as a part of family constitution. It is an agreement that is signed by the shareholders to determine the relationships between the shareholders and with the business and particularly the issues that need to be implemented for the running of business (Ilgın and Tırak, 2015: 123). This agreement involves the articles that are not written in the principal agreement. Fraud report line, which is intended to be formed against employee fraud, is a mechanism that can protect the financial interests and the reputation of the business and that can help businesses to take prior measures against possible fraud risk. Access to the fraud report line is possible 7/24 via phone, email, and fax.

In line with the data obtained from the owners or managers of the SMEs operating in Kırşehir Organized Industrial Zone, it can be said that the SMEs mostly face financial risks, and the internal control mechanisms that need to be established within businesses against all the risks mentioned in the study are highly significant in terms of going concern. The SMEs have high levels of implementation of the control recommendations and high levels of agreement with the recommendations, which is a positive finding. The owners or managers of the SMEs, which are mostly family businesses, are aware of the management risk arising from being a family business. Accordingly, they have formed or seem to be prepared to form the mechanisms which may help their business in this regard. It is important for the SMEs to be informed about family constitution, shareholders' agreement, fraud report line, and the possibility of benefiting from derivative products, which have low levels of implementation and which are, in fact, necessary to avoid financial risks. It is believed that receiving consultancy service on this issue may help the SMEs maintain their activities for longer periods of time. The major limitation of the study is that it includes the SMEs operating in Kırşehir Organized Industrial Zone and reflects the opinions of the SME owners or managers who conceded to fill out the survey.

## REFERENCES

- Akçakanat, Özen (2012), "Kurumsal Risk Yönetimi ve Kurumsal Risk Yönetim Süreci", Süleyman Demirel University the Journal of Visionary, Volume 4, Issue 7, pp. 33.
- Arslan, Işılda (2008), "Kurumsal Risk Yönetimi", Maliye Bakanlığı, pp. 37.
- Bayraktaroğlu, Ali - Sarı, Bilgehan - Heybeli, Burhan (2012), "İşletmelerin Finansal Risk Yönetiminde Türev Ürün Kullanımlarına İlişkin Bir Saha Araştırması: Denizli İli Örneği", Journal of Social and Human Sciences, Volume 4, Issue 1, pp. 11-21.
- Bozkurt, Cevdet (2010), "Risk, Kurumsal Risk Yönetimi ve İç Denetim", Denetim Dergisi, Issue 4, pp. 19.

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
OHRID-MACEDONIA/3-5 JULY 2017**

---

- Brustbauer, Johannes (2016), "Enterprise Risk Management in SMEs: Towards a Structural Model", International Small Business Journal, Volume 34, Issue 1, pp. 70-85.
- Deloitte (2016), "Aile Şirketlerinde Sürdürülebilir Başarının Anahtarları", <http://www.akbank.com/modules/tr/info/Documents/aile-sirketleri.pdf> (30.05.2017)
- Deloitte (2017), "European CFO Survey", <https://www2.deloitte.com/content/dam/Deloitte/tr/Documents/finance-transformation/Q1-2017-european-CFO-survey.pdf> (30.05.2017)
- Demir, Yusuf - Önem, Başar (2012), "KOBİ'lerin Finansal Risk Algı Düzeyine Yönelik Bir Araştırma: Isparta-Burdur İlleri Örneği", International Journal of Management Economics and Business, Volume 8, Issue 16, pp. 23-40.
- Emir, Murat (2011), "Finans Kaynakları ve Samsun'daki KOBİ'lerin Durumu", Samsun Symposium, Proceedings Book, 13-16 October, Samsun, pp. 1-18.
- Erol, Mikail (2010), "Ekonomik Kriz ve KOBİ'ler", Journal of Entrepreneurship and Development, Volume 5, Issue 1, pp. 165, 175-176.
- Falkner, Eva Maria - Hiebl, Martin R.W. (2015), "Risk Management in SMEs: A Systematic Review of Available Evidence", The Journal of Risk Finance, Volume 16, Issue 2, pp. 122-144.
- Gül, Hasan - Kandemir, Tuğrul - Çakır, Erkan (2010), "KOBİ'lerde Risk ve Belirsizlik Beklentileri: Karaman Örneği", Journal of Social Sciences, Volume 12, Issue 2, pp. 119-144.
- Hacıevliyagil, Nuri (2016), "KOBİ'lerin Finansman Sorununa Bir Çözüm Önerisi: Milli Ekonomi Modeli (MEM)", Journal of Management and Economics Research, Volume 14, Issue 3, pp. 47.
- IFRS Conceptual Framework, <http://www.ifrs.org/Meetings/MeetingDocs/IASB/2014/May/AP10F-Conceptual%20Framework.pdf> (16.03.2017).
- İlgin, Çiğdem Bal - Tırak, Ece (2015), "Regulating the Provisions in Shareholders' Agreement That Cannot Be Regulated in Articles of Association", GSI Articleletter, Issue 12, pp. 123.
- ISA 570 (International Standard on Auditing 570) - Going Concern.
- ISO 31000: Risk Management - A Practical Guide for SMEs (2015), [https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/iso\\_31000\\_for\\_smes.pdf](https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/iso_31000_for_smes.pdf) (27.03.2017)
- Karacan, Sami - Savcı, Mustafa (2011), "Kriz Dönemlerinde İşletmelerin Mali Başarısızlık Nedenleri", Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, Volume 21, Issue 1, pp. 52.
- Kaya, Gamze Ayça (2014), "Elazığ İlinde KOBİ'lerin Finansal Sorunları ve Çözüm Önerilerine İlişkin Bir Araştırma", Fırat University Journal of Harput Studies", Volume 1, Issue 1, pp. 193-222.
- Keskin, Duygu Anıl (2010), "İşletmelerin Sürekliliğini Sağlamada Kritik Öneme Sahip Risk Yönetimi ve Risk Odaklı Denetim Yaklaşımı", Denetim Dergisi, Issue 4, pp. 38.
- Koç, Özşahin Filiz - Uzay, Şaban (2015), "Risk Raporlaması: Gelişmiş Ülke Uygulamalarından Çıkarılacak Dersler", Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Issue 45, pp. 206.

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
OHRID-MACEDONIA/3-5 JULY 2017**

---

- Kutlu, Hüseyin Ali - Demirci, N. Savaş (2007), “KOBİ’lerin Finansal Sorunları ve Çözüm Önerileri”, 4. SMEs and Productivity Congress, Proceedings Book, 7-8 December, Istanbul, pp. 187.
- Küçüközmen, C. Coşkun (2012), “Yeni Türk Ticaret Kanunu ve Risk Yönetimi”, <http://www.coskunkucukozmen.com/wp-content/uploads/2012/05/yenittkveriskyonetimicoskunkucukozmen.pdf> (26.03.2017)
- Özkılınç, Damla N. (2014), “Türk KOBİ’leri İçin Alternatif Finans Bulma Yöntemleri ve Sermaye Piyasası”, Journal of Yasar University, Volume 9, Issue 34, pp. 5838.
- Özsoy, Tahir Mehmet (2012), “Yeni Türk Ticaret Kanunu ve Şirketlerde Kurumsal Risk Yönetimi”, Mali Çözüm Dergisi, Issue 110, pp. 166, 175.
- PwC (undated), “Aile Şirketlerinde Kurumsallaşma ve Kurumsal Yönetim” <https://www.okul.pwc.com.tr/images/uploadfile/content/635224429789350499.pdf> (30.05.2017)
- Shanmugam, Jaya Kumar - Ali, Azwadi - Haat, Mohd Hassan Che (2012), “Internal Control, Risk Management and Fraud Prevention Measures on SMEs: Reliability and Validity of Research Instrument”, 3rd International Conference on Business and Economic Research Proceeding, 12 - 13 March 2012, Bandung, Indonesia, pp. 475-488.
- Topçu, Bünyamin (2013), İşletmelerde Kurumsal Risk Yönetimi, İstanbul Ticaret Odası Yayınları, No: 2013-19, İstanbul.
- Turkish Commercial Code.
- Türk Dil Kurumu, (<http://www.tdk.gov.tr/> 10.02.2017).
- Türedi, Hasan - Zor, Ümmügülsüm - Gürbüz, Filiz (2015), “Risk Odaklı İç Denetim”, The Journal of Accounting and Finance, Issue 66, pp. 6.
- Türedi, Hasan - Koban, Ahmet Oğuz (2016), “COSO İç Kontrol Modelinde Risk Değerlendirme Faaliyetleri”, Marmara Üniversitesi Öneri Dergisi, Volume 12, Issue 46, pp. 155.
- Türel, Aslı (2008), Riskten Korunma Muhasebesi ve Finansal Tablolarda Raporlanması, İstanbul University, Institute of Social Sciences, Doctoral Thesis.
- Uçkun, Nurullah (2009), “KOBİ’lerin Finansal Sorunlarına Melek Sermaye Çare Olabilir mi?”, The Journal of Accounting and Finance”, Volume 41, pp. 121.
- Usta, Öcal - Demireli, Erhan (2010), “Risk Bileşenleri Analizi: İMKB’de Bir Uygulama”, ZKU Journal of Social Sciences, Volume 6, Number: 12, pp. 26.
- Uzay, Şaban - Erdoğan, Selma (2015), “İflas Erteleme Sürecindeki İşletmelerde Karşılaşılan İşletme Riskleri”, 14. Ulusal İşletmecilik Kongresi, Proceedings Book, 7-9 May 2015, Aksaray, pp. 1182-1188.
- Yüzbaşıoğlu, A. Nejat (2003), “RiskYönetimi ve Bankaların Denetimi”, Risk Yönetimi Konferansı, 16 Ocak 2003, İstanbul.

# DETERMINATION OF THE RELATIONSHIP BETWEEN OPERATING CYCLE RISKS AND OTHER RISKS: AN APPLICATION ON THE BIST TEXTILE INDEX

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**Abstract:** “Corporate Risk Management”, that have been started to be used in developed economies since the beginning of 21st century, has changed the risk perceptions of corporations and tended them from sectional to integrated risk perception. The corporations desiring to take measures against risk groups in which they are weak in sectional risk perception may overlook the impacts of other risk groups. For instance, a measure taken to increase forward sales to improve profitability may result in destruction in liquidity or activity cycle of the corporation.

Although risk identification and grouping is a significant phase of corporate risk management, it is quite hard to measure these risks and to determine quantitative impacts of them. Therefore in this study, an easy risk classification was performed as to cover the entire corporation. In this classification, the ratios obtained from the financial statements of the corporations were used as the variables representing the risks. To represent operating cycle risks, “Accounts Receivable Turnover”, “Accounts Payable Turnover”, “Inventory Turnover”, “Current Assets Turnover”, “Total Assets Turnover” and “Equity Turnover” ratios were used. Then, relevant financial ratios were determined by using the financial statements (between the years 2003-2014) of 16 corporations included in BİST Textile Index.

Following the identification and calculation of the ratios representing the risks faced by the corporations, impacts of the measures to be taken on other risk groups were investigated. For this purpose, correlation analysis was performed between the ratios selected as to represent the operating cycle and the ratios representing the other risk groups and the strength and direction of the correlation was identified.

Correlation analyses revealed that specific cases were valid for each corporation but a concrete generalization could not be made between operating cycle risks and other risk groups. On the other hand a generalization could be made only within each corporation for each ratio separately.

**Keywords:** Financial Risk, Financial Ratios, Corporate Risk Management, BIST



## **INTRODUCTION**

The first theoretical work on “Corporate Risk Management” constituting the bases of works on this topic was published by The Committee of Sponsoring Organizations of the Treadway Commission (COSO) in 2004 under the title of “Enterprise Risk Management Framework” (Erciyas, 2016, s. 2).

In this study, “Corporate Risk Management” was assessed theoretically. Then, the risks for textile industry businesses operating in Borsa İstanbul (BİST) were classified and the relations of operating cycle risks with the other risk groups were identified. In this sense, the direction (positive or negative) and the strength ( $-1 < r < 1$ ) of the relation of operating cycle risks with the other risk groups were determined through correlation analysis.

Financial statements of textile industry businesses in BİST for the years between 2003-2014 were used in this study. The businesses of which financial data for the relevant years were not able to be acquired were excluded from the analyses. Textile industry was selected since majority of textile industry businesses are located in Kayseri. Thus, it was quite easy to reach the desired data.

## **LITERATURE REVIEW**

Risk can be defined as the probability of a case than can have impacts on reaching desired targets (Bozkurt, 2010, s. 17). Risk management on the other hand can be defined as identification, assessment management and control of potential cases and circumstances to provide a reliable assurance to reach the specified targets of the business (Bozkurt, 2010, s. 19). Corporate risk management is a method used to manage the risks and to efficiently combine risk management practices with commercial and financial objectives of the business (Grey & Dailun, 2005, s. 1). In another definition, corporate risk management is expressed as to abstain from the circumstances that may negatively influence corporate activities (Foster, 2010, s. 1). Corporate risk management is to exhibit a systematic integrated approach while managing the risks encountered by the corporates (Gerry, 2001, s. 361). Corporate risk management focuses on risk definition, inspection of management, risk analysis and integrated execution on entire corporate risks in a corporate systematic (Gates & Nantes, 2006, s. 84). As it was in conventional risk management, with corporate risk management, companies focus on management of risks instead of diminishing the risks and perform more integrated analyses and pass to a more efficient course of action (Bozkurt, 2010, s. 22). In present study, “Financial Statement Analysis” (Akgüç, Mali Tablolar Analizi, 2006) and “Financial Management” (Akgüç, Finansal Yönetim, 2012) studies of Öztin AKGÜÇ were used in calculation and assessment of the ratios.

## **METHODOLOGY**

The present study includes the application of a model developed through financial ratios for objective identification and monitoring of financial corporate risks and to enlighten about the measures to be taken against such risks to 16 corporations placed in Borsa İstanbul Textile Index.

The corporations included into the study were as follows;

- (1) ATEKS: Akın Tekstil A.Ş.
- (2) ARSAN: Arsan Tekstil ve Ticaret ve Sanayi A.Ş.
- (3) BİSAŞ: Bısaş Tekstil Sanayi ve Ticaret A.Ş.
- (4) BOSSA: Bossa Ticaret ve Sanayi İşletmeleri T.A.Ş.
- (5) BRMEN: Birlik Mensucat Ticaret ve Sanayi İşletmesi A.Ş.
- (6) DERİM: Derimod Konfeksiyon Ayakkabı Deri Sanayi ve Ticaret A.Ş.
- (7) DESA: Desa Deri Sanayi ve Ticaret A.Ş.
- (8) İDAŞ: İdaş İstanbul Döşeme Sanayi A.Ş.

- (9) KARSU: Karsu Tekstil Sanayi ve Ticaret A.Ş.  
 (10) KORDSA: Kordsa Global Endüstriyel İplik ve Kord Bezi Sanayi ve Ticaret A.Ş.  
 (11) LUKSKDF: Lüks Kadife Ticaret ve Sanayi A.Ş.  
 (12) MNDRS: Menderes Tekstil Sanayi ve Ticaret A.Ş.  
 (13) SÖKTAŞ: Söktaş Tekstil Sanayi ve Ticaret A.Ş.  
 (14) SÖNMEZ: Sönmez Filament Sentetik İplik ve Elyaf Sanayi A.Ş.  
 (15) YATAŞ: Yataş Yatak ve Yorgan Sanayi ve Ticaret A.Ş.  
 (16) YÜNSA: Yünsa Yünlü Sanayi ve Ticaret A.Ş.

The ratios of risk groups of 16 corporations and definitions are provided in Table 1;

**Table1. Ratios In Risk Groups**

<b>Liquidity Risk Ratios – X<sub>1</sub></b>		
<b>Variable</b>	<b>Ratio</b>	<b>Calculation</b>
X <sub>11</sub>	Current Ratio	Current Assets / Current Liabilities
X <sub>12</sub>	Liquid Ratio	Liquid Assets / Current Liabilities
X <sub>13</sub>	Cash Ratio	Cash and Cash Equivalents / Current Liabilities
X <sub>14</sub>	Cash Ratio - Total Assets Ratio	Cash and Cash Equivalents / Total Assets
X <sub>15</sub>	Cash Ratio - Net Sales Ratio	Cash and Cash Equivalents / Net Sales
X <sub>16</sub>	Liquid Assets - Total Assets Ratio	Liquid Assets / Total Assets
<b>Financial Structure Risk Ratios – X<sub>2</sub></b>		
<b>Variable</b>	<b>Ratio</b>	<b>Calculation</b>
X <sub>21</sub>	Current Liabilities - Total Debts Ratio	Total Assets / Current Liabilities
X <sub>22</sub>	Current Liabilities - Total Resources Ratio	Total Resources / Current Liabilities
X <sub>23</sub>	Fixed Assets - Equity Ratio	Equity / Fixed Assets
X <sub>24</sub>	Total Debts -Total Assets Ratio	Total Resources / Total Debts
X <sub>25</sub>	Bank Credits - Total Debts Ratio	Total Debts / Bank Credits
X <sub>26</sub>	Bank Credits - Total Assets Ratio	Total Assets / Bank Credits
<b>Operating Cycle Risk Ratios – X<sub>3</sub></b>		
<b>Variable</b>	<b>Ratio</b>	<b>Calculation</b>
X <sub>31</sub>	Accounts Receivable Turnover	Net Sales / Accounts Receivable
X <sub>32</sub>	Accounts Payable Turnover	Cost of Sales / Accounts Payable
X <sub>33</sub>	Inventory Turnover	Cost of Sales / Average Inventory
X <sub>34</sub>	Current Assets Turnover	Net Sales / Current Assets
X <sub>35</sub>	Total Assets Turnover	Net Sales / Total Assets
X <sub>36</sub>	Equity Turnover	Net Sales / Average Equity
<b>Profitability Risk Ratios – X<sub>4</sub></b>		
<b>Variable</b>	<b>Ratio</b>	<b>Calculation</b>
X <sub>41</sub>	Net Profit Margin	Net Profit / Net Sales

X <sub>42</sub>	Gross Profit Margin	Gross Profit / Net Sales
X <sub>43</sub>	Activity Profit Margin	Operating Income / Net Sales
X <sub>44</sub>	Interest Coverage Ratio	EBITDA / Paid Interest
X <sub>45</sub>	Return on Equity	Net Profit / Equity
X <sub>46</sub>	Return on Assets	Net Profit / Total Assets
<b>Growth Risk Ratios –X<sub>5</sub></b>		
<b>Variable</b>	<b>Ratio</b>	<b>Calculation</b>
X <sub>51</sub>	Net Profit Margin Growth Ratio	(Net Profit / Net Profit <sub>t-1</sub> ) - 1
X <sub>52</sub>	Net Sales Growth Ratio	(Net Sales <sub>t</sub> / Net Sales <sub>t-1</sub> ) - 1
X <sub>53</sub>	Equity Growth Ratio	(Equity <sub>t</sub> / Equity <sub>t-1</sub> ) - 1
X <sub>54</sub>	Asset Growth Ratio	(Asset <sub>t</sub> / Asset <sub>t-1</sub> ) - 1
X <sub>55</sub>	Fixed Asset Growth Ratio	(Fixed Asset <sub>t</sub> / Fixed Asset <sub>t-1</sub> ) - 1
X <sub>56</sub>	Current Asset Growth Ratio	(Current Asset <sub>t</sub> / Current Asset <sub>t-1</sub> ) - 1

While selecting the ratios, attention was paid to include six ratios in each group as to represent the entire characteristics of the group. Attention was also paid as to have positive or negative large or small outcomes of all ratios in the same direction. To prevent or reduce the affection of a small positive value of a ratio to a large positive value of a ratio of the same or another group while making the grouping, they should be in the same direction. Therefore in financial structure ratios, to prevent the neutralization of small positive values and large value of other ratios, inverse of financial structure ratios were taken to have positive large values.

Following the identification of the groups of the ratios and their calculations, all ratios were standardized based on normal distribution. Then, correlation analysis was performed with SPSS software and a correlation matrix was created for each corporation.

Correlations coefficients vary between -1 and +1. The coefficient is 0 when there is no relationships, +1 when there a relationship in the same direction and -1 when there is a relationship in inverse direction (Yıldız & Bircan, 2006, s. 315).

There are more than one method used in correlation analysis. In present study, Carl Pearson – Product Moment (Pearson Correlation) Coefficient was used. Pearson coefficient is used to measure the degree of linear relationship between two variables (Yıldız & Bircan, 2006, s. 317).

Correlation coefficient “r” was calculated with the following equation (Yıldız & Bircan, 2006, s. 351);

$$r = \frac{\sum x_i y_i - \frac{\sum x_i \sum y_i}{n}}{\sqrt{\left[ \left( \sum x_i^2 - \frac{(\sum x_i)^2}{n} \right) \cdot \left( \sum y_i^2 - \frac{(\sum y_i)^2}{n} \right) \right]}} \quad (1)$$

## FINDINGS

The findings of the analyses are provided in Table 2;

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**Table 2. Results of Analyses**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>The Relationship Between Accounts Receivable Turnover Ratio and Other Ratios</b>																
X <sub>11</sub>	-,698*							,597*			,848**	-,712**	-,602*		,755**	,944**
X <sub>12</sub>	-,602*						-,658*		-,697*		,842**	-,696*	-,614*			,799**
X <sub>13</sub>	,683*										,925**					
X <sub>14</sub>	,801**										,869**	,579*				
X <sub>15</sub>	,600*		,643*					-,578*			,685*	,608*				
X <sub>16</sub>	-,661*		-,838**		-,819**		-,736**		-,886**		,762**			-,622*	-,645*	
X <sub>21</sub>				,597*	,638*								-,594*			,930**
X <sub>22</sub>			,707*								,595*	,629*	-,616*		,665*	,974**
X <sub>23</sub>	-,741**	-,678*						,630*			,847**	-,769**	-,610*	-,674*		,713**
X <sub>24</sub>	-,599*		,861**					,578*			,857**	-,599*				,972**
X <sub>25</sub>			,772**	,963**	,798**						,764**	-,675*				
X <sub>26</sub>		-,582*	,722**	,945**	,621*						,813**	-,642*				,916**

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X <sub>32</sub>			-,782**		,804**			,686*	,709**	,722**	,799**					,773**
X <sub>33</sub>					,820**	,764**		,771**								
X <sub>34</sub>	,815**	,605*		,691*	,922**	,887**	,583*	,940**	,814**		,801**					
X <sub>35</sub>			-,887**					,775**			,903**	-,637*				-,751**
X <sub>36</sub>	,965**	,747**	-,788**					,765**			,929**		,745**			-,812**
X <sub>41</sub>								,576*								
X <sub>42</sub>															,700*	
X <sub>43</sub>															,610*	
X <sub>44</sub>								,678*		-,658*	,676*					
X <sub>45</sub>															,610*	
X <sub>46</sub>															,612*	
X <sub>53</sub>					,634*			,637*							,593*	
X <sub>54</sub>															,615*	
X <sub>55</sub>					,619*			,650*							,604*	

**The Relationship Between Accounts Payable Turnover Ratio and Other Ratios**

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X <sub>11</sub>	,597*		,676*				,603*		,900**	-,706*		,670*				,659*
X <sub>12</sub>	,654*		,744**					,826**	,885**	-,708*		,649*				,673*
X <sub>13</sub>							,780**	,592*				,621*				,658*
X <sub>14</sub>							,783**	,720**								
X <sub>15</sub>							,763**	,627*								
X <sub>16</sub>			,914**		-,723**		-,589*	,937**	,871**	-,673*						
X <sub>21</sub>		,626*	,748**					-,607*								,776**
X <sub>22</sub>	,680*				-,780		,739**									,732**
X <sub>23</sub>			,642*					,866**	,958**					,607*		
X <sub>24</sub>			-,752**		,752**		,896**	,584*	,739**					,630*	,731**	,724**
X <sub>25</sub>	-,590*		-,607*		,799**		,783**					,707*				
X <sub>26</sub>					,789**		,833**					,716**		,614*		,666*
X <sub>31</sub>			,782**		,804**				,686*	,709**	,722**	,799**				,773**
X <sub>33</sub>					,746**		-,790**	,735**	,906**							
X <sub>34</sub>				-,633*	,857**		,848**		,840**	,692*		,806**				

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X <sub>35</sub>			,810**		,679*		,743**		,970**			,670*		,669*		
X <sub>36</sub>			,853**				-,733**		,872**			,793**				
X <sub>41</sub>							,680*		,660*				,615*			
X <sub>42</sub>							-,710**								-,669*	
X <sub>43</sub>									,740**							
X <sub>44</sub>							,730**		,814**			,611*				
X <sub>45</sub>							,764**		,619*				,609*			
X <sub>46</sub>							,769**		,702*				,633*			
X <sub>51</sub>							-,595*				,626*					
X <sub>52</sub>									,701*							
X <sub>53</sub>					-,591*				,647*							
X <sub>54</sub>									,738**						-,623*	
<b>The Relationship Between Inventory Turnover Ratio and Other Ratios</b>																
X <sub>11</sub>							,875**						-,624*	-,657*		
X <sub>12</sub>	,616*				,645*		,871**						-,687*	,728**		





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X <sub>41</sub>				,633*			,743**										
X <sub>42</sub>																	
X <sub>43</sub>							,756**										
X <sub>44</sub>				,724**			,761**										,626*
X <sub>45</sub>						,673*											,596*
X <sub>46</sub>						,613*											
X <sub>52</sub>				,673*			,795**	,641*	,928**								
X <sub>53</sub>							,692*		,834**								,621*
X <sub>54</sub>				,639*			,785**		,801**								
X <sub>55</sub>							,713**		,768**								
X <sub>55</sub>						,622*			,629*								
X <sub>56</sub>						,644*											

Correlation analysis revealed that there were not any ratios with highly significant relationships with Accounts Receivable Turnover ratio of "Operating Cycle Ratios" group. In general, there were positive relationships between accounts receivable turnover and the other ratios. However, there were negative relationships between Liquid Assets / Total Assets ratio of 7 corporations and between Fixed Assets / Equity ratios of 5 corporations.

Although there were not also any ratios highly correlated with Accounts Payable Turnover ratio, the ratio highly correlated with Operating Profit Margin Ratio, Net Sales Growth Ratio and Current Asset Growth ratio of only 1 corporation.

There were not any ratios highly correlated with Inventory Turnover Ratio and there was a positive relationship in general. Only the Cash ratio, Cash Ratio / Total Assets Ratio, Cash Ratio / Net Sales Ratio, Operating Profit Margin and Assets Profitability of 1 corporation had high correlations.

## **RESULT**

In this study, the other effects of precautions that should be taken when the companies may face have been searched. Because of this, each ratios correlation analyses has been done with the other ratios and the strength and the direction of possible effects have been observed. After the result of correlation analyses; although there are extensional generalizations among the risk groups, there are special occasions for each company but each company can generalize them in itself.

## **REFERENCES**

- Akgüç, Ö. (2006), Mali Tablolar Analizi, Avcıol Basım Yayın, İstanbul.
- Akgüç, Ö. (2012), Finansal Yönetim, Avcıol Basım Yayın, İstanbul.
- Bozkurt, C. (2010), "Risk, Kurumsal Risk Yönetimi ve İç Denetim", Denetişim, Issue 4, pp. 17-30.
- Erciyas, M. (2016), Finansal Açıdan Kurumsal Risk Yönetimi: Reel Sektöre Yönelik Bir Uygulama(Yayımlanmamış Doktora Tezi), Erciyas Üniversitesi Sosyal Bilimler Enstitüsü,Kayseri.
- Foster, M. G. (2010), Enterprise Risk Management: The Full Picture. L. Taylor in, AON Global Risk Consulting, pp. 1-43, AON Global Risk Consulting, London.
- Gates, S.- Nantes, A. (2006), "Incorporating Strategic Risk into Enterprise Risk Management", Journal of Applied Corporate Finance, June, pp. 81-90.
- Gerry, D. (2001), "Enterprise Risk Management: Its Origins and Conceptual Foundation", The Geneva Papers on Risk and Insurance, pp. 360-366.
- Grey, W.- Dailun, S. (2005), Enterprise Risk Management: A Value Chain Perpevtive; Hand Book of Integrated Risk Management for e-Business; Measuring, Modeling, and Managing Risk, J. Ross Publishing, USA.
- Yıldız , N.- Bircan, H. (2006), Uygulamalı İstatistik, Nobel Yayın Dağıtım, Ankara.

# INVESTIGATION OF PURCHASING LICENSED MERCHANDISE BEHAVIORS OF SPORTS TEAMS FANS: STUDENTS OF İNÖNÜ UNIVERSITY EXAMPLE

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**Abstract:** This study was conducted in order to investigate the behaviors of students of İnönü University towards purchasing licensed merchandise of the teams they support.

The population of the study comprises of fans of Beşiktaş, Fenerbahe, Galatasaray and Trabzonspor sports clubs. The sample of the study consists of 400 fans of Beşiktaş, Fenerbahe, Galatasaray and Trabzonspor sports clubs, who were chosen with random sampling method and study in the School of Physical Education and Sports, Faculty of Education, Faculty of Medicine and Faculty of Economics and Administrative Sciences in İnönü University in the city of Malatya. The participants consist of 42% females and 58% males. 29,8% of participants were 20 years old and younger, 56,8% of them were between 21-23 years old and 13,4% of them were 24 years old and older. 43,5% of the participants' monthly income were below 400 TL. 18,3% of the sample group support Beşiktaş Sports Club, 25,3% of them support Fenerbahe, 46,3% of them support Galatasaray and 10,3% of them support Trabzonspor Club. As the data gathering tool, "Purchasing Behaviors of Fans Scale", which was developed by Ayta (2009), was adopted.

Demographic data of the fans were interpreted by percentage and frequency calculations while their behaviors of purchasing licensed merchandise were interpreted by the arithmetic mean and standard deviation calculations without taking variables into account. In the variance analysis, the variables of fans' education level, income level, and the supported team were taken into account and analyzed with Kruskal-Wallis Variance Analysis followed by Dunnett T3 tests as post hoc. In the comparison of variables of gender categories, Individual Group t-tests and one-way variance analyses were conducted. The meaningfulness level of statistical comparison was chosen to be 0,01 and 0,05.

In the analysis of the data, percentage, frequency, and correlation elements were used. Because the data was not gathered by measurements, the Non-parametric test was adopted. In order to determine the relationship between variable, the Spearman Rank Correlation test was adopted. In the statistical analysis of the data, SPSS 21.0 for Windows package software was used.

In the findings acquired as a result of the analyses, it was determined that there was a statistically meaningful difference in the promotion and general opinion dimensions, according to the gender variable of the study group. According to purchase behavior based on age variable, it was determined that no statistically meaningful difference was present in the sub-dimensions of the scale. According to income level variable, in the promotion and general opinion sub-dimensions, it was determined that there was a statistically meaningful difference. However, in the test

*conducted to find the source of this difference, it was determined that this difference was present between the 400TL-lower income group and 601TL-higher income group. According to the supported team and branch of sports practiced, it was determined that there was no statistically meaningful difference in the sub-dimension of the scale based on purchasing behavior. According to the school of education variable, a difference was found in all of the sub-dimensions and it was determined that this difference was statistically meaningful. It was also determined that this difference was meaningful in terms of the students of the School of Physical Education and Sports. No difference was found among the students of other faculties. Among the licensed merchandise owned or purchased, 26% were jerseys, 17% were scarves and caps, 9% were track suits, 2,5 were pennants and flags, 13% were key holders and lighters etc. while 32,5% of them did not purchase anything. The main factors affecting the behavior of purchasing licensed merchandise was identification with the team and being affected by social circle. 67,5% of the group which purchased the merchandise of their supported teams reported that they purchased 42% of the licensed merchandise from other shops than official shops or from peddlers or unlicensed sports products selling shops. It was determined that this situation was related to the students' monthly income levels and resulted from the fact that licensed merchandise is more expensive.*

*It is believed that it is necessary to raise an awareness about the facts that the price sensitivity is high and by purchasing licensed merchandise, fans can financially contribute to their team. By including other football clubs, which have licensed merchandise, in the model of the study, a broader study may be conducted in the future. This study may be detailed and enriched by revealing other determinant factors affecting the intention of fans on purchasing licensed merchandise. Additionally, on the basis of licensed merchandise, consumer preference or perception of merchandise of sponsor companies of the teams can be investigated as a different subject of study.*

*Keywords:* Student, İnönü University, Licensed Merchandise of Teams, Purchasing Behavior

## **SPONSORSHIP**

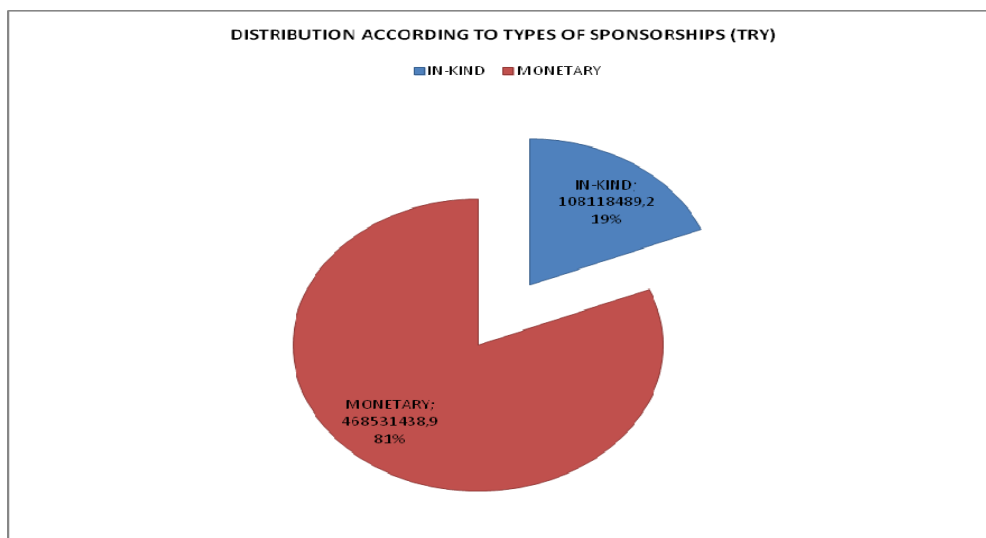
Sponsorship is a business agreement aimed to benefit both parties mutually, which covers in-kind, monetary or any other type of support provided for various individuals, institutions or organizations in sports, culture-art and social fields in order to achieve the aims set by an institution (Okay and Okay, 2005; 438).

Another definition of sponsorship is “Sponsorship is a business relationship established by an institution in order to contribute to an individual or an organization in terms of pecuniary resources or service providing which in return offers some rights to the organization in order to gain commercial advantages” (Shilbury, 1998: 197)

It's possible to define sponsorship in various points of view. Accordingly, sponsorship is supporting an event or an activity, which could not be financed by the individual himself in any other way (Tek and Özgül, 2007: 9)

In the sponsorship market, it is not clearly known how much any organization spends in Turkey. Most of the organizations and brands, which aim to place themselves on the international platform, use sponsorship as a tool in Turkey. (<http://proje.capital.com.tr/en-hizli-buyuyenpazarlama-yontemi-haberler/15522.aspx>).

The distribution of the sponsorship conducted in Turkey between 13.09.2001 and 23.10.2015 is as follows.



**Graphic 1.** The distribution of the sponsorship conducted in Turkey

Source: <http://www.sponsorluk.gov.tr/Home/Content/13#1>,

Note: Prepared based on the data provided by the sponsorship branch of the General Directorate of Sports

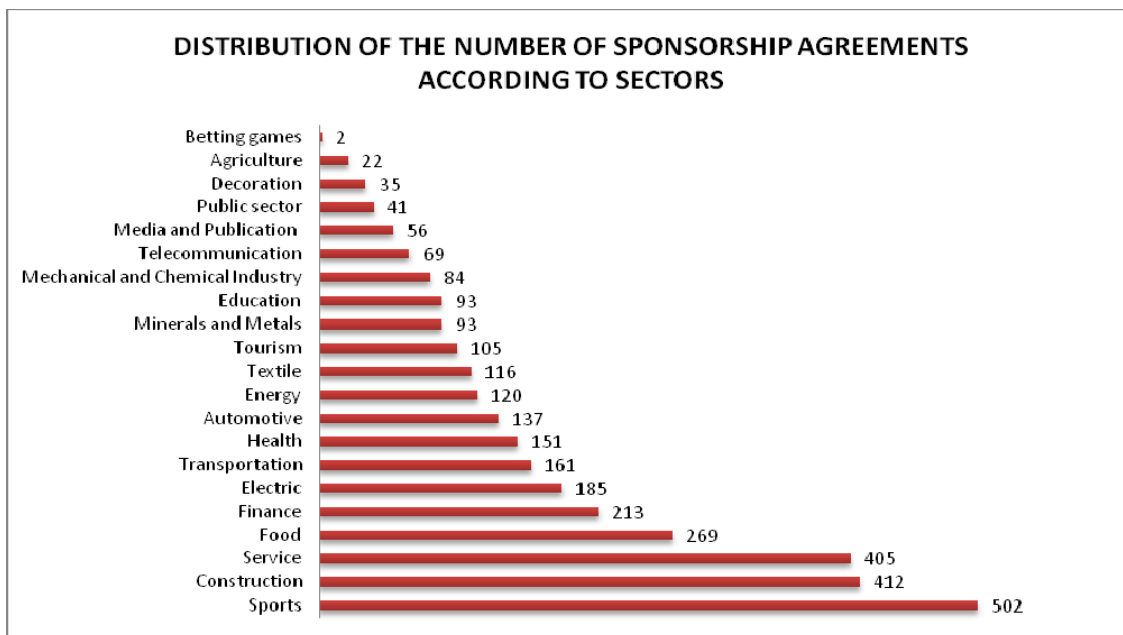
With the realization that sponsorship in sports provides great publicity opportunities and the fact that sponsorship in sports proved its validity in the field of publicity, the interest in sponsorship in sports among companies increased.

In accordance with this interest, investments carried out for sponsorship in sports have kept increasing until today and it is predicted that the increase will continue in the future (Soyer, 2003: 49-119).

In the field of sponsorship in sports, football is the most attractive sport which has the most fans in the world. In another study conducted on behalf of Master Card by the German research company Sport + Markt AG in 2004, it was reported that there was a great interest in football in Turkey. This study was indicated that approximately 41 million people over 15 years old was interested in football and approximately 19,5 million people have a great interest in football (Katirci, 2009: 41-51)

## AIMS OF SPONSORSHIP IN SPORTS

Sponsorship in sports can be planned in accordance with several aims. The main aim of sponsorship is to gain mutual benefit for any kind of purpose. The factors affecting the growth of sponsorships, which differ in every country and every sector, can be compiled as limitations on alcohol and tobacco advertisements, increase in the prices of commercials in the media, increase of free time of people, benefiting from the proven effectiveness of sponsorship, the high chance of sponsorship works to be published in the media and unprofitable results of channel surfing in traditional media, especially in TV (Okay and Okay, 2005: 441-443)



**Graphic 2.** The Distribution of the Number of Sponsorship Agreements  
Source: <http://www.sponsorluk.gov.tr/Home/Content/13#1>, 12.05.2016.

Note: Prepared based on the data provided by the sponsorship branch of the General Directorate of Sports (13/09/2001-23/10/2015) Total: 3271.

## METHODOLOGY

This study was conducted in order to investigate the behaviors of students of İnönü University towards purchasing licensed merchandise of the teams they support.

The population of the study comprises of fans of Beşiktaş, Fenarbahçe, Galatasaray and Trabzonspor sports clubs. The sample of the study consists of 400 fans of Beşiktaş, Fenarbahçe, Galatasaray and Trabzonspor sports clubs, who were chosen with random sampling method and study in İnönü University in the city of Malatya. Demographic data of the fans were interpreted by percentage and frequency calculations while their behaviors of purchasing licensed merchandise were interpreted by the arithmetic mean and standard deviation calculations without taking variables into account. In the variance analysis, the variables of fans' education level, income level, and the supported team were taken into account and analyzed with Kruskal-Wallis Variance Analysis followed by Dunnett T3 tests as post hoc. In the comparison of variables of gender categories, Individual Group t-tests and one-way variance analyses were conducted. The meaningfulness level of statistical comparison was chosen to be 0,01 and 0,05.

In the analysis of the data, percentage, frequency, and correlation elements were used. Because the data was not gathered by measurements, the Non-parametric test was adopted. In order to determine the relationship between variable, the Spearman Rank Correlation test was adopted. In the statistical analysis of the data, SPSS 21.0 for Windows package software was used.

## CONCLUSION

In the findings acquired as a result of the analyses, it was determined that there was a statistically meaningful difference in the promotion and general opinion dimensions, according to the gender variable of the study group. According to purchase behavior based on age variable, it was determined that no statistically meaningful difference was present in the sub-dimensions of the scale. According to income level variable, in the promotion and general opinion sub-dimensions, it was determined that there was a statistically meaningful difference. Among the licensed merchandise owned or purchased, 26% were jerseys, 17% were scarves and caps, 9% were track suits, 2,5 were pennants and flags, 13% were key holders and lighters etc. while 32,5% of them did not purchase anything. The main factors affecting the behavior of purchasing licensed merchandise was identification with the team and being affected by social circle.

It is believed that it is necessary to raise an awareness about the facts that the price sensitivity is high and by purchasing licensed merchandise, fans can financially contribute to their team.

## REFERENCES

- Akyıldız, Murat- Marangoz, Mehmet (2008), "Sporda Sponsorluğun Tüketicilerin Satına Alma Niyetine Yansıması", Ege Akademik Bakış Dergisi, Volume 8, Issue 1, pp.153-166.
- Argan, Metin (2004), Spor Sponsorluğu Yönetimi, 1 Baskı, Ankara, Detay Yayıncılık
- Argan, Metin - Katırcı, Hakan (2008), Spor Pazarlaması, 2. Basım, Nobel Yayın, Ankara.
- Arık, Bilal (2004), Top Ekranda: Medya Çağında Futbol ve Televizyon Arasındaki Kaçınılmaz İlişki, Salyangoz Yayınları, İstanbul
- Aytaç, Kürşat Yusuf (2009), Taraftarların Spor Kulüplerindeki Lisanslı Ürün Pazarlama Faaliyetlerine İlişkin Satın Alma Tutumlarının İncelenmesi, Gazi Üniversitesi Sağlık Bilimleri Enstitüsü, Beden Eğitimi ve Spor Anabilim Dalı, Yayınlanmamış Doktora Tezi.
- Bahar, Ünsal - Ramazanoğlu, Fikret (2013), "Spor Medyasının Toplum Üzerindeki Sosyolojik Etkisi", Journal of Research in Education and Teaching, Volume 2, Issue 1, pp.36-46.
- Crimmins, James -Martin, Horn (1996), "Sponsorship: From Managerial Ego Trip To Marketing Success", Journal of Advertising Research, Volume 36, Issue 4, pp.11-21.
- Durmaz, Y. (2008), Tüketici Davranışı.1.baskı. Detay Yayıncılık, Ankara
- Giray, Caner - Yılmaz, Cengiz (2008), "Futbol Tüketicilerinin Davranışsal Sadakatleri İle Saldırganlıkları Arasındaki İlişki", Nevşehir Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, 13. Ulusal Pazarlama Kongresi, 25-29 October, pp.234-242.
- Gönen, E.-Özgen Ö.- Babekoğlu, Y.- Ufuk, H. (2001), "Gençlerin tüketici davranışlarının model yaklaşımı ile incelenmesi", Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Volume 19, Issue 1, pp.137-166.

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- Güçlü, Mehmet (2001), “Olimpiyat Oyunları ve Spor Sponsorluğu”, Gazi Eğitim Fakültesi Dergisi, Volume 21, Issue 3, pp.232
- Gündoğdu, Cemal- Nacar, Eyüp - Karataş, Özgür (2011), "Futbol Yayılmasında Medyanın Rolü", SportSciences, Volume 6, Issue 1, pp.73-80.
- Karadeniz, Mustafa (2009), “Pazarlama İletişimi Kapsamında Sponsorluk Faaliyetlerinin Önemi”, Journal of Naval Scienceand Engineering, Volume 5, Issue 1, pp. 62-75.
- Karademir, Tamer - Çoban, Bilal - Devocioğlu, Sebahattin - Kafkas, M.Emin - Mendeş, Bekir (2009),“Sporcu Yetenek Seçiminde Sponsorluğa Alternatif Bir Yaklaşım”, e-Journal of New World Sciences Academy Sport Sciences, 2B0010, Volume 4, Issue 2, 2009, pp.104-114.
- Katirci, Hakan (2009), "Football Club- Fan Communication in Turkey", Journal of Physical Education and Sport Sciences, Volume 4, Issue 1, pp. 41-51.
- Kotler, P., Armstrong, G. (2008), Principles of Marketing, New Jersey, Prentice Hall Inc.,
- Mucuk, İsmet (2004), Pazarlama İlkeleri, 14. Baskı, İstanbul, Türkmen Kitabevi
- Pride. M.W.- Ferrell O.C. (1987), Marketing Basic Concepts and Decisions, 5th edition, Houghton Mifflin Company, USA
- Okay, Aydemir - Okay, Ayla (2005), Halkla İlişkiler kavram, strateji ve uygulamaları, 2. Baskı, Der Yayınları, İstanbul
- Sandler, Dennis M. - Shani, David (1989), “Olympic Sponsorship vs. “Ambush” Marketing: Who Gets The Gold”, Journal of Advertising Research, Volume 29, Issue 4, August/September, pp. 10
- Shilbury, David - Quic, Shayne - Westerbeek, K.Hans (1998), StLeonards, N.S.W. , Allen&Unwin, pp.197.
- Soyer, Fikret (2003). “Sporda sponsorluk, kavram, kapsam ve bir araştırma”, Başak matbaacılık, Ankara.
- Tek, Ömer Baybars - Özgül, Engin (2007), Modern Pazarlama İlkeleri Uygulamalı Yönetimsel Yaklaşım, Birleşik Matbaacılık,İzmir.
- Üzüm B. (2003), Sporun Kitlelere Etkisi ve Sponsorluk, Niğde Üniversitesi, Sosyal Bilimler Enstitüsü Beden Eğitimi ve Spor Anabilim Dalı, Yüksek Lisans Tezi
- <http://www.ntvmsnbc.com/id/25054860/>, ( 21.05.2012).
- <http://proje.capital.com.tr/en-hizli-buyuyenpazarlama-yontemi-haberler/15522.aspx>, (06.01.2011).
- <http://futolekonomi.com/>, (12.05.2016).
- [http:// www .turkishairlines.com/tr-TR/ basin-bultenleri/5995/turk-hava-yollarinin marka-elcisisecilen-kobe-bryantin-reklam-filmi-tamamlandi.aspx](http://www.turkishairlines.com/tr-TR/basin-bultenleri/5995/turk-hava-yollarinin-marka-elcisisecilen-kobe-bryantin-reklam-filmi-tamamlandi.aspx), (24.07.2011)
- <http://www.sponsorluk.gov.tr/Home/Content/13#1>, (12.05.2016)



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<http://proje.capital.com.tr/en-hizli-buyuyenpazarlama-yontemi-haberler/15522.aspx>. (06.01.2011)

# EFFECT OF BOARD MEMBERS' GENDER ON FINANCIAL PERFORMANCE

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**Abstract:** *Women's role in the managerial roles has increased progressively. This advancement can be the reason of researchers' curiosity about the effects of gender diversity in the board. In this study, the relationship between financial performance and women managers in the board of directors is investigated for the year 2016. The sample of the study is the firms of BIST 100 Index. By using, ROA (return of assets) and ROE (return of equity) values which are the most used financial performance indicators the Mann Whitney U-test is used for empirical findings.*

**Keywords:** *Financial performance, Board of Directors, Women Managers, Board Member.*

## INTRODUCTION

The rise in women's managerial ratios has paved the way for gender diversity on board. In particular, studies investigating the relationship between financial performance and diversity reveal the growing awareness of this issue. In this respect, it is aimed to investigate is there any difference between the firms with and without the women board member(s). Accordingly, statistical tests for evaluating the relation between financial performances and women board member(s). At the end of the study, it is founded that there is no significant difference between the firms with regard to women board member(s).

## LITERATURE REVIEW

The board of directors is an important element in the link between stakeholders and managers, as well as a critical supervisory mechanism for the duties of the management (Dehaene et al. 2001). Corporate governance is a series of mechanisms through which the shareholders' interests align. The board of directors is one of the most important internal governance mechanism. The researches investigating the relationship between the structure of the board and the firm value have examined the effects of diversity in terms of variables such as gender, age, ethnicity, nationality, educational background, tenure, experience. At the same time it is said that the increasing diversity in the board of directors is contributing to the firm's competitive advantage. Especially, the issue of board gender diversity has attracted growing research interest in recent years (Campbell and Vera, 2007). Women have entered managerial ranks and a vast amount of literature covering issues about women in management has emerged (Papalexandris and Bourantas, 1991: 137). Increasing awareness of the number of women managers in the board of directors led the researchers to measure the relationship between women managers and financial performance.

Dehaene et al. (2001) investigated the relationship between the board size, percentage of outside directors and percentage of inside directors with the corporate performance in Belgian companies.

Erhardt et al. (2003) examined the demographic diversity and firm performance in US companies. Şahin and Koçoğlu (2016) analyzed board structure differences in USA, Europe, Japan, Germany and Turkey national business systems. Aygün and Sayın (2011) investigated the relationship between board size and firm performance in Turkey and Karaoğlu (2016) composition of the board of directors and financial performance with the perspective of agency theory. Shrader et al. 1997; Hillman et al. 2002; Smith et al. 2006; Singh et al. 2007; Francoeur et al. 2007; Campbell and Vera, 2008; Adams and Ferreira, 2009; Rovers, 2013; Karayel and Doğan, 2014; Otluoğlu et al. 2016; linked women managers ratio in the board of directors to financial performance. It is argued that a more gender diverse board may also improve the image of the firm and in this way have positive effects on firm performance and shareholder value if the positive image has positive effects on customers' behaviour. However, there may also be arguments against management diversity. If a heterogeneous board produces more opinions and more critical questions, this may be time-consuming and may not be as effective as a more homogenous board of directors, especially if the firm is operating in a highly competitive environment where the ability to react quickly to market shocks is an important issue (Smith et al. 2006: 571).

## **METHODOLOGY**

The BIST 100 index provides firms with access to reliable information on the boards of directors. In this direction, the firms with women board members and without women board members could be determined. After then firms' Return on Assets (ROA) and Return on Equity (ROE) ratios were determined. ROA and ROE were used because they are the most common ratios in studies on financial performance (Shrader et al., 1997; Miller and Lee, 2001). Mann Whitney U test is the statistical technique used to test hypothesized relationships. Mann Whitney U test was chosen because it provides the ability to explain whether there is a significant difference between the two groups in terms of financial performance (Altunışık et al., 2012).

In this direction, dependent variables of research are ROA and ROE values. The hypotheses formed in the direction of the research are as follows;

Ho: There is no significant difference between the financial performances of the firms with the women board member(s) and without women board member(s) in the BIST 100 index of 2016.

H1: There is a significant difference between the financial performances of the firms with the women board member(s) and without women board member(s) in the BIST 100 index of 2016.

## **FINDINGS**

In this study, it is investigated whether there is any difference between the financial performance of firms with and without women board member(s), according to the BIST 100 index of 2016. 83 of the BIST 100 index firms were included in the research. Nine companies with additional time to disclose their financial statements and eight banks which have differentiating financial calculating methods were excluded. Therefore, 83% of the research universe could be represented.

According to the normality test, due to the significance values are above 0.05, the data did not show normal distribution. The non-normal distribution of the data required the use of the Mann Whitney U test from non-parametric tests to measure whether there was a significant difference between the two groups.

**Table 1. Tests of Normality**

	Boardwithwithoutwomen	Kolmogorov-Smirnov <sup>a</sup>		
		Statistic	df	Sig.
roa	Boardwithwomen	,149	55	,004
	Boardwithoutwomen	,093	28	,200 <sup>*</sup>
roe	Boardwithwomen	,412	55	,000
	Boardwithoutwomen	,212	28	,002

**Table 2. Mann Whitney U Test Statistics**

<b>Hypothesis Test Summary</b>				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of roe is the same across categories of boardwithwithoutwomen.	Independent-Samples Mann-Whitney U Test	,576	Retain the null hypothesis.
2	The distribution of roa is the same across categories of boardwithwithoutwomen.	Independent-Samples Mann-Whitney U Test	,658	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

According to findings;  $p > 0.05$  (0.576) and (0,658). The H1 hypothesis, which argues that there is a meaningful difference between roa and roe values of the firms with and without women members in the board, is rejected and the H0 hypothesis advocating indifference is accepted. There is no significant difference between the financial performances of the firms with and without women board members according to the findings of the analysis based on the roa (return of assets) and roe (return of equity) values.

## CONCLUSION

In this study, the relationship between the possession of a woman board member and financial performance was examined by taking into account the firms included in the BIST 100 index for 2016. Firms were divided into two groups, with and without women board member(s), and investigated whether there was a difference in financial performance between the two groups in terms of ROA and ROE values. As a result of the research, the relation of the financial performance in terms of roa and roe values to the women board member(s) has not been determined. It is thought that the fact that the women in the scope of the research are members of the family who owns the firm prevents the woman

from contributing as an element of diversity. In fact increasing the gender diversity of the Board of Directors will contribute positively to the financial performance of the firm as well as women are appointed as the chairman of the board. It is aimed that the study will be repeated with the data to be received in the following years and to make comparative analyzes between years. The fact that the work is included in the BIST 100 index is a limitation of the scope of the study. In future directions, analyses can be made based on educational background and whether being a family member or not of chairwoman in order to evaluate differences on financial performances.

## REFERENCES

- Adams, R. B. - Ferreira, D. (2009), "Women In The Boardroom And Their Impact On Governance And Performance", *Journal Of Financial Economics*, Volume 94, Issue 2, pp. 291-309.
- Altunışık, R. – Coşkun, R. – Bayraktaoğlu, S. – Yıldırım, E. (2012), *Sosyal Bilimlerde Araştırma Yöntemleri*, Seçkin Yayıncılık, Sakarya.
- Aygün, M. – Süleyman, İ. – Sayın, C. (2011), "Yönetim Kurulu Büyüklüğünü Belirleyen Faktörler Ve Yönetim Kurulu Büyüklüğü İle Firma Performansı Arasındaki İlişki: Türk Sermaye Piyasası Üzerine Bir İnceleme", *Gaziantep Üniversitesi Sosyal Bilimler Dergisi*, Volume 10, Issue 1, pp. 77-92.
- Campbell, K. - Mínguez-Vera, A. (2008), "Gender Diversity In The Boardroom And Firm Financial Performance", *Journal Of Business Ethics*, Volume 83, Issue 3, pp. 435-451.
- Dehaene, A. - De Vuyst, V. - Ooghe, H. (2001), "Corporate Performance And Board Structure In Belgian Companies", *Long Range Planning*, Volume 34, Issue 3, pp. 383-398.
- Erhardt, N. L. - Werbel, J. D. - Shrader, C. B. (2003), "Board Of Director Diversity And Firm Financial Performance", *Corporate Governance: An International Review*, Volume 11, Issue 2, pp. 102-111.
- Francoeur, C. - Labelle, R. - Sinclair-Desgagné, B. (2008), "Gender Diversity In Corporate Governance And Top Management", *Journal Of Business Ethics*, Volume 81, Issue 1, pp. 83-95.
- Hillman, A. J. - Cannella, A. A. - Harris, I. C. (2002), "Women And Racial Minorities In The Boardroom: How Do Directors Differ", *Journal Of Management*, Volume 28, Issue 6, pp. 747-763.
- Karayel, M. - Doğan, Ö. G. M. (2014), "Yönetim Kurulunda Cinsiyet Çeşitliliği Ve Finansal Performans İlişkisi: BİST 100 Şirketlerinde Bir Araştırma", *Süleyman Demirel Üniversitesi İktisadi Ve İdari Bilimler Fakültesi Dergisi*, Volume 19, Issue 2.
- Karoğlu, E. (2016), "Vekâlet Kuramı Perspektifinden Yönetim Kurulu Kompozisyonunun Finansal Performans Üzerindeki Etkisi: BİST İmalat Sektörü Örneği", *Balkan ve Yakın Doğu Sosyal Bilimler Dergisi*, Volume 2, Issue 1.
- Miller, D. - Lee, J. (2001), "The People Make The Process: Commitment To Employees, Decision Making, And Performance", *Journal Of Management*, Volume 27, Issue 2, pp. 163-189.
- Otluoğlu, E. - Sarı, E. S. - Otluoğlu, K. (2016), "Yönetim Kurulu Çeşitliliğinin Finansal Performansa Etkisi: Bıst 100 Üzerine Bir Araştırma", *Journal Of International Social Research*, Volume 9, Issue 46.

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
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- Papalexandris, N. - Bourantas, D. (1991), "Attitudes Towards Women As Managers: The Case Of Greece", *International Journal Of Human Resource Management*, Volume 2, Issue 2, pp. 133-148.
- Shrader, C. B. - Blackburn, V. B. - Iles, P. (1997), "Women In Management And Firm Financial Performance: An Exploratory Study", *Journal Of Managerial Issues*, pp. 355-372.
- Smith, N. - Smith, V. - Verner, M. (2006), "Do Women In Top Management Affect Firm Performance? A Panel Study Of 2,500 Danish Firms", *International Journal Of Productivity And Performance Management*, Volume 55, Issue 7, pp. 569-593.
- Şahin, K. T. - Koçoğlu, R. (2016), "Ulusal İş Sistemlerinde Yönetim Kurul Yapısı Farklılıkları: Abd, Almanya, Japonya, Tayvan Ve Türkiye Karşılaştırması", *Karadeniz Teknik Üniversitesi Sosyal Bilimler Enstitüsü Sosyal Bilimler Dergisi*, Issue 11, pp. 7-32.
- Terjesen, S. - Sealy, R. - Singh, V. (2009), "Women Directors On Corporate Boards: A Review And Research Agenda", *Corporate Governance: An International Review*, Volume 17, Issue 3, pp. 320-337.

# THE AFFECTS OF ENTERPRISE RISK MANAGEMENT MATURITY LEVEL ON OPERATIONAL PERFORMANCE

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**Abstract:** *Today, risks encountered by people and firms are increasing and decision making periods are becoming shorter. So, firms need various tools to manage these risks. One of the most cited and applied framework to manage risks is the COSO Enterprise Risk Management Integrated Framework. In this framework, the objectives of enterprise risk management are classified as strategic, operations, reporting and compliance. In this study, the relationship between the enterprise risk management maturity levels of firms and their operational performance levels is investigated by the linear regression analysis. According to the linear regression analysis results, there is a negative but not statistically significant relationship between the enterprise risk management maturity level and the average collection period. Also there is statistically significant negative relationship between equity turnover and enterprise risk management maturity level.*

**Keywords:** *Enterprise risk management, maturity level, COSO, operational performance*

## INTRODUCTION

Some big corporate failures in the USA in 1990s emphasized the importance of risk management practices. As attention to enterprise risk management (ERM) increased, a number of frameworks emerged to help firms in their implementation. One of the most cited and applied framework is the Committee of Sponsoring Organizations of Treadway Commission (COSO) ERM Integrated Framework (Beasley, Branson and Hancock, 2010). In this framework, ERM is defined as a process affected by an entity's board of directors, managerial and other staff, applied in a strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk so as to be within the risk appetite, to provide reasonable assurance regarding the achievement of entity objectives (COSO, 2004: 4). Despite the hypothesized benefits of ERM, there are limited empirical evidence indicating the benefits of ERM for firms. Moreover, most of the empirical investigations focused on the relationship between ERM and financial performance. The aim of this study is to investigate the effect of ERM maturity level on firms' operational performance levels. In this study, the ERM maturity levels of firms were determined via a questionnaire prepared based on the COSO ERM Integrated Framework. The relationship between the firms' ERM maturity levels and their operational performance levels was measured via the simple linear regression analysis. It was observed that there was a statistically significant negative relationship between the ERM maturity level and the average storage time.

## LITERATURE REVIEW

Today, risks encountered by people and organizations are increasing and decision making periods are becoming shorter. Therefore, various tools are needed to manage these risks. The new approach adopted in the risk management process is expressed as ERM (Cömert et al., 2015: 60). The COSO ERM Framework classifies organizational objectives into four categories, namely strategic, operations, reporting and compliance. Moreover, the COSO ERM Framework consists of eight core components, namely internal environment, objective setting, event identification, risk assessment, risk response, control activities, information and communication and monitoring (COSO, 2004: 5-6). According to the COSO ERM (2004), almost any component can influence another multidirectional and iterative process.

Although there has been a significant increase in the number of ERM implementations, the literature provides little empirical evidence in relation to if the ERM increases financial performance. Also, most of the empirical investigations focused on the relationship between ERM and financial performance. Hoyt and Liebenberg (2011) found a positive relation between the firm value and the use of ERM. Similarly, Florio and Leoni (2017) found that the advanced level ERM implementation presented higher financial performance. Likewise, Farrel and Gallagher (2015) showed that firms having reached maturity ERM levels exhibited higher firm values. Moreover, Soltanizadeh et al. (2015) found that the ERM implementation had a significant positive effect on the operational performance. Grace et al. (2010) revealed that ERM practices across insurers result in economically and statistically significant increases in both cost and revenue efficiency.

## METHODOLOGY

This study focuses on the association between ERM maturity levels and firms' operational performance levels. In order to determine firms' ERM maturity levels, in other words, in order to find the extent to which the COSO ERM components are applied in firms, a questionnaire form was prepared. In the questionnaire, there are a total of 30 questions, 2 of which are open-ended and 28 of which are 5-point Likert type questions. The questionnaire form was sent to a total of 182 companies publicly traded in BIST and operating in the manufacturing sector and 58 companies returned the questionnaires. The ERM maturity level of each company was calculated by evaluating the answers given to the questionnaire form. As the indicators of the companies' operational performance levels, their average storage times, average collection periods, fixed assets turnovers and equity turnovers were evaluated. In the calculation of the companies' operational ratios, the data present in their annual financial statements belonging to the year of 2016 are used. The mentioned data was obtained from the Public Disclosure Platform web page (<https://www.kap.org.tr/>,2016). The relationship between the companies' ERM maturity levels and their operational performance levels was measured via the linear regression analysis method and by using the Stata 13 package program.

In this study, the following hypothesis is explored:

H1 = There is a negative association between firms' ERM maturity level and their average storage times.

H2 = There is a negative association between firms' ERM maturity level and their average collection periods.

H3 = There is a positive association between firms' ERM maturity level and their fixed assets turnovers.

H4 = There is a positive association between firms' ERM maturity level and their equity turnovers.

The models of the study are as follows:



$$AST_i = \beta_0 + \beta_1 ERM_i + \varepsilon_i$$

$$ACP_i = \beta_0 + \beta_1 ERM_i + \varepsilon_i$$

$$FAT_i = \beta_0 + \beta_1 ERM_i + \varepsilon_i$$

$$ET_i = \beta_0 + \beta_1 ERM_i + \varepsilon_i$$

ERM= Maturity Level of Enterprise Risk Management System

AST= Average Storage Time

ACP= Average Collection Period

FAT= Fixed Assets Turnover

ET= Equity Turnover

## FINDINGS

Simple linear regression results regarding ACP and ERM relationship can be seen in Table 1.

**Table 1.** Linear Regression Results

Variable	Coef.	Std. Err.	Prob.
ACP	-.0316143	.023767	0.182
cons	5.529239	1.984465	.007
F (Prob > F)		0.0235	
R <sup>2</sup>		0.0316	
Shapiro- Wilk W test for residual (prob>z)		0.12276	
Breusch- Pagan Test (Prob>chi2)		0.4253	

\* significance levels of 5 percent

As it is seen in Table 2, the R<sup>2</sup> value is 0.0316. 3.16% of the change in the dependent variable is accounted for by the independent variables included in the model. As it is seen in Table 1, the F value is significant (0,0235); for this reason, our model is statistically significant. The Shapiro- Wilk W tests do not reject the null hypothesis of normality and the Breusch-Pagan tests do not reject the null hypothesis of homoscedasticity. Thus, the regression models seem to have explained the relationships between the ERM maturity levels and the firms' operational performance levels. But according to Table 1, there isn't a statistically significant relationship between the ERM maturity level and the average collection period (p=0.182).

Relationship between AST and ERM, between FAT and ERM, between ET and ERM can not measure by simple linear regression analysis because residuals of these regression equations don't normally distributed. Table 2 shows the results of the Shapiro-Wilk W test.

**Table 2.** The Results Of The Shapiro-Wilk W Test

Simple Linear Regression Model	Shapiro-Wilk W test (Prob>z)
Model regarding the effect of ERM on AST	0.00002
Model regarding the effect of ERM on FAT	0.00003
Model regarding the effect of ERM on ET	0.00002

The null hypothesis of Shapiro- Wilk W test is that the distribution of the residuals is normal, here all models p-value is smaller than 0.05, so the null hypothesis is rejected (at 95%).

Relationship between AST and ERM, between FAT and ERM, between ET and ERM can measure by correlation analysis. The results of Spearman Correlation Test are shown below in Table 3.

**Table 3.** Spearman Correlation Test Results

Spearman Correlation Coefficient Between AST and ERM (p value)	-0.0082 (0.9513)
Spearman Correlation Coefficient Between FAT and ERM (p value)	-0.0654 (0.6259)
Spearman Correlation Coefficient Between ET and ERM (p value)	-0.2602 (0.0485)

As seen in Table 3, there is a statistically significant negative relationship between ET and ERM.

## CONCLUSIONS

Today, risks encountered by people and organizations are increasing and decision making periods are becoming shorter. Therefore, various tools are needed to manage these risks. Despite the hypothesized benefits of the ERM, there is limited empirical evidence regarding the relationship between the ERM and a firm's performance level. As attention to the ERM increased, the number of frameworks emerged to help firms in their implementations. One of the most cited and applied frameworks is the COSO ERM Integrated Framework. Also, most of the empirical investigations focused on the relationship between the ERM and financial performance. One of the expected results of the implementation of the ERM system in firms is the increasing of firms' performance. Starting from this point, in this study, the relationship between the ERM maturity level and the average storage time, average collection period, fixed assets turnover and equity turnover, which are the activity performance indicators, was investigated via the simple linear regression analysis and correlation

analysis. As a result of the study, a negative relationship was found between the firms' ERM maturity levels and their average collection period. But this relationship is not statistically significant. On the other hand according to correlation analysis there is a statistically significant and negative relationship between equity turnover and maturity level of enterprise risk management.

## REFERENCES

Beasley, Mark- Branson, Bruce- Hancock, Bonnie, Report on the Current State of

Enterprise Risk Oversight,  
[https://erm.ncsu.edu/az/erm/i/chan/library/AICPA\\_ERM\\_Research\\_Study\\_2010.pdf](https://erm.ncsu.edu/az/erm/i/chan/library/AICPA_ERM_Research_Study_2010.pdf)  
(04.01.2017).

Committee of Sponsoring Organizations of Treadway Commission, ERM Integrated Framework, Executive Summary, 2004, [www.uchile.cl/documentos/documento-prof-morales-2-pdf\\_68478\\_9.pdf](http://www.uchile.cl/documentos/documento-prof-morales-2-pdf_68478_9.pdf) (15.01.2017)

Cömert, Nuran- Kardeş Selimoğlu, Seval- Güçlü Marşap, Beyhan- Kurt, Ganite- Poroy Arsoy, Aylin- Uçma Uysal, Tuğba- Ertan, Yasemin- Öner kaya, Emine- Kaya, Bekir- Bora, Tuba (2015), Holistic Approach to Risk Based Internal Financial Control for SMEs, Gazi Bookstore, Ankara.

Mark, Farrel- Ronan, Gallagher (2015), The Valuation Implications of Enterprise Risk Management Maturity, The Journal of Risk and Insurance, Volume 82, Issue 3, September, pp. 625-657.

Florio, Cristina – Guilia, Leoni (2017), Enterprise risk management and firm performance: The Italian case, Volume 49, Issue 1, pp56-74.

Hoyt, Robert. E. – Liebenberg, Andre P. (2011), The Value of Enterprise Risk Management, The Journal of Risk and Insurance, Volume 78, Issue 4, December, pp. 795- 822.

<https://www.kap.org.tr/>,2016

Soltanizadeh, Sara- Rasid, Siti Zaleha Abdul- Golshan, Nargess Mottaghi- Ismail, Wan Khairuzzaman Wan (2015), Business Strategy, Enterprise Risk Management And Organizational Performance, Management Research Review, Volume 39, Issue 9, pp. 1016 – 1033.

# CLOUD ACCOUNTING SYSTEMS AND A SWOT ANALYSIS

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**Abstract:** *Internet and information technologies developing in the recent years reveal many opportunities to facilitate the processes in the state, citizen, and business world. One of these opportunities that emerges is also cloud computing systems. While the term cloud is used instead of the word internet, information systems refer to the use of technology. Cloud computing systems present the services, applications, and data through internet. Hence, cloud systems gives working flexibility and opportunity of transmitting data to the users. Accounting information systems having the obligation to work in certain areas make effort to create its own flexibility, utilizing the recent opportunities technology presents. In this context, the aim of the study is to introduce by the method of SWOT analysis the strengths and weaknesses of cloud accounting systems, the opportunities it presents, and threats it forms for evaluating the applicability of accounting systems, which is in effort to integrate into Cloud computing systems, in Cloud computing system. In this study, the opportunities cloud system presents to the users of accounting information system and threats it forms were described together with the strengths and weaknesses of the system.*

**Keywords:** *Cloud Computing, Accounting Information Systems, Cloud Accounting Systems, SWOT Analysis.*

## INTRODUCTION

In the recent years, popularity in business and storage technology, rapid growth, and success of internet made information resources cheaper, stronger, and more reachable than usual (Puthal et al., 2015: 1). This state led the concept of cloud computing process, which is commonly known today, to emerge. According to Armbrust et al. (2010), cloud computing process opened a road that develops to respond in better way to the requirements of the existent and future information communication technologies. Cloud computing process is a strong architectural structure that forms to be able to use the complex and large scale data of today more usefully. Cloud computing processing not only reduces the automation and computerization costs and constraints of the individuals and businesses but also lowers infrastructure maintenance costs and provides effective access of management and user (Li et al., 2013: 463). What is underlying Cloud computing processing is network based applications depending on server or servers rather than programs and applications depending on computer. Thus, these network based applications can be reached by means of any device that has an internet access such as computer, tablet, and smart phone.

At the present days, accounting information systems is a data processing process providing information needed in planning, controlling, and sustaining business activities for information users in businesses (Romney et al., 1997: 2). Nowadays, these data reached huge dimensions for he reasons such as globalization, economic growth, technology development, and increase of product diversity. Thus, accounting systems were obliged to utilize information technologies to process the growing data. Most of accounting information systems consist of computer based applications at the present days. This state forms the obligation to carry out accounting processes at a certain point. This obligation removes the easiness to reach accounting data from any desired place. But, internet age of today, for easiness to reach accounting data, the developed information processing technologies have emerged. Cloud systems, at this point, helping accounting systems, present some opportunities to eliminate the trouble of the users of accounting data to reach these data. Besides that these new

systems, termed cloud accounting systems, present many advantages and opportunities for the users, knowing the risks and dangers it forms has a great importance for the institutes and people that will use this system.

In this context, the main aim of the study is to present the strengths, weaknesses, ad opportunities the system presents and threats it forms by the method of SWOT analysis. This study covering cloud accounting systems consists of two sections. In the first section of the study, the literature review related to cloud accounting systems and explanations of the concepts related to this system take place. In the second section, there is analysis of the study.

## METHODOLOGY

In this article, cloud accounting systems were measured by the method of SWOT analysis as seen in Figure 1. The technique of SWOT analysis, developed by Learned, Christensen, Andrews and Guth, the professors of Harvard University, determines strengths and weaknesses of any technique, process, or state and is also a strategic technique used to identify the opportunities and threats resulted from the internal and external environment (Wikipedia, 2017). In the analysis, primarily, strengths and weaknesses consisting of the own internal factors of cloud accounting systems as a result of integration of Cloud computing processes into information processing systems as well as opportunities consisting of external factors were attempted to be revealed. Here, the internal factor indicates the features emerging as user-originated and external factor the features that are not user - originated. In revealing this analysis, especially literature reviews, websites of many cloud accounting system were utilized.

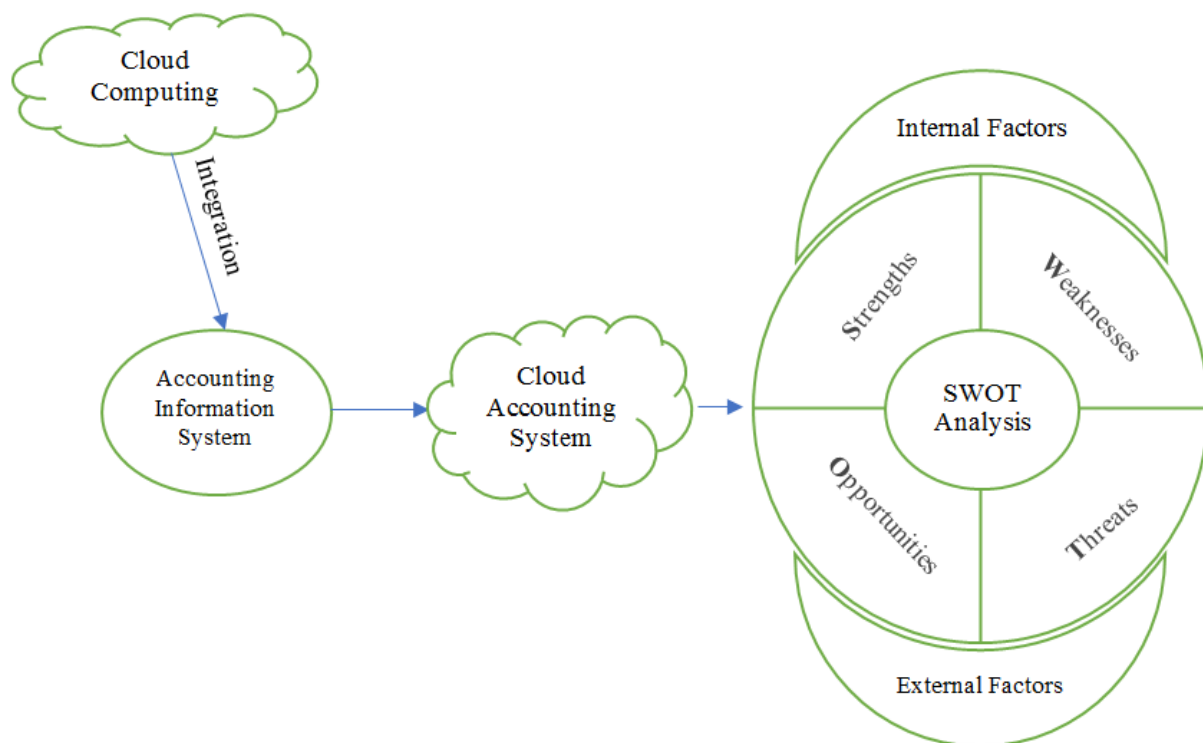


Figure 1. Study Model

## FINDINGS

According to the findings of the study, while the strengths and weaknesses of cloud accounting systems consist of internal factors, opportunities and threats consist of external factors.

According to the findings obtained in the studies, strengths of cloud accounting systems are collected under the following titles.

- 1) Low cost
- 2) Access easiness
- 3) Use easiness
- 4) High security standards
- 5) Data transfer
- 6) Data Storage
- 7) Backup easiness

Weaknesses of cloud accounting systems consist of the following items according to the findings.

- 1) Need for online working
- 2) Constraints in applications
- 3) Data secrecy
- 4) Data security
- 5) Performance

The other findings obtained in the study are the opportunities and threats of cloud accounting systems that emerge, depending on the external factors. These are collected under the following titles:

#### Opportunities

- 1) Real time access to data
- 2) Integrations
- 3) Use in mobile applications
- 4) Action Flexibility

#### Threats

- 1) That the system remains offline
- 2) Security violation
- 3) Contract originated problems
- 4) Legal barriers

## CONCLUSIONS

The rapid development of internet technologies opens new roads changing the form of working and making communication of the societies and industries. In addition, introduction of portable computer devices, which are available everywhere, such as laptop computers, tablets, and smart phones enable the people to enter interaction in any time and from any place. Along with the development of these technologies, emergence of large scale internet services revealed a new resource providing paradigms called cloud computing processing (Lakew, 2015: 1)

Cloud computing processing has become one of the most important developments, recently emerged for accenting information systems. Integration of accounting information systems into cloud systems introduced many advantages and opportunities compared to traditional systems. According to Mahoney (2013), while the cost of traditional information technologies of businesses forms 68% of total general expenditures, in cloud computing processing, this rate is 9%. When examined from this point of view, it cannot be rejected that information systems utilize optimal benefit created by cloud computing processing. But, despite its all potential benefits, that cloud computing system is a developing model emerges several risks and threats.

In this study, strengths and opportunities cloud accounting systems form for the users and risks and threats system create were examined with a conceptual viewpoint. In this context, that users correctly determine their needs, while preferring cloud accounting systems and find the most suitable system for their own sectors are important. On the other hand, it is necessary to know what the preferred system presents about security and service quality and to form the validity of contracts, and legal infrastructure.

## **REFERENCES**

Armbrust, Michael, et al. (2010), "A View of Cloud Computing", *Communications of The ACM*, Volume 53, Issue 4, pp. 50-58.

Li Chih-Wei, H. Chih-Ming, C. Chih-Hung, Y. Chao-Tung (2013), "An Improvement to Data Service in Cloud Computing with Content Sensitive Transaction Analysis and Adaptation", *Computer Software and Applications Conference Workshops (COMPSACW)*, IEEE 37th Annual, 2013, pp. 463-468.

Romney B. Marshall- Steinbart Paul John- Cushing Barry E. (1997), "Accounting Information Systems", Seventh Edition, Addison-Wesley Publishing Co., USA.

[https://tr.wikipedia.org/wiki/SWOT\\_analizi](https://tr.wikipedia.org/wiki/SWOT_analizi), (01.03.2017).

Lakew, E. B. (2015), "Autonomous Cloud Resource Provisioning: Accounting, Allocation, and Performance Control", PhD Thesis, Department of Computing Science, Umeå University, Sweden.

Mahoney S. (2013), "Accounting Software, Cloud Accounting, Cloud Technology", <http://www.brittenford.com/blog/the-economics-of-using-cloud-accounting-systems/>, (25.02.2017).

# INFORMATION TECHNOLOGIES AND E-ACCOUNTING EDUCATION

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**Abstract:** *Developments in information technologies have moved the accounting profession far beyond processing transactions and book-keeping on a computer. The impact of the developments in communication and production technologies on accounting has made the accounting, beyond its traditional function of accounting, a decision support system more integrated with technological resources. In this regard, businesses are expecting from educational institutions to raise individuals who can adopt themselves to technological changes. Similarly, with the technological developments, educational institutions also have to incorporate different methods into the education process. Thus both the newly formed content and teaching of this content are differentiated.*

*The aim of this study is to examine the use of technology by faculty members who are the key actors of accounting educational system and their view on the usage of information technologies in education.*

**Keywords:** *Accounting Education, Information Technologies, E-Accounting*

## INTRODUCTION

The rapid development in information technologies in recent years has been influential in all areas of society. This development changed the structure of the businesses which are part of the system and has created new business models and areas (Çiğdem and Seyrek, 2015). Accordingly, businesses expect from educational institutions to raise individuals who can adopt themselves to technological changes. Indeed, with technological development, educational institutions also have to incorporate different methods into the education process. Therefore, both the curriculum and the ways of teaching this curriculum are differentiated (Cüre and Özden, 2008).

In terms of accounting, the developments in information technologies have made it far beyond the processing of records and keeping the books on the computers. The impact of the developments in communication and production technologies on accounting has made the accounting, beyond its traditional functions of accounting, a decision support system which is more integrated with technological resources (Ömürbek ve Bekçi, 2006). In particular, the emergence of web-based accounting practices with the widespread use of corporate resource planning systems and the internet, has led to the necessity of having technical competences as well as effective and efficient use of these competencies for those who practice the profession. This necessity is also confirmed by some leading associations and educational institutions in the field (Nas Ahadiat, 2008).

## TECHNOLOGY AND ACCOUNTING EDUCATION

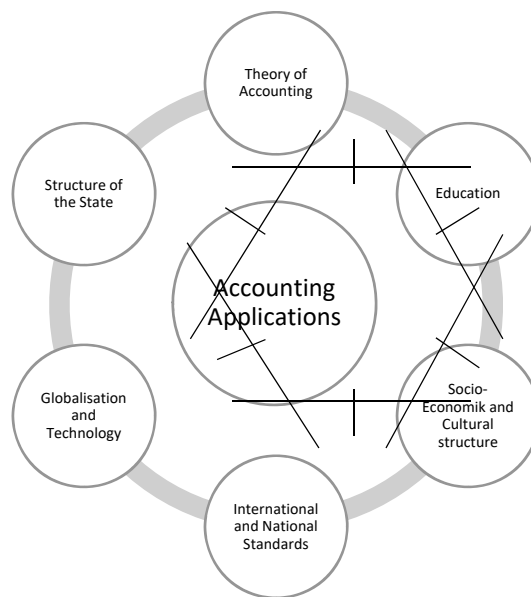
As it did in every other field, the rapid development of computers and network technologies in the 1990s brought widespread use of these technologies in education. With computers having more user-friendly interfaces and the spread of the internet amongst individual users, instructors have also made active use of the technology as a part of the education system. Especially, presentation applications



such as Microsoft Power Point have improved the methods of teaching in classes and enabled the instructors to deliver more vivid contents to students. Moreover, the widespread use of the internet has made it easier both for academicians and students to access information. Instructors have not limited the use of technology just to e-mails, computer applications and package programs, but they also began to use platforms such as personal web pages, blogs and online course management systems as instruments in accounting education (Case and Gcc, 2008).

Accounting is a system used to record and classify the assets and liabilities of a company and to assess the company's past performance, current situation and future expectations. In a more general sense, it is the art of recording, classifying, and summarizing financial information of accounting operations (Ghasemi, Shafeiepour, Aslani and Barvayeh, 2011).

Accounting has two main components; the theoretical aspect and the practical aspect of accounting, and these two components are in continuous interaction with each other. Accounting practices consist of two structures namely reporting system and chart of account. It is of utmost importance that the reporting system and the chart of account should be in accordance with the concepts, principles and standards stated in the accounting theory. However, accounting practices are influenced by many factors such as structure of state, set up of public institutions, globalization, technological innovations, the level of education, cultural factors, social and economic structures of the society, international and national standards (Nalbantoğlu, 2003)



**Figure 1: Accounting Applications and Interactions (Demir, 2012)**

Technological developments are one of the most important areas affecting the operations of companies. Technological developments in companies can be grouped as developments in information and communication technologies and developments in production technologies. These developments at the same time bring significant changes in accounting practices and accounting profession. Information technologies in companies cover usages of internet, intranet and extranet, office automation systems, functional information systems, management information systems, decision support systems and electronic data exchange systems, among others. Information technologies affect companies in three important areas: E-commerce, enterprise resource planning (ERP) and information management (Uzay, 2004).

The use of computers in the accounting process has changed the documentation, recording and reporting functions of the accounting. Treated as a "bookkeeping system" in the past, accounting has become, with the help of information technologies, an instrument for planning, valuation and

analyzing. With these developments, the duties and responsibilities of accountants have also changed. Business management expects accountants, as a person who produces and manages information, to play an active role in planning and operating technology-based information and control systems (Uyar, 2006a).

Technological developments also necessitated new methods to be developed in accounting education. According to the International Education Standards (IES) set by International Accounting Education Standards Board (IAESB), which operates under the International Federation of Accountants (IFAC), the knowledge and skills that an accounting professional must have regarding the information technologies are listed below in Table 1 (IFAC Education Committee, 2003):

**Table 1.** Competencies related to Information Technology

General knowledge of information technologies
Knowledge of controlling/managing information technologies
Ability to control/manage information technologies
Ability to use information technologies
Competency in at least one of the followings: managing, controlling or designing of information technologies

*Source: IFAC Education Committee, 2003*

It can be seen that a group of competencies are directly related to information technologies. Also, when phrases like "Knowledge of written, electronic and human resources...", "Numerical understanding (mathematical and statistical applications) and IT skills" and so on are taken into account, the importance of information technologies in terms of competencies that accountants must have become very clear.

## **INFORMATION TECHNOLOGIES AND E-ACCOUNTING**

Technologies like computer, database, internet, wireless communication etc. have moved business processes to an almost entirely different dimension. Advances in computer softwares have also led to the more efficiency in operations and production processes in the businesses. Thus the accounting transactions began to be automated which paved way for emergence of the accounting information systems. The greatest benefit of the softwares of accounting information system is the speed and accuracy in recording and reviewing financial transactions. Today, the efficiency of internal audit is improving due to accounting softwares. This also facilitates visualization of the current financial situation and gives better reporting opportunities. Moreover, being in constant communication with the financial system, they accelerate business processes such as tax obligations or banking transactions (Ghasemi et al., 2011).

With the improvements in information technologies, computerisation started in book-keeping and this has brought out the Accounting Information System. The Accounting Information System is a computer-based method for following accounting activities in conjunction with information technology resources (Belfo and Trigo, 2013).

A wide variety of definitions of accounting information systems have been made. In general, accounting information system is a system that keeps/stores the records (data) of the financial transactions of the company, when necessary processes these records and converts them into useful information and reports (Allahverdi, 2011).

The information technologies also changed the job descriptions of accountants. Vital issues for the companies such as the establishment of appropriate accounting information systems, the control and security of the data to be processed in these systems, and the efficiency and effectiveness of financial reporting systems are now in the responsibility of accountants. The routine work of accounting is done in a much shorter time thanks to the information technologies. This led to inclusion of the analysis of data, its interpretation and reporting to decision makers in the area of responsibility of accountants. Therefore, being a good accountant requires more competencies than just accounting and knowledge of regulations (Celik and Ecer, 2009; Ömürbek and Bekci, 2006).

Along with all these developments, web 2.0 has introduced a new concept in accounting as well as in all business areas. This new approach, called e-accounting, can be defined as documenting, recording, archiving, summarizing and reporting of the internal and external economic events of the companies in a digital environment. The definition may include three categories: e-tax system, e-banking and e-preaccountancy. In terms of the electronic tax system, events such as tax rates, tax documents and tax obligations and other related information may occur in electronic environment. The policy of e-banking, including banking transactions, is to follow an economic structure which is formed through the internet (Vakilifard and Khorramin, 2015).

E-accounting or online accounting is the application of internet technologies to accounting functions in companies. E-accounting is "electronic enablement" of lawful accounting and traceable accounting processes which were traditionally manual and paper-based. E-accounting involves various computer based /internet based accounting tools, various internet resources, international web-based materials, institute and company databases which are internet based, web links, internet based accounting records, accounting research and accounting education (Alameen, 2015). E-Accounting can be defined as preparing, sending to relevant institutions and monitoring accounting books and documents used for accounting records in electronic environment. In order to transfer the books and documents used in the accounting process to the electronic environment, it is necessary to take inventory of the books, documents and financial statements (Güney, 2014).

For a more efficient accounting process, e-accounting can be defined with the following features (Relhan, 2013):

1. Multi-user access
2. Multiple site access
3. Single/multiple, shared database
4. 'Zero system management' for end users
5. Too economical to serve many customers
6. Installation and continuous update by the service provider.

However, there are also some problems that e-accounting system faces. These problems can be listed as (Relhan, 2013, Vakilifard and Khorramin, 2015):

- Data security
- Speed
- Constraints of online working softwares.

In this context, accountant candidates need to have adequate technological skills and knowledge in order to evaluate the information about the accounting records of the company, analyze and interpret

them using the necessary tools, and provide managers with suitable information. At the same time, the necessity of acquiring technical competence and skills has arisen for the instructors and academicians to teach accounting (Sürmeli, 2007). Future accountancy professionals should continue to improve their competencies by following developments in the digital world.

## **LITERATURE**

There are vast number of studies in the literature that examine the relation between technology and education. In line with technological development, the development of training methods and the use of technology in the educational process seem to enrich the related literature, as time passes.

When we look at the studies conducted abroad, it is seen that findings in the early period indicate that there is no significant effect of technology. Butler and Mautz, 1996, adapted the "Individual Differences Scale" developed by Paivio and Harshman for the accounting course and examined the relationship between multimedia presentation and learning. They found that the multimedia tools did not have a significant effect on the education process.

The development and widespread use of technology have led to a change in the perception of the internet. De Lange, Suwardy and Mavondo, 2003, argued in their study that using the internet as an educational tool increases the motivation of students. They identified four different factors as sources of information for the students; they found that the internet, which started to become widespread among young people, is a more preferred source.

In his work on the use of information technologies in accounting education Ahadiat, 2003, examined the faculty members' use of technology. Emphasizing that different perspectives and acknowledgments about the use of technology in the educational process exist between faculties and departments, the study suggests that prejudices about technology in educational institutions may leave accounting students in a difficult situation in the future.

As for the recent studies, the view that use of technology does not have significant effect on the process of education has left its place to the view that technology has an important position. For instance; McGarr, 2009, stated that podcasting has improved learning, but studies on this subject have not adequately addressed it. Margaryan, A., Littlejohn, A., and Vojt, 2011, have examined the use of digital technologies by university students for learning and socialization purposes. Obaidat and Alqatamin, 2011, have examined the perceptions of accounting students on the information technology tools which are email, the internet, MS PowerPoint and MS Excel and have argued that these four technological tools are needed to contribute to the educational process. Broad, Senik and Broad, 2011, have identified teacher-related and student-related factors that need to be addressed in order to improve and demonstrate the IT skills of students graduated from accounting departments. Huneycutt, 2013 discussed how the blending of technology with classical teaching method motivates the students and allows them to focus for long periods without getting bored.

There are also studies examining how technology can cause harm if used in a wrong way. Rottmann, 2015, found that students in the schools where use of mobile phones are allowed, performed 6% less than students in the schools where use of mobile phones are not allowed.

In the literature on accounting and technology relations, the issue has been examined from two different perspectives. While some authors emphasize the changing demands of the market together with the innovations brought by the technology, another group has investigated the necessary training mechanism both in terms of hardware and content in meeting these demands.

In studies by Uyar, 2006b, Önal, Eraslan and Kendirli, 1999 it is stated that the accountancy profession has differentiated. The information technologies made it easier for accountants to keep-

books with software package programs and this led accounting professionals to acquire additional skills such as analysis of financial statements.

The following studies can be stated as examples which examined the change that accounting profession and accountants had to undergo with the use of information technologies in accounting field: (Scapens and Jazayeri, 2003), (Uzay, 2004), (Yilmaz and Özer, 2008), (Allahverdi, 2011), (Ghasemi et al., 2011), (Grabski, Leech and Schmidt, 2011), (Çeviker, Mutlu, Der and Sürer, 2012), (Taipaleenmäki and Ikäheimo, 2013), (Liyang, 2013), (Belfo and Trigo, 2013), (Florentina, 2012). The studies emphasized that the content of the accountancy profession has changed almost completely. Knowing the theory and its application is not enough for accountants anymore. It is also emphasized that before anything else, accountants have to know computer technologies very well. Accounting professionals should keep up with the changes in the market, be able to use information technologies very well and even design their own modules which they can use. They should have comprehensive understanding of use of information technologies in mathematical and statistical applications and they should have good knowledge of financial analysis techniques in this regard. They should be experienced in web-based softwares and most importantly, should understand the functioning of Enterprise Resource Planning (ERP) systems very well.

In this respect, the relationship between technology and accounting education has been examined in two main contexts. The first is to utilize the technology itself in accounting education processes and the second is to teach candidates of the accounting profession how to use information technologies in accounting processes.

The studies conducted at the beginning of the 2000s, emphasized the importance of how technology could change the educational process. In their studies (Uslu, 1999) and (Tekşen, Ömer, Tekin, Muzaffer, Gençtürk, 2002) examined the inclusion of the computers in the classroom teaching process. They emphasized that it would be beneficial to apply a web-based technology that can provide the teaching materials to both students and instructors and to develop some simulations related to the accounting course and apply them in the classrooms by the students. The student will then be able to do a kind of virtual internship. However, there are also studies suggesting that these methods were difficult to implement in Turkey in those years. (Zaif and Karapinar, 2002) suggest that it was too early to apply new techniques mainly due to overcrowded number of students and insufficient technological infrastructure. (Kalmış and Yılmaz, 2004) examined the universities in Turkey in terms of both the content of the accounting courses and the teaching methodologies. They concluded that the given education is inadequate in this regard. Similarly (Sayin, Yeğinboy and Tektüfekçi, 2005) and (Sevim, 2005) studied the role of educational technologies in accounting education and consequently emphasized the necessity and importance of these technologies, but they found out that the usage is inadequate and therefore less effective.

Since the mid-2000s, around the world, academic studies on the contribution of technology to the accounting profession and education have increased. It has been expressed that the technology should be integrated quickly into the education system. Studies such as; (Ömürbek and Bekçi, 2006), (Nas Ahadiat, 2008), (Hacırustemoğlu, 2008), (Coşkun, 2008), (Çankaya and Dinç, 2009), (Ünal and Doğanay, 2009) particularly indicated the effect of computer use in accounting courses. The studies emphasized the creation of an interactive environment and catching the attention of the learners with the technological facilities. They also pointed out that in terms of continuous learning habits and skills development of students, applications such as web sites, web libraries, transfer of course materials to digital media, and development of free digital accounting content by related institutions and organizations, should be integrated into the course methods. Thus, the students will be more interested in classes and they will get more successful results.

Studies conducted after 2010, have tried to measure the quality of the education which is given in the direction of the effects of information technologies on the accounting profession. In their study (Yıldız and Durak, 2011) have questioned whether a level of education that can meet the needs of the industry

has been achieved. (Demir, 2012), (Orhan and Tazegül, 2013), (Fidan, Aslan and Subaşı, 2015), (Kızıl, Şeker and Bozan, 2014) have investigated that what is the level of use of technology and what are the outcomes of this level in accounting courses. As a result of these studies one can say that the use of technology in teaching process of accounting in Turkey is still insufficient. When the studies are reviewed in terms of findings concerning technological teaching tools in Turkey, they still talk about tools such as PowerPoint and MS Excel that can be regarded as the basic level when compared to today's technology. It is clear that even these tools provided students with an interactive environment and have saved accounting courses from being identified as "hard, boring". Nevertheless, it is seen that learning techniques such as mobile learning, smart learning and e-learning still does not exist in faculties, and students are not presented with real life situations through simulations from institutional resource planning systems etc.

The most recent research, which is reviewed, related to the subject is conducted by Fidan et al., 2015. In this study, the level of utilization of technological hardware and software tools by academicians who teach accounting courses in Turkey has been examined. The findings of the survey conducted with the students show that the courses should be mostly taught using a projector, a computer and a smart board. In terms of software tools for accounting courses, it has come to the conclusion that "Internet Based Accounting Softwares and Accounting Softwares" should be used most.

As can be seen from the literature review there are many studies on the use of information technologies in accounting education, however the only study that we came across on the compatibility of e-accounting content and education given to candidates of accounting profession was by Daştan ve Bellikli (2016). The aim of the study is defined as "to evaluate the accounting education at undergraduate level in Turkish state universities and the exam of accepting into profession held by TURMOB in the scope of information technologies for professional accountants (IEPS2) and to research the adaptation level". They concluded that the university course contents and the exam of admission into profession held by TURMOB are not compatible with IEPS2.

## **CONCLUSION**

Accounting can be defined as recording, classifying, analyzing and interpreting financial events. The use of technology in these financial transactions was very little in the past. However, today's technological developments require a change in the field of accounting also. This change can be applied in conducting, recording and controlling the financial activities. In other words, keeping up with technological developments is vital for businesses to perform better and to survive. Keeping up with the technology, contributes businesses in terms of monitoring track of changes in operations and recording and to follow the activities carried out, as well as saving time/costs. With these contributions of technology, businesses should also shift to the accounting practices called e-accounting. E-accounting application ensures that all stakeholders (state, individuals, investors, lenders, etc.) reach the required data more easily and more effectively. In this context, with technological changes in accounting practices, "e-accounting" has been launched worldwide. In Turkey e-accounting applications have been launched with public and private sector initiatives.

The use of e-accounting applications by all enterprises should be encouraged with government regulations and audits should be done in this direction. This will contribute to the more effective and efficient operation of the enterprises. In addition to raising awareness of businesses for using e-accounting, training the accounting practitioners will contribute to increase the effectiveness of the application. At the same time, e-accounting applications will provide companies with savings in terms of costs and ensure that data is stored and secured.

## **REFERENCES**

Ahadiat, N. (2003), Applications of Technology in Accounting Education and Analysis of Its Use Among Faculty, Applications Of Technology in Accounting Education, pp. 157-175.

- Ahadiat, N. (2008), "Technologies Used in Accounting Education: A Study of Frequency of Use Among Faculty", *Journal of Education for Business*, Volume 83, Issue 3, pp. 123-134. doi:10.3200/JOEB.83.3.123-134
- Alameen, E. mohamed abdalrahman. (2015), "Design and Implementation of Electronic Accounting system for Sudan E-government", *International Journal of Computer Science and Information Technology Research*, Volume 3, Issue 2, pp. 1093-1103.
- Allahverdi, M. (2011), "A general model of accounting information systems", 2011 5th International Conference on Application of Information and Communication Technologies (AICT) içinde (pp. 1-5). IEEE. doi:10.1109/ICAICT.2011.6110886
- Belfo, F.- Trigo, A. (2013), "Accounting Information Systems: Tradition and Future Directions", *Procedia Technology*, Issue 9, pp. 536-546. doi:10.1016/j.protecy.2013.12.060
- Broad, M. - Senik, R. - Broad, M. J. (2011), "Information technology skills development for accounting graduates: intervening conditions", *International Education Studies*, Volume 4, Issue 2, pp.105-110. doi:10.5539/ies.v4n2p105
- Butler, J. B.- Mautz, R. D. (1996), "Multimedia Presentations and Learning: A Laboratory Experiment", *Issues in Accounting Education*, Volume 11, Issue 2, pp. 259-280.
- Case, T.- Gcc, O. (2008), "The Impact Of The Acceleration Of Information Technology On The Content Of The Accounting Courses: The Case Of GCC", *Review of Business Information Systems (RBIS)*, Volume 12, Issue 3, pp. 89-96.
- Celik, O.- Ecer, A. (2009), "Efficiency in accounting education: evidence from Turkish Universities", *Critical Perspectives on Accounting*, Volume 20, Issue 5, pp. 614-634. doi:10.1016/j.cpa.2008.01.007
- Coşkun, A. (2008), "Akademik Kişisel Web Sayfalarının Muhasebe Eğitiminde Yardımcı Kaynak Olarak Kullanılması", *Muhasebe ve Finansman Dergisi*, Issue 40, pp. 154-164.
- Cüre, F.- Özden, N. (2008), "Öğretmenlerin Bilgi Ve İletişim Teknolojileri (BIT) Uygulama Başarıları ve BIT'e yönelik tutumları", *Hacettepe Eğitim Dergisi*, Issue 34, 41-53.
- Çankaya, F.- Dinç, E. (2009), "PowerPoint ve klasik usulde muhasebe eğitimi alan öğrenciler arasındaki farklılıkların tespiti: Karadeniz Teknik Üniversitesinde bir araştırma", *Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Volume 17, Issue 1, pp. 28-52.
- Çeviker, A.- Mutlu, H. M.- Der, A. - Sürer, A. (2012), "Teknolojik Yayılma: Web Tabanlı Muhasebe Yazılımlarının Benimsenmesi", "İş, Güç" Endüstri İlişkileri ve İnsan Kaynakları Dergisi, Issue 14, pp. 131-150.
- Çiğdem, Ş. - Seyrek, İ. H. (2015), "İşletmelerde Büyük Veri Uygulamaları: Bir Literatür Taraması", *Yönetim Bilişim Sistemleri Kongresi içinde* (pp. 45–56), Atatürk Üniversitesi.
- Daştan, A. - Bellikli, U. (2016), "Türkiye’de Muhasebe Eğitiminin“ IEPS 2: Muhasebe Meslek Mensupları İçin Bilgi Teknolojisi” Kapsamında Değerlendirilmesi", *TISK Academy/TISK Akademi*, Volume 11, Issue 21, pp. 172-193.
- De Lange, P.-Suwardy, T. - Mavondo, F. (2003), Integrating a virtual learning environment into an introductory accounting course: determinants of student motivation. *Accounting Education*, Volume 12, Issue 1, pp. 1-14. doi:10.1080/0963928032000064567

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- Demir, B. (2012), "Muhasebeye Yön Veren Gelişmeler ve Meslek Yüksekokullarında Verilen Muhasebe Eğitimine Yansımaları", *Eğitim ve Öğretim Araştırmaları Dergisi*, Volume 1, Issue 4, pp. 109-120.
- Fidan, M. E.- Aslan, Ü. - Subaşı, Ş. (2015), "Muhasebe Derslerinde Teknoloji Kullanımı İle İlgili Öğrenci Görüşleri", *Journal of Accounting, Finance and Auditing Studies*, Volume 1, Issue 2, pp. 34-61.
- Florentina, M. (2012), "Approach of Accounting in the Context of New Information Technology", *GSTF Journal of Law and Social Sciences*, Volume 1, Issue 2. doi:10.5176/2251-2853\_1.2.46
- Ghasemi, M.- Shafeiepour, V.- Aslani, M.- Barvayeh, E. (2011), "The impact of information technology (it) on modern accounting systems", *Procedia - Social and Behavioral Sciences*, Issue 28, pp. 112-116. doi:10.1016/j.sbspro.2011.11.023
- Grabski, S. V.- Leech, S. a. - Schmidt, P. J. (2011), "A Review of ERP Research: A Future Agenda for Accounting Information Systems", *Journal of Information Systems*, Volume 25, Issue 1, pp. 37-78. doi:10.2308/jis.2011.25.1.37
- Güney, A. (2014), "Role of Technology in Accounting and E-accounting", *Procedia - Social and Behavioral Sciences*, Issue 152, pp. 852-855. doi:10.1016/j.sbspro.2014.09.333
- Hacırüstemoğlu, R. (2008), "Bilgi Çağında Muhasebe Eğitimi", *Muhasebe Bilim Dünyası Dergisi*. Volume 10, Issue 3, pp. 1-6.
- Huneycutt, T. (2013), *Technology in the classroom: The benefits of blended learning*, National Math + Science Initiative, Retrieved from <http://www.nms.org>.
- IFAC Education Committee. (2003), *International Education Standards for professional Accountants*, New York, USA: IFAC.
- Kalmış, H. - Yılmaz, B. (2004), "Lisans Seviyesindeki Muhasebe Eğitiminin Mevcut Durumu ve Geliştirilmesi İçin Yapılması Gereken Geliştirmeler", XXIII. Türkiye Muhasebe Eğitimi Sempozyumu, 19-23 May 2004, Tekirova (Kemer), Antalya, 37-51.
- Kızıllı, C.- Şeker, S. E. - Bozan, D. (2014), "Bilgi Teknolojileri ve Bilgisayar Kullanımının Öğrencilerin Muhasebe Dersindeki Başarısına Etkisi", *The Journal of Operations Research, Statistics, Econometrics and Management Information Systems*, Volume 2, Issue 2, pp. 77-97.
- Liyan, L. (2013), "The impact of information technology on accounting theory, accounting profession, and Chinese Accounting education", *WHICEB 2013 Proceedings*. Paper 103.
- Margaryan, A.- Littlejohn, A.- Vojt, G. (2011), "Are digital natives a myth or reality? University students' use of digital technologies", *Computers & Education*, Volume 56, Issue 2, pp. 429-440.
- McGarr, O. (2009), "A review of podcasting in higher education: Its influence on the traditional lecture" *Australasian Journal of Educational Technology*, Volume 25, Issue 3, pp. 309-321.
- Nalbantoğlu, R. (2003), *Muhasebe Uygulamaları Konusunda Meslek Mensuplarının Bakış Açılıarı*. VI. Türkiye Muhasebe Denetimi Sempozyumu", *İSMMMO*, İstanbul, 16-19 April 2003.
- Obaidat, A. N.- Alqatamin, R. M. (2011), "Integrating Information Technology (IT) into Accounting Courses", *International Journal of Business and Management*, Volume 6, Issue 10, doi:10.5539/ijbm.v6n10p205



- Orhan, S. - Tazegül, A. (2013), "Muhasebe Öğretim Programının Öğrencilerin Görüşmelerine Göre Değerlendirilmesi: Meslek Yüksekokullarında Bir Uygulama", *Mesleki Bilimler Dergisi*, Volume 2, Issue 1, pp. 16-34.
- Ömürbek, V.- Bekçi, İ. (2006), "Bilgi Teknolojilerinin Muhasebe Eğitimi Üzerindeki Rolü: Bilgisayarlı Muhasebe Dersi Alan Öğrenciler Üzerine Bir Araştırma", *Muhasebe ve Denetime Bakış*, Volume 6, Issue 18, pp. 75-93.
- Önal, S.- Eraslan, S.- Kendirli, S. (1999), "Muhasebede Bilgisayar Kullanımı ve Bilgisayar Yazılımlarının Analizine İlişkin Kahramanmaraş'ta Yapılan Bir Araştırma", *Muhasebe Bilim Dünyası Dergisi*, Volume 1, Issue 3.
- Relhan, A. (2013), "E-Accounting Practices of SMEs in India", *International Journal of Technical Research*, Volume 2, Issue 1, pp. 1-10.
- Rottmann, M. (2015), *Technology in the Classroom: Does it Help or Hurt*, Thesis Magazine.
- Sayın, Ş.- Yeğinboy, Y.- Tektüfekçi, F. (2005), "Dokuz Eylül Üniversitesi İİBF'de Öğrenci Açısından ve Alt Yapı Bakımından Muhasebe ve Finansman Eğitiminin Etkinliğinin Ölçülmesi ve Değerlendirilmesi", *Muhasebe ve Finansman Dergisi MUFAD*, Issue 6.
- Scapens, R. W.- Jazayeri, M. (2003), "ERP systems and management accounting change: opportunities or impacts? A research note", *European Accounting Association*, Volume 12, Issue 1, pp. 201–233. doi:10.1080/0963818031000087907
- Sevim, A. (2005), "Dijital Uygulamaların Muhasebe Eğitimi Üzerine Etkileri", XXIV. Türkiye Muhasebe Eğitimi Sempozyumu", Muğla.
- Sürmeli, F. (2007), "Muhasebe eğitiminde e-değişimi yakalamak", *Muhasebe ve Finansman Dergisi*, Issue 33.
- Taipaleenmäki, J.- Ikäheimo, S. (2013), "On the convergence of management accounting and financial accounting—the role of information technology in accounting change", *International Journal of Accounting Information Systems*, Volume 14, Issue 4, pp. 321-348.
- Tekşen, Ömer- Tekin, Muzaffer- Gençtürk, M. (2010), "Muhasebe Eğitiminin Değerlendirilmesi: Mehmet Akif Ersoy Üniversitesi'ne Bağlı Meslek Yüksekokulları Öğrencileri Üzerine Bir Araştırma", *Journal of Accounting & Finance*, Issue 46, pp. 100-112.
- Uslu, S. (1999), "Bilgi Teknolojisindeki Gelişmelerin Işığında Muhasebe Mesleği ve Eğitimi", *Muhasebe ve Finansman Dergisi*, Issue 4.
- Uyar, S. (2006a), "Bilgi teknolojisindeki gelişmelerin muhasebe mesleğine etkileri", Pamukkale Üniversitesi, İİBF, İşletme Bölümü, Muhasebe Finansman ABD, suleymanuyar@pamukkale.edu.tr, Denizli.
- Uyar, S. (2006b), "Bilgi teknolojisindeki gelişmelerin muhasebe mesleğine etkileri", Pamukkale Üniversitesi, İİBF, İşletme Bölümü, Muhasebe Finansman ABD, suleymanuyar@pamukkale.edu.tr, Denizli.
- Uzay, Ş. (2004), "21. Yüzyılın Başında Muhasebe Mesleğini Etkileyen Gelişmeler ve Geleceğe Yönelik Değerlendirmeler", *Mali Çözüm Dergisi*, Issue 67, pp 229-248.
- Ünal, O.- Doğanay, M. (2009), "Lisans Düzeyindeki Muhasebe Eğitiminin Etkinliği: Sayıştay Özelinde Ampirik Bir Çalışma", *Sayıştay Dergisi*, (75-75), pp. 117-138.

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
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---

Vakilifard, H. R.- Khorramin, M. (2015), "A Review of E-Accounting", Indian Journal of Fundamental and Applied Life Sciences, Volume 5, Issue 1, pp. 1824-1829.

Yıldız, F.- Durak, G. (2011), "Üniversitelerde Verilen Muhasebe Eğitiminin Kırklareli Yöresi'nde Faaliyet Gösteren Küçük ve Orta Büyüklükteki İşletmelerin Beklentilerini Karşılama Düzeyinin İncelenmesi", Muhasebe ve Finansman Dergisi, Issue 49, pp. 37-47.

Yılmaz, E.- Özer, G. (2008). Information Technology Usage of Accountants", 1st International Conference on Management and Economics. Current Issues Emerg. Econ. Global Perspect, Issue 2, pp. 318-334.

Zaif, F. - Karapınar, A. (2002), "Muhasebe Eğitiminde Değişim İhtiyacı", Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi, Gazi Üniversitesi, İİBF Dergisi, Issue 3, pp. 111-134.

# TRANSFER PRICING IN THE BALKANS

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**Abstract:** *This study aims to show the recent developments and differences in the transfer pricing applications of several Balkan states. Transfer pricing applications in Bulgaria, Greece, Romania, Albania, Macedonia, Serbia and Turkey are examined respectively according to OECD Transfer Pricing Guidelines. OECD is considered as the highest authority in transfer pricing practices but findings indicate that some Balkan states' transfer pricing legislations do not integrate with OECD's transfer pricing policies. Therefore, EU's Code of Conduct for TP Documentation for Associated Enterprises and local legislations of the mentioned Balkan states are additionally analyzed in the research.*

**Keywords:** *Transfer pricing, Balkan countries.*

## INTRODUCTION

The world have become more globalised by the easier means of global transport and improved technology. As international investments and global economy are developing rapidly, movement in goods, services and capital becomes faster and easier. International firms are setting up new branches to extend their market or allocate their operations. Thus, they become responsible of international regulations and guidelines. Transfer pricing is one of the these international regulations.

Transfer pricing can be considered as a common tax evasion method for multinational firms. Although, price should be established compatibly with the arm's length according to international regulations, it can be adjusted to the shift profit to countries that have tax advantages in their legislations. Transfer pricing is also used to charge costs to the countries that offer expedient subsidies. Briefly, it is an important vehicle for the international tax planning and is the scope of this study.

Southeastern Europe is known as the Balkans. Romania, Croatia, Slovenia, Serbia, Albania, Bulgaria, Greece, Macedonia, Kosovo, Montenegro and Turkey are part of the Balkan range. These states are considered as emerging markets and have been attracting the attention of multinational firms for decades. Although economically and culturally related, they have disparate legal and political structures. Greece, Romania and Bulgaria are member of European Union and their domestic regulations are coordinated by European Union. As a result of that, these countries have similar legislations. Furthermore, Turkey and Greece is member of the OECD and their fiscal policies are complied with the OECD Guidelines and Model Conventions. Although not members of OECD, other Balkan states adopt to OECD principles in their fiscal regulations such as transfer pricing guidelines. Besides, all of the OECD transfer pricing guidelines and methods are not acceptable by tax administrations in these states. As a result, transfer-pricing applications differ between these states.

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Guidelines. OECD is considered as the highest authority in transfer pricing practices but findings indicate that some Balkan states' transfer pricing legislations do not integrate with OECD's transfer pricing policies. Therefore, EU's Code of Conduct for TP Documentation for Associated Enterprises and local legislations of the mentioned Balkan states are additionally analyzed in the research.

## LITERATURE REVIEW

Studies regarding transfer pricing have been gaining interest since multinational companies have developed divisional organizations in which some separate divisions are virtually considered as *profit centers*. The problem of pricing the goods and services that are exchanged between such divisions are attracting the attention of academics since 1950s. Paul W. Cook (1955) and Hirshleifer (1956) suggested the usage of market-based prices, on the other hand Joel Dean (1955) recommended negotiated competitive prices in his paper titled *decentralization and intra-company pricing*. These papers can be considered as the cornerstones of international transfer pricing thought. Since then, the issue of transfer pricing have been analysed with various methodologies like building indexes (Marques and Pinho, 2016) to measure the transfer pricing framework strictness by countries, while others (Bhattacharjee and Moreno, 2017) tried to analyse opponents emotions as information signals during accounting bargaining by benefiting from psychological research measures. Several studies have analysed the subject by means of surveys (Hummel et al, 2017), case studies (Ylönen et al, 2015) and accounts (Muhammadi et al, 2016).

It is hard to find cross-cultural studies in the relevant literature, since this paper uses a comparative cross-cultural method to analyse the transfer pricing practices of several countries. An inspiring study was published in the British Accounting Review by Jingyi Wang (2016). Like in many Balkan countries, China have been paying special attention to transfer pricing issue for the last decade. The paper analyses the reasons for the perceived aggressiveness of Chinese tax authorities and the inconsistency between statutory endorsement of the arm's length principle and the approach adopted in practice by tax authorities. Sukurai (2002) made interviews with the tax managers of multinational companies of US, UK and Japan in order to compare cross-cultural regulatory styles and processes in dealing with transfer pricing. The papers results suggest that different regulatory styles practiced by US, UK and Japanese tax managers have both merits and shortcomings regarding transfer pricing rules. The goal of our paper can be considered similar as it focuses to the regulatory differences of Balkan countries.

## METHODOLOGY

This study applies a comparative cross-cultural method in order to analyse the regulatory differences in transfer pricing at several Balkan states. Although, there are twelve Balkan countries in the Southeastern Europe, only seven of them are analyzed in order to obtain efficient results and comparisons. Croatia, Kosovo, Bosnia and Herzegovina, Montenegro and Slovenia are excluded from analysis. The reasons for excluding these Balkan states is briefly explained..

Bosnia and Herzegovina have two different regional and governmental entities, as a result of that Bosnia and Herzegovina is divided to two separate autonomous region and it has two separate tax authorities. This two entities have separate legislations and applications for transfer pricing. Because of the complicated transfer pricing regulations and the country have not an application integrity inland, Bosnia and Herzegovina is not included in the study. Although Kosovo and Montenegro have transfer pricing provisions in their legislations, they are recently established and provided with limited sources for the research.

Transfer pricing applications in Bulgaria, Greece, Romania, Albania, Macedonia, Serbia and Turkey are compared respectively according to the *arm's length principle, OECD transfer pricing guidelines, related parties, transfer pricing methods, documentation requirements, tax audit procedures and transfer pricing penalties*.

## FINDINGS

Before going on through distinctive facts about transfer pricing regulations, a general view to the mentioned countries is shown at the below table.

**Table 1.** General View to Turkey and Balkan States

Country	Population	GDP per capita (\$)	Corporate Tax Rate (%)	Member of OECD	Member of European Union
Turkey	75.932.348,00	10.529,60	20	✓	x
Bulgaria	7.226.291,00	7.712,80	10	x	✓
Greece	10.957.740,00	21.682,60	26	✓	✓
Romania	19.910.995,00	9.996,70	16	x	✓
Albania	2.894.475,00	4.619,20	15	x	x
Macedonia	2.075.625,00	5.455,60	10	x	x
Serbia	7.129.428,00	6.152,90	15	x	x

*Source: World Bank Database – 2015*

Turkey has the highest population, moreover its population is more than the sum of other Balkan countries. Nevertheless, Turkey has the second highest GDP in the figure. Bulgaria and Macedonia have the lowest tax rate in the figure, on the other hand Greece has the highest corporate tax rate and GDP per capita in the figure. Turkey and Greece are member of the OECD and, Bulgaria, Greece and Romania member of the European Union. Albania, Macedonia and Serbia are not member both of the organizations.

The next part of the study deals with the differences according to the *arm's length principle* and the *OECD transfer pricing guidelines*.

**Table 2.** Comparison of the arm's length principle

Country	Defined in Local Legislation		No Definition in Legislation
	Direct	Indirect	
Turkey	✓		
Bulgaria	✓		
Greece	✓		
Romania	✓		
Albania		✓	
Macedonia		✓	
Serbia	✓		

Arm's length principle is the rudiment of the transfer pricing. The countries who are member of the OECD and European Union and Serbia legislated it directly by the term of arm's length in their tax

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legislations. Concordantly, affect of the OECD Transfer Pricing Guidelines and European Union's Code of Conduct for Transfer Pricing Documentation for Associated Enterprises on this countries' transfer pricing legislation may be seen obviously. While, this countries take the term into the their legislation in accordance with global definitions, other countries, Macedonia and Albania has a defitinion about the arm's lenght but not exactly same with the OECD and European Union.

**Table 3. OECD Transfer Pricing Guidelines**

Country	Accordance Level to the Guidelines			
	High	Medium	Low	Non
Turkey	✓			
Bulgaria		✓		
Greece	✓			
Romania	✓			
Albania	✓			
Macedonia				✓
Serbia	✓			

Although Romania, Albania and Serbia are not a member of OECD, their transfer pricing regulations, are almost integrated with the OECD Transfer Pricing Guideline. Turkey is almost integrated with the OECD Transfer Pricing Guideline. Even though, only domestic law is the legislated source and it causes the avoid direct impact of OECD Guidelines, Guidelines are considered by the tax authority in the process of enact, consequently legislation is became integrated with Guidelines. Greek transfer pricing regulations are integrated to the OECD Guidelines as an OECD member. Greece merely apply a bit differently three issue from the OECD Guidelines about the methods and documentation. Bulgaria consider both of OECD Guidelines and Code of Conducts of the EU on the regulation of transfer pricing rules apart from local legislation.

**Table 4. Transfer Pricing Methods**

Country	Traditional Transaction Methods			Transactional Profit Methods		Method Selection Has a Hierarchy?	Which Methods Has Priority?
	Comparable Uncontrolled Price Method	Resale Price Method	Cost Plus Method	Transactional Net Margin Method	Profit Split Method		
Turkey	✓	✓	✓	✓	✓	✓	Traditional Transaction Methods
Bulgaria	✓	✓	✓	✓	✓	✓	Traditional Transaction Methods
Greece	✓	✓	✓	✓	✓	✓	Traditional Transaction Methods
Romania	✓	✓	✓	✓	✓	✓	Traditional Transaction Methods
Albania	✓	✓	✓	✓	✓	x	X

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Macedonia	✓	x	✓	x	x	✓	Taxpayer should select to cost plus method in the case of no possibility for the selection of other method.
Serbia	✓	✓	✓	✓	✓	✓	Traditional Transaction Methods

Turkey, Bulgaria, Greece, Romania and Serbia have the same application for the selection of transfer pricing method. Albania is not adopted to *OECD Transfer Pricing Guidelines* which could seen on table 3, therefore has differences in this application.

*Related party* has similar definitions in all of the countries. Term of relative, shareholder, control the business decision process and control the management are regarding to the related person for the countries. Bulgaria is the most broad in scope country for the related persons. On the other hand, Romania is only use term of voting right and shareholder for the definiton of related party.

**Table 5. Related Parties**

Country	Scope of The Related Party			
Turkey	Shareholders of the Corporation	Juristic persons or individuals who have a relation with the corporations or its shareholders	Juristic persons or individuals who has direct or inderect control on the Corporation as management or capital	Juristic persons or individuals who are controlled directly or indirectly by the Corporation
Bulgaria	Spouses, relatives who has directly kindredship and second degree and third degree relatives, The Persons who has labor relations, The partners, The persons, whom has management righth on the its subsidiary	The entity who is managing or controlling bodies participates one and the same corporate body .	An entity which has an activity under the control of a third party or its subsidiary, The entity which has control on the third party or its subsidiary, The person who is agent of the other	The person who grant a compensation to other, The person who involved the management directly or indirectly, has control or share on other, The persons, in whose manage or control bodies participates one and the same corporate body or individual, including when the individual represents another individual
Greece	If a entity has direct or indirectly 25 percent or more shares or voting right of the other entity, or has management power on other entity	one entity has directly or indirectly, including the shareholding of related entities, a minimum of 25 percent of the shares or voting rights in the two entities.	if two individuals has a line of descent up to the third degree, they are regarded as related parties according to legislation	
Romania	If a entity has direct or indirectly 25 percent or more shares or voting right of the other entity, or has management power on other entity.	one entity has directly or indirectly, including the shareholding of related entities, a minimum of 25 percent of the shares or voting rights in the two entities		
Albania	If person control or hold the 50 percent or more voting rights of the other entity	If person can control the structure of the board of directors of the other entity	If person is a relative or a relative of the a related person	If person has control over the business decisions of other entity
Macedonia	in the case of holding 10 percent or more share in the capital	in the case of control over at 20 percent or more of the voting rights	in the case of a legally independent company over which another company (the controlling company) has a direct or indirect controlling influence	in the case of companies that have concluded an agreement for the purpose of acquisition or assignment of voting rights, or for exercise of voting rights with the

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				purpose of having a joint policy towards the company
Serbia	A person related with a resident shall be understood to mean an individual or legal entity in whose relations with the resident, there is a possibility of exercising control over or exerting considerable influence on business decisions	The possession of 50 percent or more or the largest single portion of shares or interests shall mean that control over the taxpayer is possible. Besides the case referred to in paragraph 3 of this Article, influence on a taxpayer's business decisions also exists when a person associated with a resident has more than 50% or the largest number of votes individually in the resident's controlling bodies.		A person related with a resident shall also be understood to mean a legal individual in which, like in the resident, the same legal entities participate in control, supervision or capital in the way determined in paragraphs 3 and 4 of this Article

**Table 6. Documentation Requirements**

Country	Who Should Provide To	Disposition of the Documentation is Defined by Tax Authority	Deadline for the Provide Documentation	Deadline for the Provide Documentation Request Being Made by Authority	Language of the Documentation
Turkey	Taxpayers who have transactions with related parties	✓	End of the corporate tax declaration deadline	15 Days	Turkish
Bulgaria	Taxpayers who have transactions with related parties	✓	x	14 Days	Bulgarian ( Foreign Language is acceptable but certified translation could be requested.)
Greece	Taxpayers who have transactions with related parties and amount of the annual transactions should be more than 100.000 and entity's turnover more then 5.000.000 Euros	✓	Until the following four month after the fiscal year	30 Days	Greek ( Foreign Language is acceptable but certified translation could be requested.)
Romania	Taxpayers who have transactions with related parties	✓	x	3 Calendar Months	Romanian
Albania	Taxpayers who have transactions with related parties	✓	x	30 Days	Albanian (English Language is acceptable but certified translation could be requested.)
Macedonia	Tax payer just proof to arm's lenght, legislation do not require any specific documentation.	X	x	x	x
Serbia	Taxpayers who have transactions with related parties	✓	It is declare with Corporate Incom Tax	30 Days	Serbian



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			Return		
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Differences could be seen in the analysis shown in table 6. It can be seen that analyse about the documentations has more differences than other analyses. While, terms and scopes are similar about the transfer pricing, it is not similar for the documentation. The reason is that OECD Transfer Pricing Guidelines provide opportunity to local tax authorities to regulate domestic documentation rules. Therefore every country which is trying to adopt OECD Transfer Pricing Guidelines regulate the documentation section in its local legislation.

**Table 7. Penalty**

Country	Penalty
Turkey	One fold of the tax loss + interest
Bulgaria	20 percent of the difference
Greece	One-off penalty at the rate of 1% of the entity's gross revenues is imposed and amount of the penalty should not be less than 10,000 Euros and should not exceed 100,000
Romania	If taxpayer is not provide to documentation = RON 12.000-14.000. The additional taxable profits resulting from this approximate or any adjustments on the tax base are subject to the 16% tax and interest
Albania	Adjustments for transfer pricing matters regarding to tax audits, the penalty imposed will be 5% of the unpaid liability for each month of delay, capped at 25%.
Macedonia	Taxpayer has obligation to burden of proof transactions with related parties are in accordance with arm's length principle, if not taxpayers will be liable to a penalty up to 3.000 Euros.
Serbia	Penalty is amount of income tax rate 15 percent and delay interest penalty which is between 1 percent and 25 percent at least 100.000 RSD. If the taxpayer do not indicate its transactions with related parties on the corporate tax declaration, it could be a penalty between 100.000 RSD and 2.000.000 RSD

Countries have different regulations regarding penalties for the transfer pricing issues. OECD does not guide to taxpayers or authorities about the penalty regulations. Governments legislate provisions about the penalties and announce them to public. Hereby, different results of the analysed countries are shown on table 7.

For instance, if a company has a transfer pricing adjustment about 100.000 Euro for the related transaction (Interest amounts will be ruled out.), penalty information is given at the below table.

**Table 8. Penalty Amounts**

Country	Adjustment (Euro)	Penalty
Turkey	100.000,00	100.000,00
Bulgaria	100.000,00	20.000,00
Greece	100.000,00	10.000,00
Romania	100.000,00	16.000,00
Albania	100.000,00	5.000,00
Macedonia	100.000,00	3.000,00
Serbia	100.000,00	15.000,00

According to the information, Turkey has the highest penalty amount. Bulgaria, Greece, Romania and Serbia are under the same condition but have a penalty of average for the region and Albania and Macedonia have lower penalties.

## CONCLUSION

In line with international trends, four budgetary pressures and the continuing modernization of their tax systems, transfer pricing has been the subject of increasing attention in several of the countries in the region. However, regional factors didn't affect the countries about their legislations. Some of the countries in the Balkan region show similarity with Turkey but have different transfer pricing structures. The reason is that transfer pricing is a global fact and regulations about the transfer pricing are arranged and guided by global actors like the OECD, European Union and multinational entities. Tax authorities should try to adopt their local legislation to the global regulations. For instance Macedonian transfer pricing system is more local based and when it is compared with other countries, Macedonian legislation could not answered so many transfer pricing issues. Bulgaria, Romania and Greece are member of European Union, Turkey is member of OECD and Serbia is adopting local legislation in respect to the OECD Guidelines. Therefore, transfer-pricing applications in these countries have a considerable similarity even though there are some little differences because of the local regulations. Albanian amendments that are announced by the Ministry of Finance in 2014, was the adaptation of the OECD Transfer Pricing Guidelines - 2010. As a consequence the countries that are compared in this study have similar legislations and terms by the effects of regulations from the OECD Transfer Pricing Guidelines.

An important constraint of the study is that on March 16, the Turkish Revenue Administration released a proposed transfer pricing communiqué relating to the adoption of the country-by-country (CbC) reporting requirement under the OECD's base erosion and profit shifting (BEPS) Action 13 recommendations. The regulations -- Draft Transfer Pricing General Communiqué No. 3 -- follow the three-tier documentation approach contained in the OECD's "Transfer Pricing Documentation and Country-by-Country Reporting Final Report" issued on October 5, 2015, and would require:

A *master file* with global information about a multinational enterprise (MNE) group (which has 250 million TL or more assets or revenue in the previous year), including specific information on intangibles and financial activities;

A *local file* with detailed information on all relevant intercompany transactions of the particular group entity (transactions equal or above the TL 30,000) in Turkey; and a *CbC report* of income, earnings, taxes paid, and certain measures of economic activity. The MNE's must be prepare a CBC report if they have more revenue than the amount which will be determined by the Revenue Administration. The revenue amount for reporting periods starting from 2017 will be determined in local currency; however, it will always be equivalent to €750 million or more, as it mentioned in the OECD Action 13 Final Report.

## REFERENCES

- Cook, P.W. (1955). Decentralization and the Transfer Price Problem. *Journal of Business*, pp. 87-94.
- Dean, J. (1955). Decentralization and Intra-Company Pricing. *Harvard Business Review*, pp. 65-74.
- Hirshleifer, J. (1956). On the Economics of Transfer Pricing. *The Journal of Business*, Volume 29, Issue 3, pp. 172-184.
- Marques, M.- Pinho, C. (2016). Is Transfer Pricing Strictness Deterring Profit Shifting within Multinationals. *Accounting and Business Research*, Volume 46, Issue 7, pp. 703-730.
- Bhattacharjee, S.- Moreno, K. K. (2017). The Role of Information Controls and a Bargaining Opponent's Emotions on Transfer Pricing Judgments. *Contemporary Accounting Research*, Issue 34, pp. 427-454.
- Ylönen, M.-Laine, M. (2015). For Logistical Reasons Only? A Case Study of Tax Planning and Corporate Social Responsibility Reporting. *Critical Perspectives on Accounting*, Issue 33, pp. 5-23.
- Hummel, K.- Pfaff, D.- Bisig, B. (2017). Can Transfer Pricing System Integration Be Successful? Yes, it Can!. Available at SSRN: <https://ssrn.com/abstract=2773512>
- Wang, J. (2016). The Chinese Approach to Transfer Pricing: Problems Faced and Paths to Improvement. *British Tax Review*, Issue 1, pp. 89.
- Muhammadi, Ahmed A.H. - Habib, A. (2016). Multinational transfer pricing of intangible assets: Indonesian tax auditors' perspectives. *Asian Review of Accounting*, Volume 24, Issue 3, pp. 313 – 337.
- Sakurai, Y. (2002). Comparing Cross-Cultural Regulatory Styles and Processes in Dealing with Transfer Pricing. *International Journal of the Sociology of Law*, Volume 30, Issue 3, pp. 173-199.
- 1 Seri No'lu Transfer Fiyatlandırması Genel Tebliği (Draft Transfer Pricing General Communiqué No. 1), Resmi Gazete (Official Gazette), 26482, (03.04.2007 ).
- 3 Seri No'lu Transfer Fiyatlandırması Taslağı (Draft Transfer Pricing General Communiqué No. 3)
- Corporate Income Taxation Act of Bulgaria, 2007.
- Tax and Social Insurance Procedure Code of Bulgaria, 2006.

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Official Gazette of the Republic of Macedonia 80/93, 33/95 –79/2013.

OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations. (2010).  
OECD.

Ministry of Finance Albania - Instructions. (n.d.), [https://www.tatime.gov.al/sq-al/Legjislacioni/COUNCIL\\_DECISIONS/Legjislacioni](https://www.tatime.gov.al/sq-al/Legjislacioni/COUNCIL_DECISIONS/Legjislacioni) , (03.10. 2016).

EY-Transfer Pricing Guide – Macedonia FYR. (n.d).  
[http://www.ey.com/Publication/vwLUAssets/EY-Worldwide-transfer-pricing-reference-guide-2014/\\$FILE/Worldwide%20transfer%20pricing%20reference%20guide%202014.pdf](http://www.ey.com/Publication/vwLUAssets/EY-Worldwide-transfer-pricing-reference-guide-2014/$FILE/Worldwide%20transfer%20pricing%20reference%20guide%202014.pdf)  
(03.10.2016).

# THE NEXUS BETWEEN BIST INDEX AND NET DIRECT, INDIRECT INVESTMENTS AND REAL EXCHANGE RATE AS THE BAROMETER OF ECONOMY

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**Abstract:** *In this study, the Borsa Istanbul index, which reflects its reaction to short-term changes in the economy, has been transformed into real (RBIST) with the US dollar. RBIST with Real Exchange Rate (RER) as the short-run variables that either affect RBIST or affected by it, foreign direct investment (FDI) to GDP ratio (FDIY) and the ratio of portfolio investments to GDP (PIY) as both short and long-term indirect capital investments were taken into consideration in this study. This study which is on the relationship between these four variables covers the period from 1988 to 2015 and the data are taken on an annual basis. Stationarity research was conducted primarily because the unit root is likely to be contained in the series in the time series analyzes. According to the results of the stationary survey, it was determined that while some of the series were stationary in the level and some of them were stationary in the first difference. According to the causality analysis with stationary series, one-way causal relations from RBIST to FDIY and RER to FDIY were obtained. According to this, it can be said that the real economy policies in Turkey have triggered direct foreign capital attraction and the stock market has attracted direct foreign capital as a leading indicator. In short, it can be said that Turkey's economy which is in the shortage of savings and investment inefficiency can be stabilized with direct investments which is defined as solid resource that provide both growth and employment creation and at the same time it can be argued that the investments to the stock market will be nurturing the economy as the economy becomes stronger.*

**Keywords:** *Stock exchange, Direct and indirect investments, Real exchange rate, Time series analysis*

## INTRODUCTION

Real economy is the part of the economy that is driven by actually produced goods and services on which incomes, jobs and consumer spending depend as opposed to the other part of the economy which is concerned with selling and buying on the financial markets. Therefore, it is concerned with labor as a performer of power of production in the narrow sense and use of all production factors beside labor in the broad sense. Full employment, in macroeconomics, is an economic situation in which all available working capacities are being used in the most efficient way possible and so there is not any cyclical or deficient-demand unemployment in the economy. In this regard, full employment is interested in efforts to increase the the prosperity by contributing to the country's output by gaining job opportunities for those who are willing to work in a workplace. In this respect, country's stock

exchange market is the most basic barometer of common indicator of production and employment in an economy.

In addition to the fact that the stock market is a barometer of economy, at the same time it is also a leading indicator of political economy in today's world where economy and politics are intertwined. In this case, a large drop in the Russian stock market index RTS after the embargo laid on Russia after the Ukrainian crisis can be given as an example of politics and economic relations. Since the share prices of companies are determined according to the expected profits of the companies, the risks of oil prices are priced separately in the Russian stock market (Özdemir et al., 2016). With a broader expression, it can be said that developments in both internal and external politics, as well as internal and external economies, can be measured by stock exchanges performance and otherwise negative developments also can be perceived from losses in the stock market index. For example, the signals of the US Central Bank to implement strict monetary policy or deepening in the case of cold / hot war in the world, or the elections in the domestic politics and the uncertainties that may be caused by it, or the deficits in the public budget or foreign trade balance may show itself as a downward trend in the stock market in the first place

Considering the microeconomic effects of the companies traded on the stock exchange and the macroeconomic effects of the exchange rates, fluctuations in the currencies affect the stock market and the exchange rates also affect the companies traded on the stock exchange through input and output prices. It is highly probable that the interactions between firms and stock exchange index affect more to listed firms than non-listed firms (Horobet and Ilie, 2007).

In summary, it can be said that the mutual causal relations between the variables since the FDI and portfolio investments are highly likely to affect the stock market as well as FDI and portfolio investments are influenced by the stock exchange. Here, it is inevitable that the developments in capital movements affect the value of national money against foreign currencies. Therefore, in this study, the subject of stock exchange, direct foreign capital investments, portfolio investments and real exchange rate relations was examined in the context of Turkey. In the direction of designated purpose the second part of the study was created by reviewing studies on the stock market, FDI, portfolio investments and real exchange rate relations. The third part of the study was formed and econometric analyzes were conducted according to information related to signs and statistical significance levels of stock exchange, FDI, portfolio investments and real exchange rate ratios. In the fourth part, the policy outcome was derived from the application results.

## **LITERATURE REVIEW**

While arguments are developed in favor of and against of classical thought in economics literature, mostly the advantages of overseas expansion are highlighted. Overseas expansion have been seen at the beginning of the 1960s in South East Asian countries (Taiwan, Hong Kong, Singapore and South Korea) or in the Asian Tigers with a well known expression, and have started to become more and more evident in most developing countries in the 1970s and 1980s (Emsen and Değer, 2007). In liberal practice, inadequacy of the closed-autarchy tendency, the fall of the Berlin Wall and the continuation of the Eastern Bloom collapse are taking attention if the 2008 crisis is accepted as an exception. Liberal policymakers also see the success of implementing equity markets as well as commodity markets. Particularly in countries with developmental deficits, "foreign exchange deficits" and "savings deficits", which are described as "twin deficiencies", are the obstacles to development. In this context, it is argued that the elimination of savings-investment-capital deficiency depends only on the availability of outside sources. According to the World Bank, the ability of countries to attract FDI and general foreign capital depends on;

- (i) the abolition of restrictions on capital,
- (ii) ensuring a strong macroeconomic stability,

(iii) domestic financial reforms,

(iv) liberalization of the capital account,

(v) tax incentives and

(vi) subsidies. This is also likely to contribute to the development of the stock exchange mechanism that will turn the projects into investment vehicles (Adam and Tweneboah, 2008). It is also known that the study of the factors related to the FDI withdrawal ability, which is a relatively more robust foreign capital type, is at the same time the factors that trigger the entry of other capital varieties such as portfolio investments and the stock market to that country's economy. Whether through the stock market, FDI, or portfolio investments, one should not overlook the fact that outsourcing of resources to one country activates the process of increasing the value of the national currency of that country (Horobet and Ilie, 2007, Budden et al., 2010). Table 1 summarizes the literature review of empirical studies showing the reflections of movements between variables.

**Table 1. Summary of Research on Exchange and Foreign Investments and Real Exchange Rates**

Author(s)	Year, country, methodology	Variables	Findings
Paramati, et al. (2016)	1991-2012, 20 rising economies including Turkey, heterogeneous panel causality and long term analysis	FDI, Stock Exchange, Economic output and clean energy consumption	Findings indicate that positive and significant effects of FDI, stock exchange and economic output on clean energy consumption have been reached. In the short term, while causal relations from FDI to energy have been caught, it has been determined that in the long run the stock market and FDI have had an impact on energy consumption.
Malik and Amjad (2013)	1985-2011, Johansen cointegration and short-term causality tests for long term on Pakistan	Annual data from the stock exchange, FDI and GDP	It has been determined that foreign direct investment has a positive effect on the stock market, there is a one-way causality relationship between the stock market and economic growth, and between the stock market and economic growth. In the long term, foreign capital affects the stock market positively.
Claessens et al. (2001)	1975: 1-2000: 11, 77 Descriptive statistics and regression analyzes for high, middle and low income countries	The stock market, per capita GDP which is characterized by market capitalization, inflation, country risk and FDI	While FDI was determined to be positively related to stock market capitalization trade value, it was determined that the stock market developed due to liberalization.
Poshakwale and Thapa (2007)	2001: 1-2007: 1, short-term causality on the Indian asset market and long-run VAR impact-response and cointegration analyzes	Daily yields and portfolio investments	It has been determined that the Indian asset market moves in concert with the US and UK asset markets.
Pal (1998)	1990: Q1-1997: Q1, 1980-1997 Descriptive statistics on India, Korea, China, Malaysia, Mexico and Brazil	Indian stock market and foreign portfolio investments	It has been observed that the theoretical expectations that the foreign portfolio investment inflows will increase the stock market of the country did not happen, on the contrary, it increased uncertainty.
Phylaktis and Ravazzolo (2005)	1980: 1-1998: 12, short term causality and long term cointegration analyzes on the Pacific Basin countries	Stock market prices and real exchange rates, US stock market and financial crisis	It has been found that the real exchange rates are correlated positively with the stock market, and the US stock market is connected with these ways and the financial crises have transitory effects with long-term mutual movements with these markets.
Horobet and Ilie (2007)	1999: 1-2007: 2, causality and co-integration analysis on Romania	Nominal and real effective exchange rates and Bucharest Stock Exchange indices	It has been determined that there is a long-run equilibrium relationship between the nominal and real effective exchange rates and the stock market index.

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Budden et al. (2010)	1996: Q3-2009: Q3, Generalized least squares method on Brazil	The real exchange rate, the Brazilian currency real, the ratio of budget deficits to GDP, the US production	The higher the price of the real stock market, the more the Brazilian currency Real gets stronger, which also makes the Brazilian economy stronger.
Dimitrova (2005)	1990: 1-2004: 8, Vector autoregression (VAR) and structural (SVAR) models on the US	Interest Rate, Exchange Rate, Domestic Expenditures, Exports, Imports and Stock Market	There is a positive relationship between the exchange rates and the stock market; the stock exchange is seen to have a leading variable role; it has been found that the depreciation of a country's national currency triggers the depreciation of the stock market.
Jamil and Ullah (2013)	1998: 1-2009: 2, Cointegration for long-term relationships and causality tests for short-term relationships on Pakistan	Monthly changes in exchange rates and changes in stock market index value	It has been determined that exchange rate fluctuations have short-term effects on stock market yields and fluctuations in prices.
Adam and Tweneboah (2008)	1994: 9-2006: 12, VAR approach with multivariate cointegration tests on Ghana	Foreign direct investment, monthly exchange rate and market capitilization	In the first difference, the VAR approach shows that there is at least a short-term relationship between the FDI and the development of the stock exchange.
Gazioglu (2001)	1990: 1-1999: 11, VAR analyzes on Turkey	Foreign investments and exchange rates on the stock exchange with daily data	It has been determined that an increase in capital flows will lead to an increase in net international debt and to a decrease in exchange rate and stock market value.
Baker et al. (2004)	Descriptive statistics and panel data analysis on USA for 1984-1999 and UK and OECD countries for 1980-2001	The stock exchange, FDI, market capitilization, and control are variables such as real exchange rate, tax rate and per capita GDP	It has been determined that FDI flows affect the stock market value, and that it triggers a significant capital movement especially in the country where there is a bad pricing, that is, the overvalued stock market leads to FDI outflows.

When the literature examining the relationship between stock exchange and exchange rate, FDI and portfolio investments is evaluated, there are studies in the related literature which deal with one or both of these variables. When the relevant literature is evaluated,

(i) Paramati, et al. (2016), Malik and Amjad (2013) and Claessens et al. (2001) are among the studies dealing with the relationship between stock exchange and FDI,

(ii) Poshakwale and Thapa (2007) and Pal (1998) are among the studies examining the relationship between stock market and portfolio investments,

(iii) Phylaktis and Ravazzolo (2005), Horobet and Ilie (2007), Budden et al. (2010), Dimitrova (2005), Jamil and Ullah (2013), Adam and Tweneboah (2008) and Gazioglu (2001) are the studies analyzing the relationship between stock exchange and exchange rates,

(iv) Baker et al. (2004) is among the studies taking into consideration the stock exchange, FDI and exchange rate.

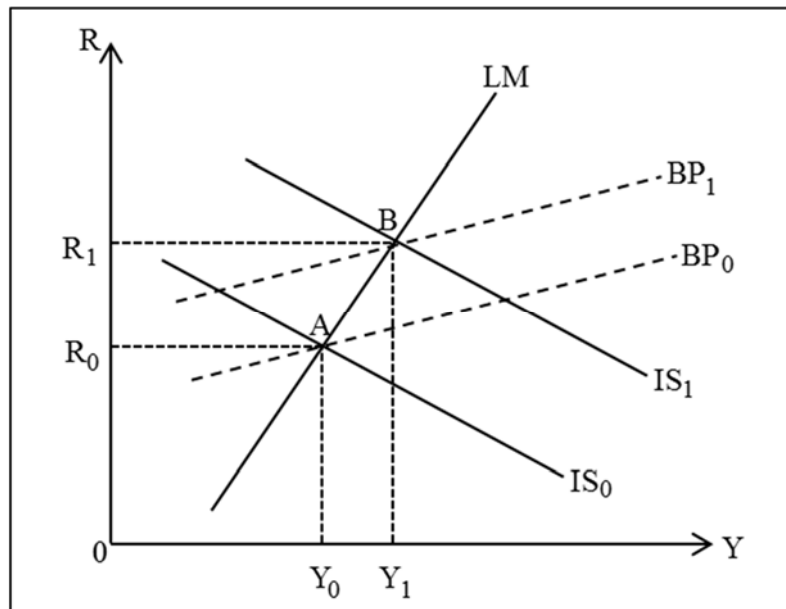
In the above studies, it is generally found that there is a relationship between the stock exchange and FDI, portfolio and exchange rate, while the relations generally show positive relations in the countries with strong structures, whereas it has more speculative effects in the underdeveloped countries which are not socio-economically strong structures.



## METHODOLOGY

In analyzes that are thought to be made specifically for the Turkish economy the period data from 1988 to 2015 were used. In this context, RER and FDIY and PIY variables are taken as variables that are influenced and / or influenced by RBIST. The variables were compiled from CBRT and Istanbul Stock Exchange. Here, the usage patterns and possible expected signs of the variables involved in analyzes should be taken into account like this.

Budden et al. (2010), made the stock market value reel in their study. According to this, the nominal stock market index values are divided by consumer price index (CPI). In this study, the stock market index is revalued by being divided by the nominal US dollar price in TL and is called RBIST. In Pal (1998) 's study, it has been found that the expectations that foreign portfolio investments will play an increasing role in the stock market index are found in the underdeveloped economies. On the other hand, Malik and Amjad (2013) determined that foreign direct investment has positive effects on the stock exchange. Baker et al. (2004) argue that if FDI is overvalued by the stock market of the source country and the capital is cheaper then it moves to countries where the stock market is low and the capital is expensive. TThe reactions of macroeconomic variables to stock market shocks are summarized in the following graph (Dimitrova, 2005).



**Figure 1.** Reactions to Stock Market Shocks

According to the above chart, the entry of foreigners into the stock market will trigger the IS curve from IS<sub>0</sub> to IS<sub>1</sub>. In this case, the BP curve will also trigger BP<sub>0</sub> to BP<sub>1</sub>. Initially, the internal and external balance at point B will emerge from the internal and external balance at the point of economy. At the new equilibrium point, while the national income rises from Y<sub>0</sub> to Y<sub>1</sub>, the exchange rate quoted with indirect quotation, (equivalent of 1 unit of national currency to amount of foreign currency) R<sub>0</sub> will shift to R<sub>1</sub> that is national currency will be gainen in value. Therefore, with the arrival of foreign investors, the rise in the stock market of the country will make improvements in the general economy of that country.

It is possible to express both graphical analysis and models which are used in econometric estimation according to literature expectations as follows:

$$RBIST = f(FDIY) \tag{1}$$

$$RBIST = f(PIY) \quad (2)$$

$$RBIST = f(RER) \quad (3)$$

## FINDINGS

It is necessary to investigate whether the series are stationary since the series are used in the analyzes might give fake/false estimates if they have unit root (Gujarati, 1995). Table 2 summarizes the results of the stationarity survey for the series.

**Table 2. ADF Unit Root Test**

Variables	Stable	Critical Values		Trendy and Stable	Kritik Değerler	
		%1	%5		%1	%5
FDIY	-2.037628	-3.699871	-2.976263	-3.781911	-4.33933.	-3.587527
PIY	-3.003026	-3.699871	-2.976263	-2.943611	-4.339330	-3.587527
RER	-1.600192	-3.699871	-2.976263	-2.026441	-4.339330	-3.229230
RBIST	-2.613476	-3.699871	-2.976263	-3.781911	-4.339330	-3.587527
ΔFDIY	-7.149490	-3.711457	-2.981038	-6.994061	-4.356068	-3.595026
ΔPIY	-5.154530	-3.711457	-2.981038	-5.020483	-4.356068	-3.595026
ΔRER	-6.987616	-3.711457	-2.629906	-7.012765	-4.356068	-3.233456
ΔRBIST	-7.149490	-3.711457	-2.981038	-6.994061	-4.356068	-3.595026

According to stationary tests on the series to be used in the analyzes in the study, the PIY variable stays fixed at the level value and the FDIY variable stays stable at 5% at the level value. In the two other series stability could not be found. Accordingly, all the series become stable both in fixed and trendy form when the first differences are taken. Therefore, in analyzes to be performed, all the series will be analyzed by taking the first differences ( $\Delta$ ).

After the unit root tests, it is necessary to determine the delay length for the models to be used in analyzes. In table 3, statistical tests on the delay lengths are given.

**Table 3. Determination of Lag Delay**

First LAG						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-298.2109	NA*	1017568*	25.18424*	25.38058*	25.23633*
1	-285.9805	19.36483	1427772	25.49837	26.48008	25.75882

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2	-269.8996	20.10107	1613564	25.49163	27.25872	25.96044
3	-250.4609	17.81883	1745102	25.20507	27.75752	25.88224
<b>Fourth LAG</b>						
0	-286.7765	NA*	1125373*	25.28491	25.48239*	25.33458
1	-275.0588	18.34082	1679449	25.65728	26.64467	25.90561
2	-259.0132	19.53368	1939802	25.65333	27.43062	26.10031
3	-240.8090	15.82974	245133	25.46166	28.02886	26.10730
4	-211.0093	15.54770	2159968	24.26168*	27.61879	25.10598*

In the tests made in terms of the delay lengths, 1 and 4 delay lengths are valid and therefore 1 and 4 delay lengths will be used in the analyzes and estimations to be made.

As the annual series are planned to be analyzed in the study, that is, since the series are medium termed they will be subjected to causality tests including short-term. Regarding the variables used here, the correlation coefficients are primarily given for the series reaching the stationary position below.

**Table 4. Correlation Coefficients**

	RBIST	FDIY	$\Delta$ RER	$\Delta$ PIY
RBIST	<b>1.00000</b>			
FDIY	-0.56455	<b>1.00000</b>		
$\Delta$ RER	0.19798	-0.09182	<b>1.00000</b>	
$\Delta$ PIY	-0.250504	0.28389	-0.26836	<b>1.00000</b>

When the correlation coefficients are evaluated, only  $\Delta$ RER is positive and weakly effective on RBIST, while FDIY and  $\Delta$ PIY are negatively affected, and FDIY is moderate and  $\Delta$ PIY is weak. Accordingly, it is observed that BIST, FDIY and  $\Delta$ PIY are almost in a rival position, and thus function as substitutes for investment tool. However, it can be said that in the developed economies, the complementary principle is working rather than the competition principle between the stock exchange and direct and indirect foreign capital. On the other hand, as the national currency is gained in value, the stock market seems to be positively related to this, signaling that exchange rates and stock market relations are open to speculative attacks.

After the above correlations, the following Tables are explored the mutual causality relationships for the equations (1), (2) and (3) among the variables considered. According to the results in Table 3,

causality tests were performed in terms of 1 and 4 delay lengths and 1 and 4 delay lengths in accordance with the signal to perform causality tests.

**Table 5. Causality Tests**

	1 Delay (27 Observations)		4 Delays (24 Observations)	
	F-Statistic	Probability	F-Statistic	Probability
H0 hypothesis				
RBIST does not Granger Cause FDIY	0.68314	0.4166	2.31379	0.1001
FDIY does not Granger Cause RBIST	1.70624	0.2039	0.35602	0.8359
$\Delta$ RER does not Granger Cause FDIY	3.60114	0.0704	2.54533	0.0861
FDIY does not Granger Cause $\Delta$ RER	0.09921	0.7556	0.64302	0.6407
$\Delta$ PIY does not Granger Cause FDIY	1.33321	0.2601	1.22400	0.3448
FDIY does not Granger Cause $\Delta$ PIY	0.03309	0.8572	0.13426	0.9671
$\Delta$ RER does not Granger Cause RBIST	0.00848	0.9274	0.30663	0.8687
RBIST does not Granger Cause $\Delta$ RER	0.00467	0.9461	1.62662	0.2227
$\Delta$ PIY does not Granger Cause RBIST	2.72339	0.1125	0.49026	0.7430
RBIST does not Granger Cause $\Delta$ PIY	1.20997	0.2827	1.68884	0.2083
$\Delta$ PIY does not Granger Cause $\Delta$ RER	0.54073	0.4696	0.89788	0.4912
$\Delta$ RER does not Granger Cause $\Delta$ PIY	0.43392	0.5166	1.58395	0.2331

Causality test results provide results that will give clues to the results of the correlation. That is, the causality relations between the variables considered were significant only between  $\Delta$ RER and FDIY and between RBIST and FDIY but statistically at 10% significance level. In the relationship between  $\Delta$ RER and FDIY both 1 and 4 delays are found so it can be said that  $\Delta$ RER is accepted as the reason for FDIY; RBIST has been accepted as the reason for FDIY in the relationship that only 4 delay can be founded. The causality relationships between the statistically significant variables in Table 5 above are summarized in Figure 2.

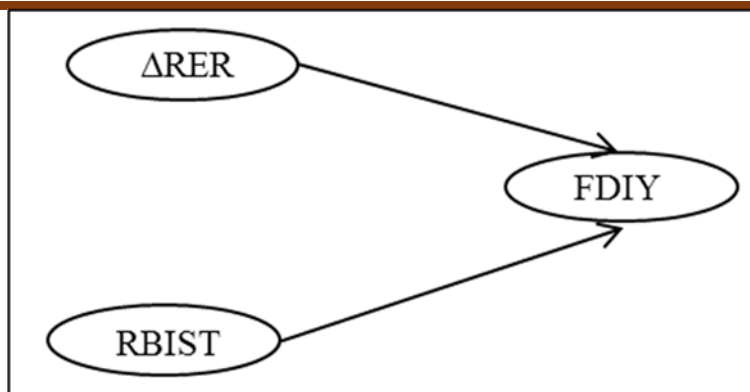


Figure 2. The Direction of Causal Relations

## CONCLUSIONS

It is expected to exhibit some kind of complementarity relations rather than competitive relation between the stock market which is in the position of development indicator and thus creates the perception that it is the barometer of the economies, and real exchange rate, foreign direct investment and portfolio investment. In this study, these relationships which are expressed as a theoretical expectation peculiar to developed countries are reviewed on the Turkish economy basis with time series analyzes.

After determining that some of the series are stable in the unit root tests and some of them are stationary in the first differences, the series are subjected to causality relations. According to the results of the tests of causality, the one-way causality relation from the real exchange rates and the real stock market value to direct foreign capital investments could be obtained for the Turkish economy. When the causality relations are evaluated in the correlation with the correlation coefficients, it seems that the real exchange rate is triggering foreign capital inflows.

When a general assessment is made in terms of the Turkish economy, since direct foreign capital investments are affected by real exchange rates and stock exchange; it can be said that it is a signal that speculative phenomena work in terms of exchange rate in the Turkish economy. On the other hand, in terms of direct foreign capital investments, it can be mentioned that competitive elements are working in relation to the stock exchange. It can be said that the further strengthening of the Turkish economy will come from the speculative nature of the exchange, especially with the decrease in the current account deficit-foreign dependence that feeds on the exchange rate movements, and therefore it will be a nurturing factor for the stock market or it will be an indicator like the stock market. On the other hand, it is highly probable that the competitiveness of the exchange between the stock market and foreign direct investment will also increase the ability to attract foreign direct investment with a strong economy, which in turn will have an effect on deepening the stock market.

This study can provide more powerful forecasting opportunities by making 3-monthly series for the same period, because the annual GDP data are published in 3-month periods. Thus, it can be said that the model can be increased by using both real sector and monetary sector variables such as export, import and real interest rates per capita GDP values which allow stronger estimation and more accurate policy extraction.

## REFERENCES

- Anokye M. Adam- George Tweneboah (2008), "Foreign Direct Investment (FDI) and Stock market Development: Ghana Evidence", MPRA Paper No. 11261, pp. 1-13.
- Baker, Malcolm-C. Fritz Foley- Jeffrey Wurgler (2004), "The Stock Market and Investment: Evidence from FDI Flows", NBER Working Paper Series, Working Paper 10559
- Budden, Michael C.- Robert F. Cope- Yu Hsing- Susan M. L. Zee (2010), "Stock Market Performance, the Exchange Rate, and the Brazilian Economy", Research in Applied Economics, Volume 2, Issue 2, pp. 1-8.
- Claessens, Stijn- Daniela Klingebiel- Sergio L. Schmukler (2001), "FDI and Stock Market Development: Complements or Substitutes?", The FDI Race: Who Gets the Prize? Is it Worth the Effort?, Conference: Washington D.C., October 3-4, 2002. <http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=50F62C37FBAE88B82AC3B8CC399AB8B9?doi=10.1.1.203.1003&rep=rep1&type=pdf> (March 2017).
- Dimitrova, Desislava (2005), "The Relationship between Exchange Rates and Stock Prices: Studied in a Multivariate Model", Issues in Political Economy, Issue 14, pp. 1-25.
- Emsen, Ö. Selçuk- M. Kemal Değer (2007), "İktisadi ve Siyasal Liberalizasyon ve Ekonomik Büyüme İlişkileri: Geçiş Ekonomileri Deneyimi", Atatürk Üniversitesi İİBF Fakültesi Dergisi, Volume 21, Issue 2, pp. 161-195.
- Gazioglu, Saziye (2011), "Emerging Markets and Volatility of Real Exchange Rates: The Turkish Case", Topics in Middle Eastern and North African Economies, Issue 3, pp: 1-21, <http://ecommons.luc.edu/cgi/viewcontent.cgi?article=1027&context=meea> (March 2017).
- Gujarati, Domador N., Basic Econometrics, Third Edition, Literatür Yayıncılık, 1995.
- Horobet, Alexandra- Livia Ilie (2007), "Real Exchange Rates And Stock Prices: Insights Into The Competitiveness of Romanian Economy", Studies in Business and Economics, <https://ideas.repec.org/a/blg/journal/y2007v2p30-40.html> (Marh 2017).
- Jamil, Maheen- Naeem Ullah (2013), "Impact of Foreign Exchange Rate on Stock Prices", IOSR Journal of Business and Management, Volume 7, Issue 3, pp. 45-51.
- Malik, Ihtisham Abdul- Shehla Amjad, (2013), "Foreign Direct Investment and Stock Market Development in Pakistan", Journal of International Trade Law and Policy, Volume 12, Issue 3, pp. 226-242.
- Özdemir, Dilek- Özge Buzdağlı- Murat Akdağ- Ö. Selçuk Emsen (2016), "Rusya Borsasının Petrol Fiyatlarına Bağımlılığı", *International Conference on Economics Finance and Banking*, Kaposvar-Macaristan, 29-31 August 2016, pp. 632-640.
- Paramati, Sudharshan Reddy-Mallesh Ummalla- Nicholas Apergis (2016), "The Effect of Foreign Direct Investment and Stock Market Growth on Clean Energy Use Across A Panel of Emerging Market Economies", Energy Economics, Issue 56, pp. 29-41.

Pal, Parthapratim (1998), "Foreign Portfolio Investment in Indian Equity Markets: Has the Economy Benefited?", *Economic and Political Weekly*, Volume 33, Issue 11, pp. 589-598.

Poshakwale, Sunil- Chandra Thapa (2007), "Impact of Foreign Portfolio Investments on Market Comovements: Evidence from the Emerging Indian Stock Market", Paper to be presented in the Emerging Market Group ESRC Seminar on International Equity Markets Comovements and Contagion 11 May 2007 Cass Business School, London.

Phylaktis, Kate- Fabiola Ravazzolo (2005), "Stock Prices and Exchange Rate Dynamics", *Journal of International Money and Finance*, Issue 24, pp. 1031-1053.

# THE EFFECTS OF MACROECONOMIC VARIABLES ON BIST

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**Abstract:** In this study, the relationship between Istanbul Stock Exchange 100 index (BIST100) and macroeconomic variables were examined. In the study, the BIST 100 index was used as a dependent variable, and price of 24 grams of gold bullion, M1 money supply, monthly deposit interest rate, industrial production index, the consumer price index (CPI), Dollar selling price, Euro selling price and GDP variables are used as independent variables in the quarterly period between 2005 and 2016. The effect of macroeconomic variables on BIST100 was examined by "Multiple Linear Regression Method". A positive direction between stock market index and monthly deposit interest rate, Euro selling price and M1 money supply and a negative correlation between the industrial production index and the stock market index were founded. However, any relationship between stock market index and gold prices, consumer price index, dollar sales and Gross domestic product variables were not founded.

**Keywords:** BIST, Macroeconomic Variables, Multiple Linear Regression

## INTRODUCTION

Financial markets act as intermediary between economic units with more funds and units with fund deficit. In addition to this, financial markets affect economic growth by providing liquidity, risk transfer, creating a space for effective use of funds, providing funds for investment projects and increasing the saving rate (Gökdeniz, Erdoğan, & Kalyüncü, 2003, p. 2,3). Stock index is considered to be one of the key indicators of the economy of its country, and stock prices are seen as a measure of economy and company performance (Bali, Cinel, & Günday, 2014, p. 46). Since developments in macroeconomic factors cause changes in the country's economy, these factors will also have a significant impact on the firm operating in that country. Changes that companies might experience in the good or bad aspect will affect capital markets. Since Chen, Roll, and Ross (1986; 168)'s study on the predictions that macroeconomic variables would have effect on the stock market and the relationship between these variables has been studied in many studies there are an increasing number of the studies on this this issue. Different results were obtained in these studies which are accompanied by widespread research of this subject in economics and finance literature. Interviews made at financial press show that investors think that monetary policy and macroeconomic events have a big influence on volatility in stock prices. This situation shows that the macroeconomic variables affect the investors' investment decisions (Gan, Lee, Yong, & Zhang, 2006). These changes in macroeconomic variables contain important information for stock market participants (Mookerjee & Yu, 1997, p. 377). Macroeconomic variables, ranks as the market risk factors, because macro changes affect many firms' cash flows at the same time and these variables can affect risk-adjusted discount rate. Economic conditions can also affect the number and size of investment opportunities (Flannery & Protopapadakis, 2002, p. 751). Modern financial theory focuses on the systematic effects that are a possible source of investment risk. The summary of the theory is that there is a particular entity which



is influenced by systematic economic news and that an additional long-term gain is required and achieved if an extra prize bearing various risks is not won (Chen et al., 1986, p. 383).

Macroeconomic variables and stock exchange relations, which are examined in many studies, generally use the following variables; the relation between asset prices and real economic activities in terms of production rates, productivity, growth rate of GNP, unemployment, yield spread, interest rates, inflation, dividend yields, etc. (Kwon, Shin, & Bacon, 1997, p. 63). Besides this, it is seen that product prices (eg. Cocoa), which have an important place in the economy of the country where the studies are conducted, are added to the used models (Kaya, Çömlekçi, & Kara, 2013, p 168).

In the eyes of investors, gold is seen as an alternative investment option to the stock market (Cihangir & Kandemir, 2010, p.272). Foreign investors who want to invest in the capital market is more vulnerable against two variables. The first is the return rate of the stocks to be invested and the other is the future status of the exchange rates in the country to be invested. The rise of expectation of exchange rates causes the decrease of foreign portfolio investments and as a result, foreigners can sell the stocks in the stock market and leave the country. (Albayrak, Öztürk, & Tüylüoğlu, 2012, p. 9).

Interest rates have two anticipated effects on company profits: first, as interest is an expense, while interest rates increase, the profitability of the company decreases, the second is that interest rates can affect company profits by affecting the level of economic activity. Because of the effects of interest rates on company profits, stock prices are also affected by the change in interest rates. If the interest rates rise too much then investors think that they can earn higher returns than bonds and they can sell their stocks and invest in bonds. This behavior of investors will cause to the fall of the stock price (Sayılğan & Süslü, 2011, p.77). It is also known that the amount of money in circulation is among the important factors affecting the stock market. An increase in the money supply will affect the general prices as well as the stock prices and therefore the stock market index will also increase. On the contrary, the contraction in the supply of money could lead to the fall of the index (Durucasu, 1997, p. 131).

Since the industrial production index is indicative of economic activity in a country, it can determine the future cash flow and affect stock prices. Therefore, the increase in industrial production enhances the cash flows which is expected to be achieved in the future and the profitability of the company and consequently stock prices are also positively affected. For this reason, the increase in industrial production index is expected to increase stock prices (Çoşkun & Ümit, 2016, p.64). One of the main problems of many developing countries is high inflation. In these countries, there is a need to increase domestic savings in order to reduce high inflation. Increasing domestic savings will be possible through the development of the capital market. However, it is not possible to develop the capital market in a high inflation environment. While the outflow of savings from the capital market due to high inflation leads to a decrease in capital supply, the decrease in fixed capital investments due to high inflation also reduces the demand for capital, for this reason, inflation is preventing the development of the capital market (Albeni & Demir, 2005, p.4). The role of stock markets have developed since 1980s and stocks have become important in terms of developing country economies. This development has propelled investors, researchers and policymakers to determine the relationship between stock prices and GDP and the direction of this relationship. When developed economies are analyzed, it is seen that stock prices and GDP act together. Stocks of countries with high GDP also show a rise (Öztürk, 2016, p.87). It has been observed that many firms and companies have gained value due to the increased consumption and investment expenditures in many developed and developing countries, which have been catching up with the growth trend of money in the last 10 years globally. In this period, it is seen that the market values of companies in Borsa İstanbul in Turkey are several times higher than the gross domestic product (GDP) (E. Kaya & Uğurlu, 2016, p.3).

## LITERATURE REVIEW

Chen et al. (1986), used data for period 1953 and 1983 and found that stock prices are affected by systematic news and are priced according to their exposure. Yılmaz, Güngör, & Kaya (1997) conducted Johansen Juselius Cointegration Test and Granger Causality Test using monthly data of ISE index, CPI, Industrial Production Index, M1 money supply, Interest Rate, Exchange Rate and Foreign Trade Balance for period for 1990-2003. As a result, they have revealed the existence of a relationship between stock prices and macroeconomic variables for the Turkish economy, even though they are at different levels. Bilson, Brailsford, & Hooper (2001) investigated the relationship between stock market index and M1 money supply and industrial production index on 20 developing countries' stock exchanges. Their article tries to address the question of whether local macroeconomic variables have explanatory power over stock returns in emerging markets. The result is that this argument is supported by medium evidence. These results have serious implications for international investors. Because it reveals that diversification should be done locally.

Gan et al. (2006) conducted a study on New Zealand by using Johansen Maximum Likelihood and Granger-causality tests for the period of 1990 and 2003. As a result, they have not found evidence that the New Zealand Stocks Index is a leading indicator of changes in macroeconomic variables. Brahmasrene & Jiranyakul (2007) examined the relationship between the stock market of Thailand and macroeconomic variables and causality by using the monthly data of the industrial production index, CPI, money supply, interest rate, nominal exchange rate and oil prices for the period of 1992 and 2003. The results show that there is at least one cointegration or long-run relationship between the stock market index and a number of macroeconomic variables. While the money supply affects the stock market index positively, Exchange rate and oil prices have a negative effect on stock exchange.

In his work on the ISE 100 Gençtürk (2009) he tried to reveal the macroeconomic variables affecting the stock market index by using the Multi Linear Regression Method. Macroeconomic variables affecting the ISE index have emerged as TUFİE and money supply. There is a significant negative relationship between stock prices and the consumer price index (TFE) and a significant positive relationship between stock prices and the money supply (M2). During the period of the study, no significant relationship was found between the other macroeconomic variables (Treasury Bond interest rate, industrial production index (SDI), dollar, gold prices) and the ISE index. In the period outside the period of economic crisis; A significant relationship was found between all the macroeconomic factors and the index. In this period, gold, consumer price index, and money supply have been positively related to the index, and it has been revealed that there is a negative relationship between industrial production index, dollar and treasury bond interest rates and index. Tian & Ma (2010) found that foreign exchange rates affected stock prices with a positive correlation in their studies by examining the relationship between exchange rate and stock market index.

Aksoy & TOPCU (2013) examined the relationship between stocks and inflation by using monthly data for the period of 2003 - 2011. They found that since gold maintains its value against to inflation it can be used as a hedging tool against the stocks and it can be seen as a secure investment tool. Aktaş & Akdağ (2013) reviewed the relationships between the variables of BIST-100 index, deposit interest rate, consumer price index, dollar exchange rate, euro exchange rate, unemployment rate, industrial production index, export share, capacity utilization rate, gold prices, consumer confidence index and crude oil prices by using using multiple linear regression method and Granger Causality Tests. As a result, five of the macroeconomic factors were found to be effective on the BIST-100 index. These are the deposit interest rates, consumer price index, dollar rate, and capacity utilization rate and consumer confidence index.

## METHODOLOGY

In the analysis, the BIST 100 index, price of 24 grams of gold bullion, M1 money supply, monthly deposit interest rate, industrial production index, the consumer price index (CPI), Dollar selling price,

Euro selling price and GDP variables were used for period between 2005Q1-2016Q2. The data were obtained from the BIST and the Central Bank of Republic of Turkey (CBRT) web pages. The "*Multiple Linear Regression*" model was used to identify the macroeconomic variables affecting the BIST100 index. The multiple linear regression model is expressed in terms of:

$$y = \beta_0 + \beta_1 x_1 + \dots + \beta_n x_n + \epsilon$$

Y: Dependent variable,

$x_i$ : Independent variable,

$\beta_i$ : Parameters to be estimated,

$\epsilon$ : Error term (Kalaycı, 2010, p. 259).

**Table 1.** Summary of Multiple Linear Regression Models

<b>R<sup>2</sup></b>	<b>Adjusted R<sup>2</sup></b>	<b>Durbin-Watson</b>	<b>F</b>	<b>Sig</b>
0,910	0,891	1,640	46,827	0.000

The coefficient of specificity (R<sup>2</sup>) indicates what percentage of changes in the dependent variables (BIST100) are explained by independent variables (price of 24 grams of gold bullion, M1 money supply, monthly deposit interest rate, industrial production index, the consumer price index (CPI), Dollar selling price, Euro selling price and GDP) (Kalaycı, 2010, p. 259). According to Table 1, 91% of the change in BIST 100 results from the change in macroeconomic variables used in the analysis.

Durbin Watson value shows whether there is autocorrelation. The value ranges from 0 to 4. Values close to 0 indicate excessive positive correlation, values close to 4 over negative correlation and values close to 2 indicate no autocorrelation (Kalaycı, 2010, p 264) .The value in Table 1 (1,640) indicates that the standard error of the beta coefficients is small, that is, there is no autocorrelation in the model.

While the general significance of the regression model is tested by the F test, the significance test for each of the coefficients in the model is done by the statistic t (Durmuş, Yurtkoru, & Zinko, 2011, p. 159). The F = 46,827 value in Table 1 shows that our model as a whole is meaningful at all levels (Sig = 0,000).

**Table 2.** Beta and t Values Table

<b>Model</b>	<b>Coefficients</b>	<b>t</b>	<b>Sig.</b>
	$\beta$		
Constant	65296,446	1,937	,060
Gold	-,001	-,580	,565
M1 money supply	3,381E-009	2,208	,034
Monthly deposit interest rate	-1269,424	-2,894	,006
Industrial production index	,003	1,905	,065
CPI	,001	,421	,676
Dollar selling price	-,152	-1,506	,140
Euro selling price	-,224	-2,749	,009
GDP	-3,610E-010	-,866	,392

As shown in Table 2, it has found that monthly deposit interest rate and Euro sales price (at 1% significance level), M1 money supply (at 5% significance level) Industrial production index (at 10% significance level). It has also been founded that there are positive direction between monthly deposit interest rate, Euro selling price and M1 money supply and stock market index and negative correlation between industrial production index and stock market index. Gold, Consumer price index, Dollar sales and Gross domestic product were not statistically significant. According to these results, one unit increase in monthly deposit interest rate reduces BIST100 by 1269,424 units at 1% significance level. The increase in interest rates is expected to negatively affect the stock market index. The most important factor affecting bank deposits is the interest rates which is one of the important investment alternatives for investors. If the interest rates are high, the savings will increase the amount of the funds invested by the owners in the bank (Aslanoğlu, 2008, p. 199). One unit increase in Euro selling price reduces BIST100 by 0.224 units at 1% significance level. One unit increase in M1 money supply reduces BIST100 by 3,381E-009 units at the level of 5% significance. One unit increase in the industrial production index is caused by an increase of 0.003 units at the level of 10% significance of BIST100.

## CONCLUSIONS

In this study, the BIST100 index, price of 24 grams of gold bullion, M1 money supply, monthly deposit interest rate, industrial production index, the consumer price index (CPI), Dollar selling price, Euro selling price and GDP variables were used for period between 2005Q1-2016Q2 to identify whether macroeconomic variables affecting the BIST100 index by using the "Multiple Linear Regression" model. According to these results obtained through analysis, one unit increase in monthly deposit interest rate reduces BIST100 by 1269,424 units at 1% significance level. The increase in interest rates is expected to negatively affect the stock market index. One unit increase in Euro selling price reduces BIST100 by 0.224 units at 1% significance level. One unit increase in M1 money supply reduces BIST100 by 3,381E-009 units at the level of 5% significance. One unit increase in the industrial production index is caused by an increase of 0.003 units at the level of 10% significance of BIST100.

## REFERENCES

- Aksoy, M.,- Topcu, N. (2013). Altin Ile Hisse Senedi Ve Enflasyon Arasindaki Ilişki. Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi, Volume 27, Issue 1.
- Aktaş, M.,- Akdağ, S. (2013). Türkiye’de ekonomik faktörlerin hisse senedi fiyatları ile ilişkilerinin araştırılması. International Journal of Social Science Research, Volume 2, Issue 1.
- Albayrak, A. S.- Öztürk, N., - Tüylüoğlu, Ş. (2012). Makroekonomik Değişkenler ile Sermaye Hareketlerinin İMKB-100 Endeksi Üzerindeki Etkisinin İncelenmesi. AİBÜ-İİBF Ekonomik ve Sosyal Araştırmalar Dergisi.
- Albeni, M.,- Demir, Y. (2005). Makro Ekonomik Göstergelerin Mali Sektör Hisse Senedi Fiyatlarına Etkisi (İMKB Uygulamalı). Sosyal Ve Beşeri Bilimler Araştırmaları Dergisi, Issue 14.
- Aslanoğlu, S. (2008). İMKB-100 Endeksi İle Emisyon Hacmi, Döviz Kuru ve Faiz Oranları Arasındaki İlişki: Ampirik Bir Analiz. Muhasebe ve Finansman Dergisi, Issue 37.
- Ayaydın, H., - Dağlı, H. (2012). Gelişen piyasalarda hisse senedi getirisini etkileyen makroekonomik değişkenler üzerine bir inceleme: Panel veri analizi. Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi, Volume 26, Issue 3-4.

- Balı, S.- Cinel, M. O., - Günday, A. H. (2014). Hisse Senedi Fiyatlarını Etkileyen Temel Makroekonomik Faktörlerin Bist 100 Endeksi'ne Etkisinin Ölçülmesi. Sosyal Bilimler Araştırmaları Dergisi, Volume 4, Issue 9.
- Bilson, C. M.- Brailsford, T. J.- Hooper, V. J. (2001). Selecting macroeconomic variables as explanatory factors of emerging stock market returns. Pacific-Basin Finance Journal, Volume 9, Issue 4, pp. 401-426. doi:http://dx.doi.org/10.1016/S0927-538X(01)00020-8
- Brahmasrene, T.- Jiranyakul, K. (2007). Cointegration and causality between stock index and macroeconomic variables in an emerging market. Academy of accounting and financial studies Journal, Volume 11, Issue 3, pp.17.
- Chen, N.F.- Roll, R.- Ross, S. (1986). Economic Forces and the Stock Market. The Journal of Business, Volume 59, Issue 3, pp.383.
- Cihangir, M., - Kandemir, T. (2010). Finansal Kriz Dönemlerinde Hisse Senetleri Getirilerini Etkileyen Makroekonomik Faktörlerin Arbitraj Fiyatlandırma Modeli Aracılığıyla Saptanmasına Yönelik Bir Çalışma. Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Volume 15, Issue 1, pp.257-296.
- Çoşkun, Y., - Ümit, O. (2016). Türkiye'de Hisse Senedi ile Döviz, Mevduat, Altın, Konut Piyasaları Arasındaki Eşbütünlük İlişkilerinin Analizi. Business and Economics Research Journal, Volume 7, Issue 1, pp.47-69.
- Durmuş, B.- Yurtkoru, E. S.- Çinko, M. (2011). Sosyal bilimlerde SPSS'le veri analizi. Baskı, Beta Basım Yayım. İstanbul, 4.
- Durucasu, H. (1997). Ekonomik göstergelerin İMKB'ye etkisinin analizi. Anadolu Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Volume 12, Issue 1-2, pp. 121-150.
- Flannery, M. J.- Protopapadakis, A. A. (2002). Macroeconomic Factors Do Influence Aggregate Stock Returns. The Review of Financial Studies, Volume 15, Issue 3, pp. 751-782. doi:10.1093/rfs/15.3.751
- Gan, C.- Lee, M.- Yong, H. H. A.- Zhang, J. (2006). Macroeconomic variables and stock market interactions: New Zealand evidence. Investment Management and Financial Innovations, Volume 3, Issue 4, pp. 89-101.
- Gençtürk, M. (2009). Finansal Kriz Dönemlerinde Makroekonomik Faktörlerin Hisse Senedi Fiyatlarına Etkisi. The Effect Of Macroeconomic Factors On Stock Prices In Financial Crises Periods., 14, Issue 1, pp. 127-136.
- Gökdeniz, İ.- Erdoğan, M.- Kalyüncü, K. (2003). Finansal Piyasaların Ekonomik Büyümeye Etkisi ve Türkiye Örneği (1989-2002). G.Ü. Ticaret ve Turizm Eğitim Fakültesi Dergisi, Issue 1.
- Kalaycı, Ş. (2010). SPSS uygulamalı çok değişkenli istatistik teknikleri (Vol. 5): Asil Yayın Dağıtım.
- Kaya, E.- Uğurlu, S. (2016). Seçili Bazı Makroekonomik Değişkenler Ve Hisse Senedi Piyasası Arasındaki Dinamik Etkileşim: Bist 100 İçin Ekonometrik Bir Yaklaşım. Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, Issue 23.
- Kaya, V.- Çömlekçi, İ.- Kara, O. (2013). Hisse Senedi Getirilerini Etkileyen Makroekonomik Değişkenler 2002-2012 Türkiye Örneği. Dumlupınar Üniversitesi Sosyal Bilimler Dergisi, Issue 35.

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
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- Kwon, C. S.- Shin, T. S.- Bacon, F. W. (1997). The effect of macroeconomic variables on stock market returns in developing markets. *Multinational Business Review*, Volume 5, Issue 2, pp. 63.
- Mookerjee, R.- Yu, Q. (1997). Macroeconomic variables and stock prices in a small open economy: The case of Singapore. *Pacific-Basin Finance Journal*, Volume 5, Issue 3, pp. 377-388. doi:[http://dx.doi.org/10.1016/S0927-538X\(96\)00029-7](http://dx.doi.org/10.1016/S0927-538X(96)00029-7)
- Öztürk, F. (2016). Türkiye’de Hisse Senedi Fiyatları Ve Gsyih Arasındaki İlişkinin Analizi. *Uluslararası Yönetim İktisat ve İşletme Dergisi*, Issue 30, pp. 86-94.
- Sayılgan, G.- Süslü, C. (2011). Makroekonomik Faktörlerin Hisse Senedi Getirilerine Etkisi: Türkiye ve Gelişmekte Olan Piyasalar Üzerine Bir İnceleme. *BDDK Bankacılık ve Finansal Piyasalar*, Volume 5, Issue 1, pp. 73-96.
- Tian, G. G.- Ma, S. (2010). The relationship between stock returns and the foreign exchange rate: The ARDL approach. *Journal of the Asia Pacific Economy*, Volume 15, Issue 4, pp. 490-508. doi:[10.1080/13547860.2010.516171](https://doi.org/10.1080/13547860.2010.516171)
- Yılmaz, Ö.- Güngör, B.- Kaya, V. (1997). Hisse Senedi Fiyatları Ve Makro Ekonomik Değişkenler Arasındaki Eşbütünleşme Ve Nedensellik. *İMKB Dergisi*, Volume 9, Issue 34.

## DETERIORATING PROFITS of BROKERAGE FIRMS POST- IFRS: EMPIRICAL EVIDENCE<sup>\*</sup>

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**Abstract:** This paper has two main empirical objectives which are to explore whether (1) profitability ratios and (2) determinants of the profitability of brokerage firms operating in Turkey have been exposed to change following the IFRS implementation. Sampling the period from the first quarter of 2000 to the first quarter of 2008 for all the brokerage firms operating in Turkey, we perform a panel regression analysis. Empirical evidence from a study of a large number of brokerage firms in Turkey highlights the extent to which their profitability has declined and the determinants of profits have changed following the introduction of IFRS-based financial reporting in early 2005. In particular, evidence documents that the profitability ratios, determinants of profitability, and profitability-determinant relationships for brokerage firms in Turkey have all weakened in the aftermath of IFRS-based financial reporting implementation. We therefore contend that the profitability of brokerage firms has declined following the introduction of IFRS.

**Keywords:** Convergence to IFRS, Financial Reporting, Profitability Ratio, Profitability Determinants, Brokerage Firms.

### INTRODUCTION

Over the past decade, many countries have adopted International Financial Reporting Standards (IFRS) as common standards for reporting, and this has been a long-awaited and much-needed development. Prior to IFRS, individual countries adopted their own generally accepted accounting principles (GAAP), which often created problems, particularly for companies that either sold their shares on foreign markets or conducted cross-border trade. The greatest issue was the lack of international recognition of corporate financial statements by analysts and regulators across various jurisdictions. The accounts of companies operating on an international scale and audited by reputable independent audit firms tended to have more credibility than those audited by less well-known audit firms. However, even those using well-known firms were not able to avoid problems in this area. The fundamental reason was that major audit firms that worked with larger companies had to audit their clients according to the GAAPs administered in the judicial territories in which the client/audit firm was located. One country's accounting customs and conventions were often very different from those of others. IFRS was intended to remove this problem through the development of a standardized financial reporting infrastructure which was designed to be consistent around the globe.

Turkey has sought EU membership for many years. In line with this aim, companies in Turkey that are subject to special legislation, such as brokerage firms, banks or insurance firms or those that are publicly listed, were required to implement international accounting principles (IAS) and IFRS from the first quarter of 2005. Before the adoption of IFRS, financial reporting was based on historical cost principles up until the end of 2002, and on inflationary accounting principles in 2003 and 2004. Since

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<sup>\*</sup> This paper was published in the Journal of "JASSA: The Finsia Journal of Applied Finance" in Issue 1 of 2011. For the entire paper and all the details please refer to the published paper in the respective issue of the cited Journal. This version is extended abstract alone which is just a synopsis of the published paper. It does include the references section, but Not the Notes section due to its nature.

**Disclaimer's Note:** The ideas presented in this study are only the personal opinions of the writers and may in no way be associated with the Turkish Airlines Co. nor with CCSU. Any errors and omissions may be acknowledged by the authors alone.

its inception, IFRS has, itself, provided significant challenges, particularly for practitioners and auditors examining their accounting records and financial statements in Turkey. This study focuses on brokerage firms operating in Turkey that have recently converted from national GAAP-based financial reporting to IFRS-based reporting.

This study explores financial reporting and its implications for the profitability of brokerage firms. We argue that the introduction of IFRS to financial reporting has affected both the profitability ratios and the key determinants of the profitability of brokerage firms operating in Turkey. To discover the role of IFRS, financial reporting is examined in two separate financial reporting periods — i.e. before and after IFRS (convergence). In the first period (referred to as the pre-IFRS financial reporting period), GAAP accounting standards were employed and international financial reporting standards were used in the latter period (referred to as the IFRS-based financial reporting period). We thus examine changes in the interplay between financial reporting and profitability over the past decade.

To our knowledge, this is the first study to focus on these issues. Because of this, we believe that our study will be of interest and have relevance to a wide international audience, particularly those countries with sizeable numbers of listed firms such as the United Kingdom, United States, Australia, Japan, Germany and Canada. Australia adopted IFRS principles in 2002 and started to implement it in the beginning of the 2005 fiscal year as did the EU Member countries.

## **DATA AND METHODOLOGY**

In this paper, the sample includes all brokerage firms in Turkey whose financial information has been published by the Association of Capital Market Intermediary Firms of Turkey (ACMIIT). Brokerage firms are just one of the many investment firms operating in Turkey. The financial statements of brokerage firms from 2000 to the third quarter of 2009 are available on ACMIIT's website.

This study has two main empirical objectives. These are to explore whether (1) profitability ratios and (2) determinants of the profitability of brokerage firms operating in Turkey have been exposed to change following the IFRS implementation. In particular, as part of the first objective, we examine whether there is a significant difference in the profitability ratios of brokerage firms between the two financial reporting groups (cycles). To do this, we perform a test examining group differences.

The second objective requires two consecutive sets of analyses. Based on comparisons of the determinants of profitability in the two different financial reporting periods, the next empirical objective (2a) is to understand whether there is a significant difference in the determinants of the profitability of brokerage firms between the two groups. As with the first empirical investigation, this is achieved by performing a test on unveiling the probable group differences. The next objective (2b) is to identify the significances of the determinants of profitability and the directions of their relationships with the profitability ratios across both of the financial reporting groups. This is achieved through conducting a panel data analysis, which allows a more subtle examination for our purpose.

Three indicators were chosen as profitability ratios: Return on Assets (ROA), Return on Equity (ROE) and % Change in Net Profit After Taxes (NPAT), being the net income or net profit, all of which are widely recognized.

## **CONCLUSION**

In Turkey, financial reporting in brokerage firms has considerably changed since the implementation of IFRS in 2005. This study has examined the effects on the profitability of the brokerage firms in Turkey produced by this shift in financial reporting towards IFRS. This wide-ranging examination has covered the effect of this change in financial reporting on profitability ratios, the determinants of profitability, and profitability-determinant relationships, using a sample of all brokerage firms with publicly available financial data.



The overall results suggest that the profitability ratios, determinants of profitability, and profitability-determinant relationships for brokerage firms in Turkey have all weakened in the aftermath of IFRS-based financial reporting implementation. In conclusion, based on this robust evidence, we contend that the profitability of brokerage firms has declined following the introduction of IFRS. We do not, however, argue that profitability in this sector has been negatively affected by IFRS, nor do we directly claim that IFRS is the cause of the significant decline in profitability. We leave the issue of the probable causality between financial reporting and profitability for future research.

## REFERENCES

- Beneish, M.D.- Yohn, T.L. 2008, 'Information friction and investor home bias: a perspective on the effect of global IFRS adoption on the extent of equity home bias', *Journal of Accounting and Public Policy*, Volume 27, Issue 6, pp. 433–443.
- Callao, S.- Jarne J.I.- Lainez J.A. 2007, 'Adoption of IFRS in Spain: effect on the comparability and relevance of financial reporting', *Journal of International Accounting, Auditing and Taxation*, Volume 16, pp. 148–178.
- Callao, S.- Jarne, J.I.- Laínez, J.A. 2006, '¿Cómo han tratado los grupos cotizados españoles el proceso de adopción de las NIC/ NIIF?', *Observatorio Contable y Financiero*, Volume 1, pp. 32–9.
- Canibano, L.- Mora, A. 2000, 'Evaluating the statistical significance of de facto accounting harmonization: a study of European global players', *European Accounting Review*, Volume 9, Issue 3, pp. 349–369.
- Ding, Y.- Su, X. 2008, 'Implementation of IFRS in a regulated market', *Journal of Accounting and Public Policy*, Volume 27, Issue 6, pp. 474–479, available at [www.aasb.gov.au/admin/file/content102/c3/IFRS\\_adoption\\_in\\_Australia\\_Sept\\_2009.pdf](http://www.aasb.gov.au/admin/file/content102/c3/IFRS_adoption_in_Australia_Sept_2009.pdf)
- [www.iasb.org/NR/rdonlyres/75813E40-7BCC-433E-850D-525D391C3ECF/0/2b.ppt](http://www.iasb.org/NR/rdonlyres/75813E40-7BCC-433E-850D-525D391C3ECF/0/2b.ppt) (29.05.2010).
- [www.tspakb.org.tr](http://www.tspakb.org.tr) (TSPAKB or ACMIIT)
- Jermakowicz, E.K. 2004, 'Effects of adoption of international financial reporting standards in Belgium: the evidence from BEL-20 companies', *Accounting in Europe*, Volume 1, pp. 51–70.
- Jones, T. C.- Luther, R. 2005, 'Anticipating the impact of IFRS on the management of German manufacturing companies: some observations from a British perspective', *Accounting in Europe*, Volume 2, pp. 165–194.
- Kaymaz, Ö.- Kaymaz, Ö. 2010, 'The firm-level determinants underlying the profitability in brokerage institutions: some evidence from Turkey', *African Journal of Business Management*, Volume 4, Issue 2, pp. 172–190.
- Kaymaz, Ö.- Kaymaz, Ö.- Erdener, E. 2010, 'Brokerage institutions: tigers and underdogs' *International Research Journal of Finance and Economics (IRJFE)*, Issue 52, pp. 111–121.
- Ormrod, P.-Taylor, P. 2004, 'The impact of the change to International Accounting Standards on Debt Covenants: a UK perspective', *Accounting in Europe*, Volume 1, pp. 71–94.
- Schipper, K. 2005, 'The introduction of International Accounting Standards in Europe: implications for international convergence', *European Accounting Review*, Volume 14, Issue 1, pp. 101–126.

United Nations Conference on Trade and Development (UNCTAD) 2008, Practical implementation of international financial reporting standards: lessons learned, available from [www.unctad.org/en/docs/diaeed20081\\_en.pdf](http://www.unctad.org/en/docs/diaeed20081_en.pdf)

Van Tendeloo, B.- Vanstraelen, A. 2005, 'Earnings management under German GAAP versus IFRS', *European Accounting Review*, Volume 14, Issue 1, pp. 101–126.

Weißberger, B.E.- Stahl, A.B.- Vorstius, S. 2004, 'Changing from German GAAP to IFRS or US GAAP: a survey of German companies', *Accounting in Europe*, Volume 1, pp. 169–189.

# STANDARD OF THE EVENTS AFTER ISA (INDEPENDENT STANDARD ON AUDITING) 560 BALANCE SHEET DATE: A RESEARCH ON INDEPENDENT AUDITORS

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**Abstract:** *The purpose of this study is to determine to what extent independent auditors in Turkey have met the requirements of the events standard after ISA 560 balance sheet date during the audit process. For this purpose, survey method was preferred as the research method. The questionnaire was prepared through Internet, and it was sent through e-mail to the 376 independent auditors, whose mail addresses were obtained, registered in the Public Auditing Accounting and Auditing Standards Authority Independent Auditor's Official Registry. As a result, feedbacks from a total of 50 independent auditors were acquired. The hypothesis of the study was examined by single sample t test and one way ANOVA analysis. According to the results obtained from the analyzes made, it is determined that the independent auditors comply with the requirements of ISA 560 in auditing of the events between the publication date of the financial tables and the date of issuance of the independent audit report. It has also been determined that independent auditors have met the requirements of ISA 560 in the audit of the events happening after the publication of the independent audit report but prior to the publication of the financial tables. Finally, it was determined that the effect of such demographic features as expertise, experience, professional title, and vocational training of the independent auditors on their awareness of the importance of ISA 560 application was not statistically significant at the 5% confidence interval.*

**Keywords:** *ISA 560, Events After Balance Sheet Date, Independent Auditing Standards.*

## INTRODUCTION

In accordance with the concept of periodicity, one of the basic concepts of accounting, the lifetime of the operations accepted as unlimited is separated periodically, and the activities of each period are evaluated as independent from each other. In accounting, this accounting period is generally regarded as 1 year. The last day of the relevant accounting period (31.12.XX) is called as the balance sheet date. The preparation of financial tables addressing the balance sheet date, the reporting through the audit process, and the publication for financial statement users require a certain period of time.

In this process, the events related to the operation are continuing. Certain incidents between the balance sheet date and the date of the independent audit report can directly affect the financial tables of the enterprises and may result in some favorable or unfavorable outcomes.

Events Standard after TMS 10 Reporting Period includes accounting regulations related to the events after the balance sheet date. In addition, the Independent Standard on Auditing (ISA) 560, one of the Turkish Auditing Standards, also discusses matters related to the reporting of events subsequent to the balance sheet date in the audit process.

In the study, the purpose, scope, and implementation conditions of Events Standards after ISA 560 Balance sheet Date were firstly discussed, and then, that to what extent independent auditors in Turkey met the requirements of the events standard after ISA 560 balance sheet date during the audit process was examined through the analyzes conducted.

## STANDARD OF THE EVENTS AFTER ISA 560 BALANCE SHEET DATE

Activities such as preparation, approval and publication of financial tables take place within a certain period of time. In this process, events and operations related to the business are continuing. The effects of events occurring during this period can greatly affect the decisions of the users of the financial tables on the business. In such a situation, even if it occurs after the balance sheet date, it may be necessary to reflect the effects of such events to the financial tables or to disclose the footnotes of the financial tables (Pamukçu and Pamukçu, 2009: 69).

The purpose of this standard is to specify the responsibilities, in the audit of the financial tables, of the independent auditor and the management of the business for the events occurring after the balance sheet date. (ISA 560: para. 1).

According to this standard, the objectives of the independent auditor are so (ISA 560: para. 4):

- To obtain sufficient and appropriate audit evidence as to whether events that arise between the financial tables date and the date of the independent audit report and require correction or disclosure in the financial tables are appropriately reflected in the financial tables,
- To be able to respond appropriately to such cases when it is necessary to change the report due to events that is notified after the date of the independent audit report.

Even if these relevant events occur after the disclosure of the amount of profit or other financial information, they are considered to be events that occur after the balance sheet date (Gönen and Kutay, 2013: 41).

In order to better understand the scope of the standard, the following concepts are included (ISA 560: para.5):

- a) **Date of Independent Audit Report:** It is the date that the independent auditor gave to the independent audit report on the financial tables (ISA 560: para. 5).
- b) **Date of Approval of Financial tables:** It is the date on which all statements that make up the Financial tables are prepared and declared that the authorized persons take responsibility for these financial tables (ISA 560: para. 5).
- c) **Date of Publication of Financial tables:** It is the last day of the latest period in which financial tables belong (ISA 560: para. 5). In some cases, the date on which financial tables are published may be the date that these tables are submitted to a regulatory authority.

## AUDIT OF EVENTS AFTER BALANCE SHEET DATE

The auditing process begins with the acceptance of the customer and the audit agreement and ends with the preparation of the audit plan and the completion of the audit activities and the preparation of the audit report. One of the most important parts of the completion of the audit is the examination of the events that occurred after the balance sheet date. (Mert and Boz, 2015: 31). An unlimited number of events that occur after the balance sheet date (reporting period) but before the date of approval of the financial tables have significant effect on the financial tables, independent

audit opinion, investors and other parties related to the financial reporting system (Özdemir and Ataman Gökçen, 2016: 42). For this reason, the independent auditor has to check whether there is something that needs to be reflected in the financial statement in the course of completing the audit work by observing events after the balance sheet date and prepare an independent audit report according to the evidence obtained (Cömert et al., 2013: 368).

The audit of events after the balance sheet date can be considered in three stages as follows:

- 1) Events Happening Between The Publication Date Of The Financial tables And The Date Of The Independent Audit Report,
  - a. Events Requiring Correction in Financial Tables
  - b. Events Requiring Explanation in Financial Tables
- 2) Events Arising After The Date Of The Independent Auditor's Report But Before The Publication Of The Financial tables,
- 3) Events Appearing After The Publication Of Financial Tables.

#### **Audit Of Events Between The Publication Date Of The Financial Tables And The Date Of The Independent Audit Report**

The independent auditor applies auditing techniques designed to obtain sufficient and appropriate audit evidence that the events occurring between the publication date of the financial tables and the date of the independent audit report and that require any adjustments or disclosures to be made in the financial tables have been identified.

These techniques are conducted separately from routine independent audit techniques that can be applied to certain transactions that occur after the balance sheet date to obtain relevant audit evidence for the rest of the account at the balance sheet date. (Kishali et al., 2013: 89). However, it is not necessary for the independent auditor to apply additional auditing techniques in respect of matters for which satisfactory results are provided by the audit techniques previously applied (ISA 560: para.6).

Independent auditor applies independent audit techniques in a way to comprise the period between the publication date of the financial tables and the date of the independent audit report or the date of publication of the financial tables and the date closest to the date of the independent audit report. Independent audit techniques that can be applied for events requiring correction or disclosure in the financial tables are as follows (ISA 560: para. 7):

- Review of audit techniques established by the management to determine the events after the balance sheet date,
- Questioning of business management after the balance sheet date in order to determine whether any event that may affect the financial tables has occurred,
- Reading of the minutes of the meetings held by management partners and those responsible for the senior management after the date of the financial tables and investigation of the issues discussed but not yet prepared in the meetings,
- Reading the latest financial tables, cash flows and business management reports of the entity's last budget, latest interim period after the balance sheet date (ISA 560: paragraph A8),
- Extension of the inquiries made by the business operator with the legal advisors

regarding the lawsuits and allegations or previously conducted orally conducted inquiries (ISA 560: para. A8),

- The independent auditor is required to obtain information from management regarding the occurrence of events that occur after the balance sheet date and that could affect the financial tables to obtain sufficient and appropriate audit evidence (ISA 560: para. A9):

If the independent auditor determines the presence of any event requiring correction or disclosure in the financial tables, the independent auditor determines whether each of these events is appropriately reflected in the financial tables in accordance with the applicable financial reporting framework (ISA 560: 8). Examples of events and practices that require correction and disclosure in the financial tables are stated below:

#### **Events Requiring Correction In Financial Tables**

Businesses are responsible for adjusting the previously reported amounts in the financial tables in accordance with this new situation in case of an event requiring correction after the balance sheet date.

The following examples can be given for the events that require correction:

- a) A lawsuit filed against the entity and continuing as of the balance sheet date may have been finalized after the balance sheet date. In this case, the information reported in footnotes as contingent liability should be shown in debt or in provision for debt and expense due to the fact of litigation.
- b) As of the balance sheet date, there is a need to correct that the value of an asset is low or that an impairment loss previously recognized in the financial tables should be adjusted (Karaca and Uygun, 2012: 237).
- c) Determination of the costs of the assets acquired before the balance sheet date or the revenues obtained from the assets sold after the balance sheet date requires correction.
- d) If there is a legal or implicit obligation as of the balance sheet date, such as a profit share or a bonus due to events prior to the balance sheet date, that obligation is required to be adjusted after the balance sheet date.
- e) Determination of the errors and fizzes that indicate that the financial tables are not true as of the balance sheet date after the balance sheet date requires correction.
- f) Identification of hidden defects in one of the product combinations of the entity immediately before the publication of the financial tables requires correction.

#### **Events Not Requiring Correction But Requiring Only Clarification In Financial Tables**

Events requiring an explanation after the date of the balance sheet are those that do not exist at the balance sheet date and there are conditions that indicate that the related events have occurred after the balance sheet date. Such events do not directly affect the financial tables and therefore do not require financial corrections. However, since these amounts affect the current period and future periods, they are required to be disclosed in footnotes in accordance with the concept of importance (Karacan ve Uygun, 2012: 38).

Examples of events that occur after the balance sheet date and do not require any adjustments are as follows:

- Impairment of market values of investments between the end of the reporting period and the date of publication for issuance of the financial tables (TMS 10: 11),

- Elimination of a significant subsidiary or significant merger after the balance sheet date (TMS 10: para. 22-a ),
- Significant asset purchases, classification of assets as assets held for sale (TMS 10: para. 22-c),
- Presence of unusually large changes in asset prices or exchange rates after balance sheet date (TMS 10: para. 22-g),
- Appearance of disputes such as strikes and lockouts (Dönmez: 2010: 17),
- Beginning of an important case arising entirely from events occurring after the balance sheet date (TMS 10: para. 22-j).

#### **Events After The Audit Report Date But Before The Release Of The Financial Tables**

After a while the independent audit report is issued, the independent audit report is published. Therefore, it is likely that some important events will take place during this time period. For example, a business management may change its financial tables by reason of certain events prior to the publication of the financial tables (Cömert et al. 2013:368).

The independent auditor has no responsibility for the application of any review of the financial tables subsequent to the date of the independent audit report. There may also be cases where the independent auditor is informed after the audit report date but prior to the publication of the financial tables. An independent auditor first decides whether to make changes to the financial tables or not, in consultation with the business management and appropriate persons in charge about whether the event requires changing the independent audit report. If your change is necessary, the auditor examines the management's handling of this issue (ISA 560: para. 10).

In the event that the business management changes the financial tables, the independent auditor first presents a new report to the business management on the modified financial tables by taking advantage of the necessary independent auditing techniques. The Independent Auditor gives this report a date after the date on which the financial tables are approved and applies independent audit techniques to that date (ISA 560: para. 11). If management makes necessary adjustments, there is no problem in terms of independent audit opinion (Kaval, 2015: 349).

If the business management does not make any changes to the financial tables despite the fact that the financial tables need to be amended to the business management, the independent auditor expresses opinions other than the positive opinion and then presents the independent audit report. If the independent audit report is submitted to the business, the management shall be notified of the fact that the financial tables should not be published before the necessary changes are made. In spite of this declaration, if the financial tables are issued without any necessary changes, the independent auditor applies the audit techniques necessary to prevent the independent audit report from being trusted (ISA 560: para. 13).

If the financial tables of the next period are to be published shortly, the changed financial tables of the business management may not be required to be published by the legislation or financial reporting framework (ISA 560: para. A13).

#### **Events After The Financial Tables Are Issued**

As mentioned earlier, the independent auditor does not have any responsibility for applying any audit techniques with respect to these financial tables after the publication of the financial tables. However, if the independent auditor is aware of the financial tables after the publication date and there is a situation that could cause the auditor to change the auditor's report at the date of the independent

auditor's report, the independent auditor inspects whether the relevant financial tables need to be changed. The auditor then talks with the business management about this situation, examines the management's handling of this issue and takes the necessary precautions (ISA 560: para.14).

In case the management has reviewed the financial tables and made any changes, the independent auditor applies independent auditing techniques in accordance with the conditions. The auditor reviews the measures taken by the business management to confirm that the previously issued financial tables and those to which the independent audit report related to them have been informed of the said change and presents a new independent audit report on the modified financial tables (ISA 560: para. 15).

The new independent audit report includes a footnote to a financial table that more fully explains the reason for the amendment of the previously issued financial tables and the "Note Taken" or "Other Note Paragraph" attached to the previous independent audit report presented by the independent auditor (ISA 560: para. 16). The independent auditor should prepare the new independent audit report at a later date than the date on which the amended financial tables are approved.

Although it is necessary for the independent auditor to make amendments to the previously issued financial tables, it may be the case that the management does not make any changes to the financial tables and inform the relevant public about this issue. In such cases, the independent auditor may alert the business management to take appropriate steps to prevent confidence in the future independent audit report. If, in spite of this declaration, the entity management fails to perform its duties, the independent auditor takes the necessary measures to prevent the entity from trusting the information in the independent audit report (ISA 560: para. 17). These measures are shaped by the legal rights and responsibilities of the independent auditor. For this reason, the independent auditor can also be found in evaluating whether it would be appropriate to obtain legal advice (ISA 560: para.A18).

## **LITERATURE REVIEW**

When the literature is examined, studies conducted in Turkey focus mainly on identifying and explaining the events after the balance sheet date under UMS (TMS) 10 and ISA 560, and it is also seen that there are very few studies on the subject in foreign literature. Below is a list of some of the studies that, we think, contribute to our research.

In their work, Janvrin and Jeffrey (2007) aimed to prove that independent auditors' evidence of events after the balance sheet date is important, evidence of the process of obtaining audit evidence for events after the balance sheet date, and that the factors affecting this process should be examined. To this end, the authors used the survey methodology in the research and received responses from independent auditors working in a national company and 4 major audit firms. The authors have found from independent analyzes that the independent auditors understand that the audit evidence of events after the balance sheet date is important. In addition, the authors have also found that approximately 75% of the survey respondents have performed the majority of field surveys in the audit process for events after the balance sheet date, generally following the audit procedures recommended by audit standards in order to obtain audit evidence of events after the balance sheet date. Other conclusions of the authors are as follows:

- a) If the independent auditors have little historical evidence and the provisions of the balance sheet date do not meet the expectations, the likelihood of obtaining audit evidence for events after the balance sheet date is higher.
- b) Independent auditors are more likely to obtain audit evidence when they can evaluate non-routine account balances that can affect the financial tables as a whole from a single account and have sufficient time to make a call.
- c) Independent auditors are more likely to obtain evidence consistent with the provisions of



the balance sheet date if the period of time to obtain evidence of audit evidence for events subsequent to the balance sheet date is long.

d) The effect of the time pressure on the perception of the independent auditor to obtain audit evidence is not statistically significant.

In his study, Giacosa (2012) aims to analyze the level of disclosure and content required by the Standard for Subsequent Events from the UMS 10 Reporting Period (from the Balance Sheet Date). To this end, the author reviewed the financial tables of 45 companies operating in the consumer goods industry of the FTSE index of the Italian Stock Exchange in 2010. From the analysis of the authors, it was found that only 75% of the companies declared the effect on the financial tables of the events after the reporting period, while reporting on the financial tables of all the companies, the date of approval of the financial tables and the board or persons approving the financial tables.

Yılmaz and Sarı (2015) assessed the scope of TMS 10 and explored the disclosures made by the companies included in the ISE-100 index for the events after the balance sheet date (reporting period). As a result, the authors found that 63% of the companies had included in the financial statement disclosures the events after the balance sheet date, while the remaining 37% did not make any statements in this regard and the disclosure per company was 2.7%. In addition, it has also been determined that the announcement of subsidiaries and affiliates is followed by 21% at the beginning of the most explained events, followed by securities and tangible fixed assets at 7%, capital at 6%, and explanation of investment reduction with 5%.

Mert and Boz (2015) evaluated the events after the date of first ISA 560 and examined the Independent Audit Reports of 50 different banks operating in Turkey and tested the compliance of the reports written in the events after the balance sheet date with the relevant standard. As a result, the authors have found that there are no "relevant sections" in 1 of the 50 reports, 26 of them have "not found" or "no" statement in the events after the balance sheet date. The authors also found that 19 cases were recorded in accordance with standards such as announcement of profit distribution, reserve requirement, cancellation, capital increase, sale and purchase of subsidiary, authorization decision related to share transfer, bond and bond issuance, and that 4 reports include improper expressions such as manager appointment decision, rating agency's opinion, general manager appointment decision, and taking the decision of the ordinary general assembly.

In their study, Özdemir and Ataman Gökçen (2015) examined the companies' financial tables sets and footnotes and independent audit reports in order to determine the status of real sector companies whose shares are traded in the stock exchange in Turkey between 2009- 2013 after the reporting period. As a result, the authors have found that businesses have the largest number of disclosures about subsidiaries, affiliates and other related parties for a period of 5 years. In addition, the authors have also determined that the surveyed firms publish the financial tables at the consol in an average of 77 days after the reporting period and the individual financial tables in 66 days.

Nawaiseh and Jaber (2015) conducted surveys to the 62 independent auditors to determine the extent to which the independent auditors operating in Jordan met the requirements of the International Auditing Standard 560 Events After the Balance Sheet Date. The authors argue that independent auditors in Jordan only act in accordance with the requirements of the UDS 560 standard in controlling the events that take place between the publication date of the financial tables and the date of the issuance of the audit report; But did not comply with the standard in auditing of events occurring outside the relevant dates. The authors also found that the effect of independent auditors' demographics on awareness of the importance of independent auditors' application of ISA 560 was not statistically significant.

Özdemir and Ataman Gökçen (2016) examined the use of the independent audit standard in Turkey, the perception and level of significance of the notifications, the audit experience of the events after the balance sheet date and the process of obtaining audit evidence. The authors found that independent auditor disclosures regarding audit activities performed after the balance sheet date

indicates that the events after the balance sheet date are very significant. The authors have also found that the percentage of independent auditors who have attained more than twice the number of events in the past fiscal year after the reporting period is noteworthy and that auditors have obtained the relevant evidence in less than two hours in the month following the end of the fiscal year. In addition, the authors have determined that the evidence obtained by independent auditors is related to the type of event that does not require much correction, and that they have obtained such evidence using audit techniques related to events after the balance sheet date. Finally, the authors also found that audits could exceed the budgeted time in the process of collecting evidence on events after the balance sheet date.

## **A Research on Independent Auditors**

### **The Purpose and Importance of Research**

The purpose of this research is to determine the extent to which the independent auditors in Turkey have met the requirements of the ISA 560 Subsequent Events Standard. This research is important because it is the first time that independent auditors in the sample of Turkey have complied with the requirements of the ISA 560 Events after the Balance Sheet Date.

### **Research Hypotheses**

**H1:** Independent auditors do not comply with the requirements of ISA 560 in auditing of events occurring between the publication date of the financial tables and the date of issuance of the independent audit report.

**H2:** Independent auditors do not comply with the requirements of ISA 560 on the date of issuance of the independent audit report but prior to the publication of the financial tables.

**H3:** The effect of demographics such as expertise, experience, professional title and vocational training of independent auditors on the awareness of the importance of ISA 560 implementation is not statistically significant.

### **Scope of the Study, Limitations and Method Used**

In this research, it is aimed to determine the extent to which the independent auditors in Turkey have complied with the requirements of ISA 560 Events after the Balance Sheet Date. For this purpose, survey method was preferred as research method. The questionnaire consists of two parts and a total of 22 questions, and the questionnaires were derived from the questions that Nawaiseh and Jaber (2015) used in their work.

The first part of the questionnaire consists of 4 questions examining the demographic characteristics of the independent auditors and the second part consists of 18 questions which determine the point of view of the independent auditor from the date of the balance sheet to the events after the date of the balance sheet (the first hypothesis with questions 1-12 and the second hypothesis with questions 13-18).

In the second part, a 5-point Likert scale was used and asked to answer questions such as "1-Absolutely not, 2-Disagree, 3-What I do not agree, 4-I agree, 5-Absolutely agree". The questionnaire was prepared on the internet and the mail was sent to a total of 376 independent auditors, whose mail addresses were obtained, registered in the Official Registry of the Public Oversight Accounting and Auditing Standards Authority Independent Auditor, and they were requested to participate in the questionnaire. As a result, 50 independent auditors have returned. For this reason, the data set of the study consisted of the responses of 50 independent auditors to the questionnaire. First, the validity and reliability of the questionnaire were investigated according to the Cronbach Alpha scale. In addition, research hypotheses have been tested using the following statistical methods:

- a)** Descriptive statistical measurements were made with the help of statistical package program for social sciences (SPSS) to describe the model features in the study.
- b)** Single sample t test was applied to compare the calculated averages with the central term of the steps of the scale applied in the study.
- c)** One Way ANOVA has been applied to determine whether the effect of the independent auditors' demographics such as expertise, experience, professional titles and vocational training is statistically significant on the awareness of independent auditors of the importance of ISA 560 implementation.

### **Findings from the Survey**

#### **Validity and Reliability of Survey Results**

The following Table 1 and Table 2 show the validity and reliability results of the responses given by the independent auditors participating in the survey.

**Table 1.** Validity Statistics of the Survey Results

		<b>Number of the Independent Auditors in the Survey</b>	<b>%</b>
Survey Results	Valid	50	100
	Invalid	0	0
	Total	50	100

**Table 2.** Reliability Statistics of the Survey Results

<b>Cronbach</b>	<b>Number of Replied Questions</b>
0,863	22

When Table 1 and Table 2 are evaluated together, it is seen that the entire survey results are valid and the reliability coefficient is 0.863 according to the Cronbach Alpha scale. In other words, it was concluded that 86.3% of the survey results were reliable.

#### **Demographic Characteristics of the Research Population**

The document of the frequency distributions and percentages of the demographic characteristics of the research population (independent auditors) are shown in Table 3. When Table 3 is examined, it is seen that 78% of the independent auditors participating in the survey have accounting for their expertise and 72% have more than 10 years professional experience.

In addition, Table 3 shows that only 4% of the independent auditors performing audit activities are auditors and co-supervisors (96% are composed of SMMM and YMM) and most of the independent auditors (96%) are trained on auditing.

**Table 3.** Demographic Characteristics of Independent Auditors

Demographic Characteristics of Independent Auditors	Frequency Distributions	% (Percentage)
<b>Profession</b>		
Accounting	39	%78
Other (Auditing)	11	% 22
<b>Experience</b>		
Less than 5 years	8	% 16
Between 5 and 10 years	6	% 12
Between 11 and 15 years	6	% 12
More than 15 years	30	% 60
<b>Occupational Title</b>		
SMMM	39	% 78
YMM	9	% 18
Other (Auditor (1), Principal Auditor in Charge (1))	2	% 4
<b>Vocational Training</b>		
I had training on Auditing	48	% 96
I did not have training on Auditing	2	% 4

### Test of Hypotheses

**H1:** Independent auditors do not comply with the requirements of ISA 560 in auditing of events occurring between the publication date of the financial tables and the date of issuance of the independent audit report.

A single-sample t-test was applied by independent auditors to assess the audit procedures (between 1-12 questions using independent auditors' responses) for the period between the publication of the financial tables and the date of issuance of the independent audit report. The results obtained are as in Table 4:

**Table 4.** Single Sample t Test Results

Questions	Average	Std. Dev.	t Value	Free Var.	Table t Value	p Value
S1	4,300	1,1112	8,273	49	1,676	0,000
S2	4,040	1,0683	6,884	49	1,676	0,000
S3	4,380	0,9666	10,095	49	1,676	0,000
S4	4,320	1,0774	8,663	49	1,676	0,000
S5	4,320	1,1147	8,374	49	1,676	0,000
S6	4,240	1,0214	8,584	49	1,676	0,000
S7	4,040	1,2115	6,070	49	1,676	0,000
S8	4,340	1,0022	9,454	49	1,676	0,000
S9	4,240	0,9596	9,137	49	1,676	0,000
S10	3,800	1,1780	4,802	49	1,676	0,000
S11	4,180	1,1373	7,337	49	1,676	0,000
S12	4,040	1,0490	7,010	49	1,676	0,000
General Average	4,1866	1,0747	7,8902	49	1,676	0,000**

\*\* It refers to statistical significance at 0.05 level.

When Table 4 is examined, it can be seen that the arithmetic mean of all responses given by independent auditors to questions 1-12 is greater than the test value ((3) - "Neither Agree Nor Disagree") and the difference between the averages is statistically meaningful (0,000 < 0,05). It can also be said from the Table 4 that the answers to questions 3 and 8 have the

highest average averages. This means that independent auditors have a higher level of emphasis on matters such as whether the business has any commitments or guarantees, and whether any event affecting the continuity of the business after the balance sheet date has occurred, as the financial tables and, as a result, the audit report directly affect the auditor. It can also be deduced that the value of t is 7,8902 in the 5% confidence interval from Table 4 and this value is greater than the value of table t (1,676) when the degree of freedom is 49. For this reason, the H1 hypothesis was rejected. In other words, independent auditors obtained the conclusion that they satisfied the requirements of ISA 560 in auditing the occurrences between the publication date of the financial tables and the date of issuance of the independent audit report.

**H2:** Independent auditors do not comply with the requirements of ISA 560 on the date of issuance of the independent audit report but prior to the publication of the financial tables.

A single-sample t-test was used to assess the audit procedures of independent auditors for the period prior to the issuance of the independent audit report but prior to the publication of the financial tables (using the responses of independent auditors to questions 13-18). The results obtained are as shown in Table 5:

**Table 5.**Single-Sample t-Test Results

Questions	Average	Std. Dev.	t Value	Free Var.	Table t Value	p Value
S13	3,600	1,0880	3,900	49	1,676	0,000
S14	3,160	1,3756	0,822	49	1,676	0,415
S15	3,840	1,1843	5,016	49	1,676	0,000
S16	3,580	1,3107	3,129	49	1,676	0,003
S17	3,940	1,0768	6,172	49	1,676	0,000
S18	3,920	1,1400	5,706	49	1,676	0,000
<b>General Average</b>	<b>3,6733</b>	<b>1,1959</b>	<b>4,1241</b>	<b>49</b>	<b>1,676</b>	<b>0,069**</b>

\*\* It refers to statistical significance at 0.05 level.

When examining Table 5, it is found that the arithmetic average of all the answers given by the independent auditors to the questions 13-18 is 3,6733 and this value is greater than the test value ((3) - "Neither Agree Nor Disagree"); but, there is no statistically significant difference ( $0,069 > 0,05$ ) in the 5% confidence interval between the averages. It can also be said from Table 5 that the answers to questions 17 and 18 have the highest average averages. This means that independent auditors are required to report to the business that they need to make changes to the financial tables and to apply all the necessary audit procedures once they have been informed after the issuance of the independent audit report, such as publishing without making changes to the financial tables. It can also be deduced that the value of t is 4,1241 in the 5% confidence interval from Table 5 and that this value is greater than the value of table t (1,676) when the degree of freedom is 49. For this reason, the H2 hypothesis was rejected. In other words, independent auditors obtained the conclusion that they satisfied the requirements of ISA 560 for the audit of events that took place after the date of issuance of the independent audit report but before the publication date of the financial tables.

**H3:** The effect of demographics such as expertise, experience, professional title and vocational training of independent auditors on the awareness of the importance of ISA 560 implementation is not statistically significant.

One Way ANOVA was applied to determine whether the effect of the independent auditors'

awareness of the demographics of the ISA 560 application, such as their area of expertise, experience, professional title and vocational training, was statistically significant. The results obtained are as shown in Table 6:

**Table 6.** One Way ANOVA Analyze Results

Variables	Sum of squares	Average of Squares	Free Var.	F Value	Table Value**	Fp Value
Profession	2,0199	2,0199	(1,48)	1,6561	4,0426	0,3232
Experience	3,3838	1,1279	(3,46)	0,9393	2,8068	0,5139
Vocational Edu.	0,4843	0,4843	(1,48)	0,3751	4,0426	0,6722
Occupational	2,9648	1,4824	(2,47)	1,2500	3,1950	0,4145

\*\* It refers to F Values at 0.05 significance level.

When Table 6 is examined, it is seen that F values of all variables are smaller than Table F values. For this reason, the H3 hypothesis was accepted. In other words, the effect of the independent auditors' awareness of the importance of ISA 560 implementation of demographics such as area of expertise, experience, professional title and vocational training was not statistically significant at the 5% confidence interval.

## CONCLUSION

In this study, the extent to which the independent auditors in Turkey have complied with the requirements of the ISA 560 Events after the Balance Sheet Date in the audit process. In the study, survey method was used as research method. The questionnaire consists of two parts: the first part contains the questions that measure the demographic characteristics of the independent auditors and the second part contains 18 questions (which measure the first hypothesis with questions 1-12, the second hypothesis with questions 13-18) has formed. The questionnaire was prepared on the internet, and it was sent as mail to the 376 independent auditors, whose mail addresses were obtained, registered in the Official Register of Public Auditing Accounting and Auditing Standards Authority Independent Auditor, and a total of 50 independent auditors were returned.

In the study, the validity and reliability of the survey results were tested according to the Cronbach Alpha scale, and it was determined that the entire survey results were valid and the reliability coefficient was 0,863. Later, descriptive statistical measurements were made with the help of SPSS package program in order to determine the demographics of the independent auditors. It was determined that 78% of the independent auditors who participated in the survey had the expertise area accounting and 72% had more than 10 years professional experience. In addition, it was concluded that only 4% of the independent auditors performing audit activities are auditors and co-supervisors (96% are composed of SMMM and YMM) and most of the independent auditors (96%) are trained on auditing.

Finally, in the study, the extent of independent auditors' compliance with the requirements of ISA 560 Events after the Balance Sheet Date in the audit process was investigated through three important hypotheses, H1, H2 and H3. The H1 hypothesis was examined by means of a single sample t-test using the responses of independent auditors to the questions 1-12 in the second part of the questionnaire and the result was that the independent auditors complied with the requirements of ISA 560 in controlling events occurring between the publication date of the financial tables and the date of issuance of the independent audit report. This finding in the study is consistent with the work of Nawaiseh and Jaber (2015). The H2 hypothesis was examined by means of a single sample t test using the responses of independent auditors to the questions 13-18 in the second part of the questionnaire and the independent auditors obtained the results of the independent auditors following the publication date of the independent audit report but following the requirements of ISA 560. This finding in the study is different from the findings obtained by Nawaiseh and Jaber (2015). The authors

concluded that independent auditors did not comply with the requirements of ISA 560 after the date of publication of the independent audit report but prior to the publication of the financial tables. The H3 hypothesis was examined by one-way analysis of variance and it was found that the effect of the independent auditors' awareness of the importance of the ISA 560 application of demographics such as expertise, experience, professional title and vocational training was not statistically significant at the 5% confidence interval. This finding in the study is consistent with the work of Nawaiseh and Jaber (2015).

## **REFERENCES**

- Dönmez, Nuran, et al. (2013), *Independent Auditing within the scope of International Auditing Standards*, Sakarya University, Continuing Education Application and Research Center, Sakarya.
- Dönmez, Adnan (2010), "Evaluation of the Events Arising After the Balance Sheet Date in Terms of Auditing Standards", *Çözüm Magazine*, Issue 99, pp. 13-34.
- Giacosa, Elisa (2012), "Disclosures in Events After the Balance Sheet Date: A Study of Selected Italian Companies", *World Journal of Social Sciences*, August, 2012, Volume 2, Issue 5, Special Issue, pp. 262 – 285.
- Gönen, Seçkin- Kutay, Nilgün (2013), "The Significance of TMS 10 Reporting Period (From the Balance Sheet Date)", *International Alanya Management Faculty Journal*, Volume: 5, Issue 3, pp.39-46.
- Janvrin, Diane J.- Jeffrey Cynthia G. (2007), "An Investigation of Auditor Perceptions about Subsequent Events and Factors that Influence This Audit Task", *Accounting Horizons*, Volume 21, Issue 3, pp.295-312. <http://dx.doi.org/10.2308/acch.2007.21.3.295>.
- Public Oversight Accounting and Auditing Standards Authority (2014), "ISA 560-Events After Balance Sheet Date", T.C. Official Gazette, Turkish Auditing Standards Communiqué No: 24, No: 28890, 22.01.2014.
- Public Oversight Accounting and Auditing Standards Authority (2014), "ISA 700-Creating and Reporting Opinions on Financial Tables", T.C. Official Gazette, Turkish Auditing Standards Communiqué No: 30, No: 28945, 18.03.2014.
- Karacan, Sami- Uygun, Rahmi (2012), *Auditing and Reporting in compliance with the Uniform Accounting System and International Auditing Standards*, Umuttepe Publications, 1 st Edition, Kocaeli.
- Kaval, Hasan, et al. (2015), *Turkish Auditing Standards: Implementation and Interpretations*, Gazi Bookstore, Ankara.
- Kıymetli Şen, İlker (2015), "Events After the Reporting Period in International Financial Reporting and International Auditing Standards", *Accounting and Denetim Bakış*, Issue 45, pp. 131-146.

- Kishali, Yunus, et al. (2013), Auditing Standards: Module-I, Public Oversight Accounting and Auditing Standards Institution, Istanbul.
- Public Oversight Accounting and Auditing Standards Authority (2008), "TAS 10-Subsequent Events from the Reporting Period (Balance Sheet Date)", T.C. Official Gazette, Communiqué No: 110, Issue: 27068, 28.11. 2008.
- Mert, Hüseyin- Boz, Nedim (2015), "Assessment of Incidents after the Balance Sheet Date and Evaluation of Published Independent Audit Reports", 5th International Turkish World IFRS Symposium (World Of IFRS), Special Issue, pp. 30-39.
- Nawaiseh, Musa Abdel Latif Al- Jaber, Jamel (2015), "Auditing Subsequent Events from the Perspective of Auditors: Study from Jordan", International Journal of Financial Research Vol. 6, Issue: 3, pp.78-85.
- Özdemir, Zehra and Ataman Gökçen, Başak (2015), "An Analysis of Events after the Reporting Period: A Study on the Stocks Traded on the Stock Exchange", Journal of Accounting and Science, Volume: 17, Issue: 3, pp. 437-466.
- Özdemir, Zehra- Ataman Gökçen, Başak (2016), "Auditing of Subsequent Events: A Survey of Auditors in the City of Istanbul in Turkey", Accounting and Finance Research, Vol: 5, Issue: 2, pp. 42-53.
- Pamukçu, Fatma- Pamukçu, Nevzat (2009), "Events after the Balance Sheet Date (TMS-10) and Financial Table Effects", Financial Solutions Magazine, No: 91, pp. 67-80. Yavaşoğlu, Mustafa(2001), Independent Auditing in Capital MarketsLegislation: Interpretation, Implementation and Explanations, Seçkin Publications, 1st Edition, Ankara.
- Yılmaz, Fatih- Sarı, Emre S. (2015), "A Study on the Evaluation of the Events after the Reporting Period (From the Balance Sheet Date) in terms of TMS and the Companies in the ISE-100 Index", Göksel Yücel (Ed.), Accounting Institute Choices, Istanbul, pp.65-82.
- Yükücü, Süleyman - Yaşar, Şebnem (2013)," Practices Regarding Standard of Events after TAS 10 Reporting Date "(Balance Sheet Date), Financial Solution Magazine, Issue: 115, pp. 15-30.



# CALCULATION OF CONTROL RISK IN ACCOUNTING AUDIT AND APPLICATIONS IN TURKEY

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***Abstract:** Reaching world standards in the accounting audit of the enterprises and increasing the quality of audit in Turkey is possible with the application of the Independent Auditing Standards issued by the Public Oversight and Auditing Board. The soundness of the Independent Auditing Standards and the achievement of reliable results are closely related to the identification of control risks of the enterprises. For this reason, the calculation of control risk primarily by the enterprises in the auditing process facilitates the auditor's work. Control risk calculations include the presence of an existing control system in the business and the investigation of whether this system is being operated effectively in accordance with the International Standards on Auditing, or not. In this study, the concept of control risk and the importance of levels of control risk are explained through literature review, and the investigations needed to determine the control risk by referring to the Turkish Independent Auditing Standards paralleling International Audit Standards are addressed.*

***Keywords:** Internal control, control risk, audit risk, internal audit*

## INTRODUCTION

The objective of the independent audit is to determine whether the financial reports are accurate and real, and for this purpose it should be examined whether the internal control system is error and fraud-preventive, whether it involves relative and regular controls. The financial statements on which the auditor sought to establish an opinion on the accuracy and reliability are, in essence, the result of the operator's internal control system.

An internal control system, defined as policies and procedures established by management to assist an operator in achieving its objectives, productivity and efficiency in activities, reliability in the financial reporting process, compliance with legislation and regulations, provide reasonable assurance in the realization of objectives and protection of assets against loss (UYAR, 2010:38). In independent audit, validity of financial tables and their consistency with fixed criteria are reported through sufficient and concordant independent audit evidence providing reasonable security, and through audit methods in the standards of independent audit.

According to Turkish Commercial Code (TCC) numbered published in 2011, independent auditing is done according to the Turkish Independent Standard on Auditing (BDS) published by the Public Oversight, Accounting and Auditing Standards Authority (UPS) and in line with the International Standards on Auditing (ISA). Turkey's Independent Auditing Standards (BDS) in line with the Turkish Commercial Code (TCC) No. 6102 and International Standard on Auditing (ISA), introduce fundamental changes in accounting and auditing practices in Turkey. Entities with an obligation to provide public accountability in Turkey and are subject to capital market legislation have been subject to independent auditing since 2005, preparing their financial statements in accordance with Turkish Accounting / Financial Reporting Standards (TMS/IFRS). The authority to determine the enterprises to be independently audited outside the capital market is given to the Council of Ministers according to the TCC. The Council of Ministers determines the companies that will be subject to independent auditing every year. In order to comply with the European Union acquis, the scope of independent

auditing has been gradually expanded over time. By the decree of the Council of Ministers published in the Official Gazette dated 19.03.2016, the scope of independent audit for the year 2016 has been expanded by downgrading the criteria for independent evaluation. In the EU directive on auditing, 3 criteria are defined as active total, net sales revenue and number of employees; and companies satisfying 2 out of these 3 criteria in the past 2 years are subject to independent auditing. Within this scope; by the decree of the Council of Ministers published in the Official Gazette dated March 19, 2016, these criteria for the year 2016 were determined as over 40 million TL in active total, over 80 million TL of net sales revenue and over 200 employees. Therefore, in 2014 and 2015, companies that satisfied any two of these three criteria were subject to independent testing in 2016.

Within the scope of the BDS 300 "Planning of the Independent Audit of Financial Statements" standard in the Turkish Auditing Standards, whether the auditor has an internal audit function at the stage of establishing the general audit strategy or not; and if any, whether internal audit work can be used in auditing or not; and if they are to be used, the application areas and extend of use or whether the internal auditors can be used for direct assistance or not were addressed.

In this study, it is tried to clarify the issues that need to be questioned about the calculation and evaluation of the control risk in the independent audit activities which do not have a long history in Turkey. In the study based on the literature and legislation review, a theoretical model was sought to inquire about the internal control system in the enterprises for the calculation of the control risk.

## **INDEPENDENT ACCOUNTING AUDIT RISKS**

In an independent audit, auditors face three types of risks: natural risk, control risk and findings risk. Natural risk is measured by the sensitivity of the customer to physical inaccuracies in the account or transaction classes, as well as inaccuracies in individual or aggregate accounts or classes taking into account the fact that they are not internal controls. (<http://www.dummies.com>, 2016) Natural risk, also called structural risk, is the likelihood of significant errors or irregularities in an account balance or group of transactions where there are no internal control procedures. The natural risk level is determined by determining whether the physical account balance and account classes are at the stated level and the auditor prepares the audit program according to the current situation. The auditor uses his own professional judgment to determine the natural risk. (International Standard on Auditing 400 Risk Assessments and Internal Control)

Control risk is the type of risk composed of unprevented, undetected, or uncorrected single or total errors in account or account classes and physical inaccuracies in the accounts or transaction classes, by the internal control and accounting systems (SAS 300 Accounting and Internal Control Systems and Audit Risk Assessments, March 1995).

The risk of findings is that the tangible verification tests done by the auditor fail to uncover a misleading statement in the remainder of the accounts or in the transaction classes. This risk is the auditor who manages the system and who is responsible for the collection of evidence at the same time. An effective audit procedure by the auditor reduces this risk.

## **CALCULATION OF CONTROL RISK**

The auditor's responsibility to identify and detect the control risk that affects the financial reporting tools of the entity and results from the lack of internal control structure is clearly stated in the independent audit standards. At the same time, the operator has to recognize the internal control structure of the entity to ensure that the control monitoring activities are reliable. When determining the risk of control, the auditor first tries to obtain information on the following topics in order to obtain information about the business and the environment.

- Who are the company executives? (Including key staff)

- How is the management's point of view on the business field? (Mission Vision) / What is the motivation? Is there a distinction between business and personal affairs?
- What are the goals and strategies of the company? (Quality, profitability, productivity, cost, customer satisfaction, etc.)
- Is there a budget prepared by the management? What are the Critical Success Factors identified?
- How does management measure and monitor financial performance?
- What are the attitudes and behaviors of the management that exceed the acceptable limits of the financial performance indicators? How do they use financial performance indicators, taking into account their effects on financial statements and footnotes?

The auditor starts by preparing an internal control questionnaire for the control risk assessment activities and applying it to the management personnel. The initial risk level is determined according to the answers given to the questionnaire where the questions related to the controls being applied for each audit area are included. The questions are to test whether the internal control is functioning properly in the context of 5 components (control environment, risk assessment, control activities, information and communication, monitoring) determined by COSO. The questionnaire consists of a series of questions about the internal control system and is intended to identify the weaknesses and strengths of the system. Workflow schedules can also help identify risky areas and points. For example, the following questions may be asked for a business step in business operations. (Strateji Geliştirme Daire Başkanlığı, 2014:18-19.)

- Under what conditions / circumstances may the business process be performed incorrectly or incompletely?
- Is my business process consistent with the business process before and after it?
- Is the business process carried out economically and efficiently?
- Is the business process done by authorized people?
- Is the business process done by competent people?
- Is the business process manual? What kind of mistakes can be made?
- Can resources or assets used in a business process be damaged?
- Can the system / hardware / software used in the business process crash?
- If an error occurs in the business process, can other steps be affected in the process?
- Is my job carried out under any legislation? What if this legislation does not apply?

If the initial risk level obtained from the internal control questionnaire is less than 100%, that is, if there are policies and procedures that constitute the internal control structure in the enterprise, then control tests are used.

Control tests are applied to find out the answer to the question "Are the internal control policies and procedures existing in operation effectively implemented"? (Bozkurt, 2012:143-146) The internal control system is examined as to whether it works as in the notes received, in questionnaire answered or as in the flow charts. It follows a process selected by sampling from the beginning to the end. (Gürbüz, 1995:74) As a result of the control tests to be applied separately in each audit area, the final risk levels are determined. The business establishes internal control objectives and implements internal control policies and procedures to achieve this goal in order to ensure timely and accurate performance of its operations. The auditor will first test whether the policies and procedures for each

transaction are appropriate for that transaction. For example, it can check the status of current accounts that the business follows routinely in the information system. This will get concrete data on the progress and who the authorized personnel are. (BDS 330) These tests can be formed under the titles of auditor's accounting system, income cycle, expense cycle, real estate and equipment, payroll, production cycle, finance cycle, information system control. The 'yes' and 'no' responses to the questions determine the risk level and risk areas.

BDS 315 Risk assessment procedures that should be applied by the auditor during the testing of controls in the standard for determining significant risk of error by identifying the entity and its environment are listed. These are (BDS 315):

- Interrogation of those who will assist in determining the risk of significant error caused by error in operation or fraud
- Application of analytical procedures
- Observation and examination

## **PREPARATION OF RISK CONTROL MATRIX AND RISK ASSESSMENT**

The next step in identifying the risks is the creation of the risk control matrix. The Risk Control Matrix summarizes the risks at each stage in a process, the controls that must be performed against those risks, the control design competence assessment, and the corrective recommendations for insufficient controls.

While preparing the risk control matrix, the following steps are followed: (www.ubak.gov.tr, 2016)  
All of the risks determined on the work flows are moved to the matrix

- Risk category is determined
- Risk is defined
- If there are controls or controls against the risks, the control definition is done opposing the related risk
- Control owner, frequency, nature (automatic/manual) and type of control are defined
- The supporting information technology system is specified if available
- The adequacy of control design is determined as 'adequate' or 'inadequate'
- Finally, corrective recommendations will be identified for the risks defined as 'inadequate' for the adequacy of control design. These suggestions describe new controls that will be designed in the light of good examples of practice.

## **RESULTS**

In our work, the control risk and control risk that arise from internal control, control risk and, detection and calculation of control risk, which should not be ignored in auditing practice for the auditor, are covered within the framework of the Independent Auditing Standards. The risk of control stems from the ineffectiveness of the internal control structure of enterprises. This risk may differ from operation to operation and is determined by the work to be carried out within the framework of the Independent Auditing Standards and directs the audit work. The identification of the control risk is very important for the recognition of the operator and for obtaining reliable results in the audit report. The internal control questionnaires applied by the auditor and the control tests are statistically and reliably added to the matrices to increase the quality of the audit.

These risks, which are considered as independent audit risks, can never be reduced to zero by the auditor. Because, the auditor does not have the possibility of reviewing all of the transaction types,

account balances and footnote explanations. It may also be that an incorrect control technique is applied or that the technique applied is misinterpreted. However, the most successful risk reduction can be achieved through proper planning, control and supervision of audit work, and keeping the professional skepticism in the forefront. The internal control system, which can not be fully and deliberately established in Turkey, will reduce all independent audit risks, especially control risks, when fully implemented.

## REFERENCES

- Akgül, Zehra Esmâ (2016), “İşletmelerdeki İç Kontrol Sisteminin ve İç Denetim Fonksiyonunun Bağımsız Denetimdeki Yeri”, Muhasebe ve Denetim Dünyası, Issue 1, April- June, pp.67-82.
- BDS 300 Finansal Tabloların Bağımsız Denetiminin Planlanması, 30 Aralık 2013 tarihli 28867 sayılı Resmi Gazete
- BDS 315 İşletme ve Çevresini Tanımak Suretiyle “Önemli Yanlılık” Risklerinin Belirlenmesi ve Değerlendirilmesi, 30 Aralık 2013 tarihli 28867 sayılı Resmi Gazete
- BDS 330 Bağımsız Denetçinin Değerlendirilmiş Risklere Karşı Yapacağı İşler, 24 Aralık 2013 tarihli 28861 sayılı Resmi Gazete
- Bozkurt, Nejat (2012), Muhasebe Denetimi, 6.b., Alfa Yayınları, İstanbul.
- Gürbüz, Hasan (1995), Muhasebe Denetimi, 4.b., Bilim Teknik Yayınevi, Eskişehir.
- How to Assess Inherent Risk in an Audit, <http://www.dummies.com/how-to/content/how-to-assess-inherent-risk-in-an-audit.html>(23.07.2016).
- International Standard on Auditing 400 Risk Assessments and Internal Control
- SAS 300 Accounting and Internal Control Systems and Audit Risk Assessments, March 1995.
- Strateji Geliştirme Daire Başkanlığı (2014), İç Kontrol ve Risk Yönetimi Uygulama Rehberi (Süreç ve Risk Çalışmaları, Yalova.
- Türkiye İç Denetim Enstitüsü Yayınları(2013), İç Kontrol- Bütünleşik Çerçeve Dış Finansal Raporlama Üzerinde İç Kontrol: Bir Yaklaşımlar ve Örnekler Özeti, İstanbul.
- Uyar, Süleyman ( 2010), “UFRS Uygulamalarında İç Kontrol Sisteminin Etkisi ve Önemi”, Alanya İşletme Fakültesi Dergisi, Volume 2, Issue 2, pp. 37-60.
- [www.ubak.gov.tr/BLSM\\_WIYS/SGB/tr/.../20141204\\_104541\\_5643\\_1\\_88338.pdf](http://www.ubak.gov.tr/BLSM_WIYS/SGB/tr/.../20141204_104541_5643_1_88338.pdf) (01.08.2016).

# AUDITING AND ASSURANCE SERVICES

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**Abstract:** *The main reason behind the development of the concept of audit is the different parties' desire to count on the financial and nonfinancial information provided by companies so that they can verify their decisions. The trustworthiness of financial information is provided with independent audit while the trustworthiness of nonfinancial information is ensured by assurance audit. The aim of this study is to explain the assurance audit services demanded by companies to increase the reliability of information used by them in decision making process. Assurance audit services aren't widely known in Turkey. However, it is considered that these services will become popular through the studies conducted and because the technological developments lead close relations between countries, economies, financial markets, and companies.*

**Keywords:** *Assurance services, Assurance audit, Audit*

## INTRODUCTION

Parties related to companies seek to make accurate decisions using both the financial and nonfinancial information. Therefore, they demand the information provided to be reliable. The aim of independent audit is to examine the company's financial statement to ensure the financial position and operating results are accurate and compliant with financial reporting standards by an independent auditor. Today, assurance audit services as well as independent audit and tax audit services are demanded by decision makers to increase the reliability of information used by them in decision making process. Within this context, assurance audit become crucial in formation of the feeling of trust ensured by third parties.

In Turkey, Public Oversight, Accounting and Auditing Standards Authority (POA) decided to base the international standards published by International Federation of Accountants (IFAC) by right of publishing the Turkey Auditing Standards (TAS) granted by Statutory Decree (SD) number 660. Accordingly, 36 independent audit standards, 2 limited independent audit standards, 4 assurance audit standards, and 1 related-services standard were published.

## LITERATURE REVIEW

According to the literature review, the first study focusing on the updated initiatives with the aim of development of novel assurance services in order to meet the demand of novel information types related to the assurance services other than the independent and limited audit was conducted by Holstrum and Hunton in 1998. Another study was conducted by Reed in 2001 on the audit companies in USA. Reed examined the results of the research conducted by the Special Committee on Assurance Services in order to determine whether audit firms provide novel services and apply the recommendations of the board of assurance services. In their study conducted in 2005, Morsheda,

Luehlhing and Wilkie sent questionnaires about the type of assurance contracts and levels to 5 large audit companies and other companies in 11 countries. Elliott and Jacobson (1994; 1995; and Bukics and Fleming (1998) focused on the assurance services and regulations about them. When the international books were reviewed, it was observed that Arens and Elder (2006), Ricchiute (2006), Glover and Beasley (2000), and Louwers (2015) published books on assurance services. These works can be examined under the titles such as *Advanced Audit Approach*, and *Audit and Assurance Services*. No book was found under the title of assurance audit or assurance services.

In Turkey, a doctoral dissertation on assurance services was completed by Altıntaş in 2011. In her work entitled *Assurance Services Other Than Financial Statement Audit and Tax Audit*, Altıntaş aimed at determining the scope of assurance services provided by members of auditing profession and their opinions related to these services. For this purpose, members of the profession working in independent audit companies in Istanbul within the scope of CMB legislation were the focus of the study. Moreover, the first book about assurance services in Turkey was published by Güredin in 2007. Additionally, audit materials used in independent auditor trainings under the provision of POA were prepared by Cömert et al in 2013 and published by Sakarya University – Research Center for Continuing Education. In 2016, Selimoğlu and Özsözgün published an article focusing on International Assurance Audit Standard within the context of Sustainability AAS (ISAE) 3410 Greenhouse Gas Statements. This study dealt with international accounting and assurance standards that could be used as a guide in accounting, reporting and assurance auditing within voluntary carbon markets. A study on assurance audit standards and the process of assurance auditing was conducted by Dinç and Atabay in 2016. In this study, assurance audit was explained in general terms and the necessity of increasing the awareness about assurance audit was mentioned. Uyar's study in 2016 gave information about assurance services standards and explained the examination of prospective financial information in detail

## **ASSURANCE SERVICES**

Assurance is the feeling of trust formed by a well-accepted authority's statement about the compliance of a subject with an aim (Power,1997:14). Turkish Language Association defines this concept as the convincing statement made for removing the doubts of someone. Assurance services are a broad phenomenon involving independent audit and certification services, and it can be defined as independent professional services increasing the quality of information (Madray,2006:105-106).

The goal of assurance services is to increase the reliability and quality of financial and nonfinancial information about the company. (Hayes et al. 2005:119-120).

### **Developments Around the World**

Professional associations such as American Institute of Certified Public Accountants (AICPA) led the development of assurance services in USA through a variety of studies. These studies are: Jenkins Committee (1991-1993) conducted by AICPA Financial Reporting Special Committee; Assurance Conference (1993) carried out by Santa Fe Audit; Elliott Committee (1994-1997) carried out by AICPA Assurance Services Special Committee; and studies (1994-1997) conducted by American Accounting Association (AAA) *The Future of Audit, Certification, and Assurance Services* Committee (Holstrum-James, 1998:351). The common part of these studies was to involve opinions and suggestions about the extension of the scope of assurance services, the structure of information provided for information users, and the extension of the scope of services provided by auditors. Another association founded within the body of IFAC, International Auditing and Assurance Standards Board (IAASB) published the *Handbook of International Quality Control, Auditing, Review, Other Assurance, and Related Services Pronouncements* in 2010.

In the late 1990s, the developments gained momentum in Australia. Report of the Joint Assurance Services Task Force (JASTF) was published in 1998 by The Institute of Chartered Accountants in Australia (ICAA) and Australian Society of Certified Practicing Accountants (ASCPA) (Coram,1998). In the report, a growing tendency from traditional services of audit profession to assurance services.

The CICA Task Force on Assurance Services (TFAS) was constituted by Canadian Institute of Chartered Accountant (CICA) in August 1995 in order to develop plans, implement them and ensure the dominance of auditors in the field of assurance services with the aim of expanding the assurance services (CICA,1998). Assurance Contract Standards were published in the part 5025 of CICA Handbook in 1997 in Canada (Smieliauskas, Robertson,2004:42)

In United Kingdom, a report was published in 2006 by The Institute of Chartered Accountants but Continental European Countries didn't make similar efforts. However, regulations about assurance services of IFAC were added to the agenda after the European Union confirmed the related directive (Soltani,2007:131).

### **Developments in Turkey**

The first effort about assurance services was made in 2002 by Turkish Auditing Standards Board (TASB) within the body of (UCCPA<sup>1</sup>), by which audit standards published by IAASB was translated into Turkish and published. The board translated the Handbook of International Auditing, Assurance, and Ethics Pronouncements into Turkish and published under the title of International Auditing and Assurance Standards. However, these translated works don't have legal binding. Assurance services other than independent audit mentioned in part 33 of notification with Serial X, 22 published by Capital Markets Board of Turkey (CMB) on 12.06.2006 are the legal efforts made on assurance services. Moreover, some regulations about assurance services can be observed in "Notification about Main Principles on the Management of Information Systems in Banks", which was published by Banking Regulation and Supervision Agency (BRSA) on Official Gazette numbered 26643 in 2007. The most comprehensive regulation about assurance services in Turkey was made by Public Oversight Authority (POA), which has the sole authorization to make regulations in the fields of accounting and audit. The authority published four standards related to assurance services, and these standards are in effect.

## **ASSURANCE AUDIT**

Assurance audit can be defined as an audit operation providing an assurance by an expert as a result of confirmation of relation between parties depending a contract by an external expert or auditing of that relation directly by specific criteria. In Assurance Audit Standards (AAS) 3000, assurance audit is defined as the collecting the evidences and preparing assurance report by auditors or experts in terms of specific criteria in order to increase the assurance levels of users who benefit from the process.

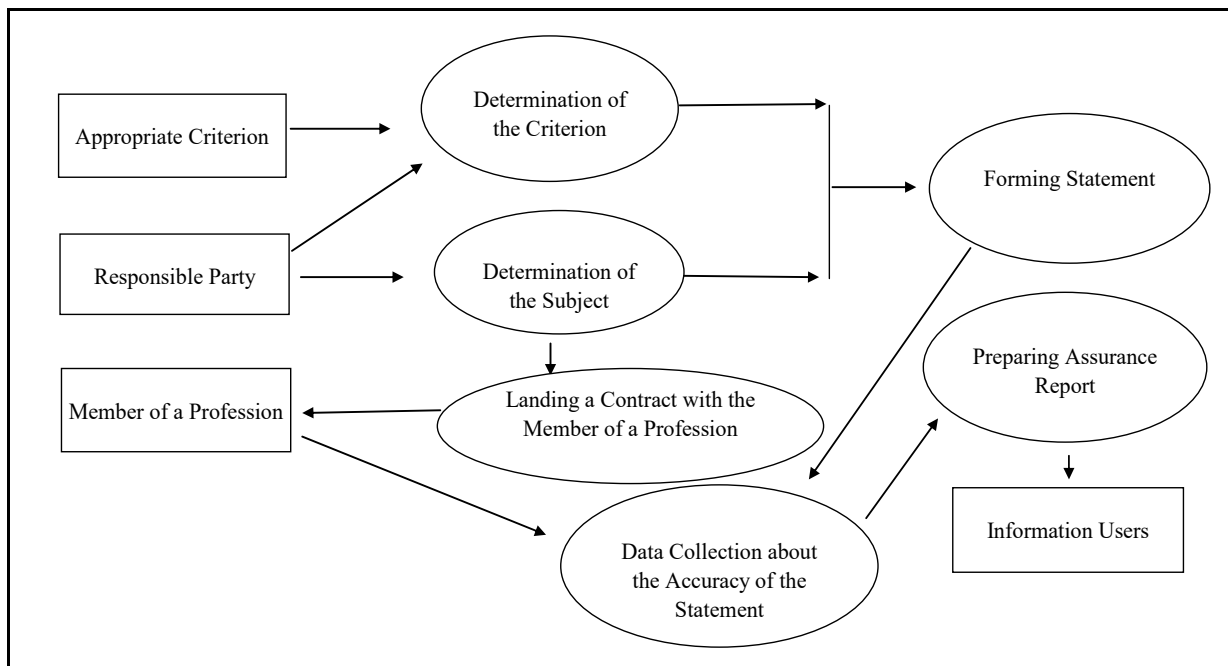
Assurance audit elements can be categorized under five headings as: triple party relation, subject, criterion, evidence, and assurance report.

Assurance audit elements can be categorized under five headings as: triple party relation, subject, criterion, evidence, and assurance report. Below is a diagram including these elements (Hayes et al.,2005:119).

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**Figure 1.** Data flowchart of assurance contract elements

- 1. Triple Party Relation:** There are three parties in assurance contracts: practitioners, which are auditors or experts; responsible party; and intended users, for whom the assurance is provided.
- 2. Subject:** The subjects are prospective financial information, internal control system, information technologies, statements of the management, policies, the state of compliance, data performance indicators, and all reports of management (LMBA, 2013:26).
- 3. Criteria:** They are the principles used by practitioners for assessing and measuring the assurance service subject during preparation of assurance report. A variety of standards can be used as criteria depending on the subject. (Soltani,2007:142).
- 4. Evidence:** They are the documents and information about the subject of assurance service obtained by practitioners to prepare the assurance report. While planning assurance contract, especially the scope and planning of evidence collection process, significance, contract risks, and the quantity and quality of the evidence are among the elements to be considered (IFAC Handbook Framework, Prg 39:15-16).
- 5. Assurance report:** Assurance report can be defined as the written statement of practitioner about the compliance of relevant service subject with the defined criteria after the completion of examination on assurance service subject.

### **Types of Assurance Audit**

Assurance audit can be divided into two categories depending on (a) the assurance level provided as a result of audit and (b) contract type and the outcome. Assurance audit is examined under two titles in terms of the assurance level.

1. Reasonable assurance audit: minimizing the assurance contract risk to an acceptable level within the scope of contract conditions.

2. Limited assurance audit: there is an increased risk that an auditor may not become aware of a significant error based on the techniques used by the auditor and evidences obtained. The risk in this audit is higher than the reasonable assurance audit. The reason behind this situation can be sourced from the quality of the procedures, timing, and more limited content (Altuntaş, 2011:31).

The differences between reasonable and limited assurance audit contracts are presented in Figure 2.

Assurance audits are classified into two categories in terms of contract type and outcome (Dinç and Atabay,2016:1531):

1. Direct audit: it is conducted by auditors.
2. Confirmation service: it is conducted by experts other than auditors

Contract Type	Evidence Collection	Report
Reasonable Assurance Contract	As a part of systematic contract process, sufficient and appropriate evidence is obtained. Systematic contract process involves: <ul style="list-style-type: none"> <li>- Apprehension of contract conditions</li> <li>- Assessment of risks</li> <li>- Responding to assessed risks</li> <li>- Using a combination of investigation, observation, confirmation, recalculation, reimplementation, analytical procedures, and inquiry, conduction additional operations. These operations include obtaining complementary information and substantive operations involving testing the efficiency of controls and assessing the evidences (prg 51-52)</li> </ul>	Contract conditions are defined and the opinion is expressed directly (prg 58)
Limited Assurance Contract	As a part of systematic contract process, sufficient and appropriate evidence is obtained. Systematic contract process involves apprehension of subject and contract conditions but the operations are more limited compared to reasonable assurance contracts (prg 53)	Contract conditions are defined and the opinion is expressed indirectly in inverted sentences (prg 59)

**Figure 1.** Differences Between Reasonable And Limited Assurance Contracts

Source: IFAC Handbook Framework,2017

### **Assurance Audit Standards**

Assurance Audit Standards (AAS) regulate the assurance audits other than the independent or limited independent audits of historical financial information. When an additional AAS relevant to the subject of audit is present, it is also used as complimentary to AAS.

Public Oversight Authority (POA), which has the sole authorization to make regulations in the fields of accounting and audit, published four standards related to assurance services. Among them, AAS

3000 defines the general rules about assurance audit. Other standards deal with the types of assurance audit. These are explained below:

**AAS 3400;** The Standard of Examination of Prospective Financial Information is a type of audit aiming at increasing the reliability of information in prospective financial statements. Prospective business budgets, estimated income, balance, cash flowcharts, estimations of feasibility operations, and operating reports can be dealt with within this standard.

**AAS 3420;** It is a type of audit aiming at increasing the reliability of pro-forma financial information expressed in an offering circular asked by Capital Markets Board of Turkey during public offering from the businesses that are going to be offered to public.

**AAS 3402;** The Standard of Assurance Reports related to Controls in Service Organization is a type of audit demanded by businesses which perform some services by an external source with the aim of increasing the reliability and quality of the services paid for. The subject of this audit is the efficiency, productivity, and appropriateness of internal control system of the business from which the service is bought.

## **CONCLUSIONS**

Assurance audit is an audit activity which increase the trust on a business through confirmation of financial and nonfinancial information quality and reliability by third parties. Assurance audits in Turkey are conducted by audits or experts according to AAS published by POA. Apart from independent audit, limited independent audit, and tax audit, assurance audit was placed in the regulations in 2014 for the first time in Turkey through assurance audit standards published by Public Oversight, Accounting and Auditing Standards Authority.

The background of studies and practices in international area about assurance audit is much more comprehensive than the ones in Turkey. The practitioners and businesses in Turkey don't have much information about this service. It is considered that dissemination of services in assurance audit and increasing the awareness about it will be beneficial since it is an important phenomenon in terms of the institutionalization of assurance audit, increase of quality and source efficiency, and gaining trust.

## **REFERENCES**

- Altıntaş, Nergis Nalan (2011). Bağımsız Denetim ve Vergi Denetimi Dışındaki Güvence Hizmetleri, Türkmen Kitabevi, İstanbul.
- Arens, Alvin A.- Randal J. Elder- Mark S. Beasley (2006). Auditing and Assurance Services: An Integrated Approach, 11.bs., Prentice Hall.
- Beasley, Mark S.- Glover Steven M. (2000). Auditing Cases, An Interactive Learning Approach, Prentice Hall.
- Bukics, R.M- Fleming, J.M., (1998).Accounting&Assurance Services”, Pennsylvania CPA Journal, <http://www.highbeam.com/doc/1P3-34865642.html>, (09.01.2017)
- CICA Task Force on Assurance Services, Final Report, January 1998.
- Dinç Engin- Atabay Esra (2016). “Güvence denetim Standartları ve Güvence Denetim Süreci”, Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Volume 21, Issue 5, pp.1527-1541

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- Elliott, R.K.- Jacobson, P.D. (1994-1995). AICPA Assurance Services Committee:What is the Future of Auditing, The Journal of Corporate Accounting and Finance.
- Güredin, Ersin (2014) Denetim ve güvence Hizmetleri:SMMM ve YMM'lere Yönelik İlkeler ve Teknikler,14. bs., Arıkan Basım Basım Yayım Dağıtım Ltd. Şti.,İstanbul.
- Handbook of International Quality Control, Auditing, Review, Other Assurance, and Related Services Pronouncements-Part II, International Framework for Assurance Engagements (IFAC Handbook Framework), Paragraph 7,31,39, IAASB, IFAC,www.ifac.org,(17.01.2017)
- Hasan Morsheda- Michael Luehlfing- Macil Wilkie (2005). “Major Sources of Challenges Facinf the CPA Profession and Suggested Recommendations”, Journal of Business and Economic Research Vol.1, Issue 3.
- Hayes,Rick- Roger Dassen- Arnold Schilder- Philip Wallage (2005). Principles of Auditing: An Introduction to International Standards on Auditing, 2. bd., U.K., Prentice-Hall
- Holstrum, G.L.- James, E.H. (1998). “New Forms of Assurance Services for New Forms of Information: The Global Challenge for Accounting Educators, The International Journal of Accounting.
- Kamu Gözetimi, Muhasebe ve Denetim Standartları Kurumu (KGK), Güvence Denetimleri Standardı 3000 (GDS 3000) Tarihi Finansal Bilgilerin Bağımsız Denetimi veya Sınırlı Bağımsız Denetimi Dışındaki Güvence Denetimleri Hakkında Tebliğ, Türkiye Denetim Standartları Tebliği No: 45, T.C.Resmi Gazete, 29524, (13.01.2017)
- Kamu Gözetimi, Muhasebe ve Denetim Standartları Kurumu, Finansal Tabloların Bağımsız Denetim Ve Sınırlı Bağımsız Denetimleri İle Diğer Güvence Denetimleri Ve İlgili Hizmetleri Yürüten Bağımsız Denetim Kuruluşları Ve Bağımsız Denetçiler İçin Kalite Kontrol (KKS 1) Hakkında Tebliğ Türkiye Denetim Standartları Tebliği No:1, T.C.Resmi Gazete, 28783, (14.01.2017)
- LMBA (2013). LMBA Responisble Gold Programme-Third Party Audit Guidance v.2, [http://www.lbma.org.uk/assets/LBMA\\_Third\\_Party\\_Audit\\_Guidance\\_v2FINAL.pdf](http://www.lbma.org.uk/assets/LBMA_Third_Party_Audit_Guidance_v2FINAL.pdf) , (15.01.2017)
- Louwers, Timothy-Allen D. Blay- Sinason David-Strawser Jerry R.-Thibodeau Jay C. (2015). Auditing and Assurance Services ,Mc Graw Hill.
- Madray, J.Russel (2006). Attestation and Other Special Engagements, USA, CCH Inc.
- Power , M. (1997). The Audit Society: Rituals of Verification, New York, Oxford University Press.
- Reed, Ronald O. (2001). “Assurance Services: The Expansion of the Cpas’ Traditional Services in Local CPA Firms “,The Journal of Applied Business Research, Volume 17, Issue 1.
- Ricchiute, David (2006). Auditing, 8.bs., Thomson South Western
- Selimoğlu Kardeş Seval- Çalışkan Özsozgün Arzu (2016). “Sürdürülebilirlik Bağlamında Uluslar arası Güvence Denetimi Standardı GDS (ISAE) 3410- Sera Gazı Beyanları II”, Muhasebe ve Denetime Bakış Dergisi, April, Issue 48,Ankara
- Smieliauskas ,Wlly J.- Robertson, Jack C. (2004). Auditing: An International Approach, 3.bs., Canada, McGraw-Hill.

Soltani, Bahram (2007). Auditing :An International Approach, U.K.. ,Prentice Hall.

# GENERAL STRUCTURE OF INDEPENDENT AUDIT FIRMS IN TURKEY

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**Abstract:** *The aim of this study is to examine the structure of 239 independent audit firms authorized by the Public Oversight, Accounting and Auditing Standards Authority (POA) in Turkey. The years of establishment of the independent audit firms, their centers, their capital, the number of shareholders, member of board of directors and engagement partners, the size of the engagement teams, whether they are internationally qualified and the share of independent audit revenue in total revenue have been investigated. The transparency reports of the independent audit firms for 2016, information about them in the POA, their web sites, trade registry gazettes and interviews with the firm officials over the phone have been analyzed and data has been collected. Many findings regarding the structure of independent audit firms have been gathered such as the fact that the oldest independent audit firms still active in our country were established in 1981, an increase in the number of independent audit firms has been observed since 2000 and the majority of them have national qualities and Nexia International is the international network that has the highest number of representatives in Turkey.*

**Keywords:** *Independent audit, independent audit firms, POA, Turkey.*

## INTRODUCTION

Economic activities have reached international levels as national borders have been destroyed by globalization and recent developments in information and communication technologies. Therefore, the competition both between countries and companies has gained momentum and the need for information users to obtain accurate and reliable financial information has increased. Independent audit by independent audit firms / auditors plays an important role in enabling information users to access accurate and reliable financial information.

The practice of independent audits carried out to determine the extent to which the entity's financial statements conform to generally accepted accounting principles (Kepekçi, 2004: 8) dates back to very old times. Independent audits in today's sense manifested themselves in the United States in the 1930s and then in other developed economies (Kardeş Selimoğlu et al, 2015: 25). For the first time in our country, Turkish firms that wanted to benefit from external credit resources in the 1970s were required to have independent audit. In the following years, with the acceleration of the foreign capital flowing into Turkey, independent audits started to be more common (Uzay et al, 2009: 131).

The first regulations concerning independent audits in our country were established for the banks in 1987 and then for the capital market. The practice started to be carried out in public companies in 1989. In the following periods, insurance companies and companies operating on the energy market were included in the scope of mandatory independent audit (Bozdemir, 2013: 68).

Radical changes have been introduced in the field of independent audit in our country, especially with the Turkish Commercial Code numbered 6102, which was put into effect on 1 July 2012. These changes can be listed as follows (Uzay and Bayat, 2016: pp. 1506–1510):

- Establishing unity in legislation by specifying a single rulemaker for independent audit
- Making independent audit applied voluntarily except for companies with special status compulsory for companies reaching the criteria determined by the decision of the council of ministers
- Termination of the audit system and implementation of audit practices only by authorized specialist professionals
- Imposing the obligation to comply with Turkish accounting standards in the preparation of financial statements
- Expansion of the scope of obligatory commercial books and the abolition of the requirement of physical filing
- In the companies whose shares are traded in the stock exchange, holding the board of directors responsible for early detection of the risk and the establishment and running of the management committee
- Making the establishment of a website and publishing necessary information here compulsory for companies subject to independent audit.

In accordance with the Turkish Commercial Code No. 6102, the Public Oversight Accounting and Auditing Standards Authority (POA) was established on 2 November 2011 with the Decree Law No. 660 to regulate the independent audit field and the POA was appointed to authorize independent auditors and independent audit firms.

The purpose of this study is to provide information on the general structure of independent audit firms, which play an important role in enlightening the public in our country and are authorized by the POA to conduct independent audits. As of 8 June 2017, there are 239 independent audit firms authorized by the POA. Of these firms, 52 are performing independent audits including public interest entities (PIEs), 68 are performing independent audits (excluding Insurance and Private Pension Areas) including PIEs and 119 are performing independent audits excluding PIEs.

Transparency reports of 120 independent audit firms conducting audits of PIEs for 2016 have been reviewed, and it has been revealed that 85 of them have the transparency reports for 2016 while 20 of them do not have any reports as they have not performed PIE audits. As for the other 15, these firms have not included transparency reports on their web pages or they do not have any web pages at all. The data about independent audit firms which conduct audits except PIE and whose transparency reports can't be reached have been tried to obtain via firms' own websites, the website of the POA, trade registry gazettes, and interviews with the firm's officials over the phone.

## **LITERATURE SEARCH**

While there are studies on the structure of independent audit firms, which have an important role in illuminating the public and increasing the transparency in our country, there is no comprehensive study on the structure of independent audit firms authorized by the POA. For this reason, it is thought that this study will contribute to the literature.

Studies have been made on the appearance and structure of the independent audit firms authorized by the Capital Markets Board (CMB) in our country in the past few decades. In recent years, the transparency reports of independent audit firms authorized by the POA and conducting PIE audits have been examined and the characteristics of these audit firms have been revealed. These studies can be summarized as follows:

Ergun (1999) tried to determine the structures of 67 independent audit firms in Turkey that continue independent audit activities within the scope of CMB. Survey data were obtained from 33 independent audit firms and the structural characteristics such as their organizational structures, employee numbers and titles, the quality of the institutions they serve, and whether they have national/ international qualifications are examined.

In their studies evaluating the independent audit system in Turkey from the point of view of the independent audit firms authorized by the CMB, Dönmez and Ersoy (2006) provided information on the capital structures of the 78 independent audit firms authorized by the CMB, other services they provide besides audit and whether they have audited foreign enterprises.

Gönen and Uzay (2008) examined structural characteristics of the 94 independent audit firms operating independent audit activities registered with CMB, such as the years of establishment, the number of shareholders, size of the engagement teams and distribution, other services provided by them, their sectoral expertise, whether they have national or international qualifications and their representative offices and size. Thus, they have enabled the independent audit firms operating in Turkey to be recognized closely.

Acar et al. (2011) addressed the structural characteristics such as the centers, capital structures, years of establishment, number of shareholders, number of personnel, as well as the findings related to the quality perceptions of 46 independent audit firms in this study which aims to make an assessment about the quality of independent audit in Turkey.

Karagüllü (2012) conducted an analysis of the size of independent audit firms in his research entitled "Audit League" published in Forbes magazine. The sizes of the independent audit firms in Turkey are calculated on the basis of the total assets of the companies they audited in the Istanbul Stock Exchange (ISE) and the world order of the independent audit firms is taken from the Accountancyage 2012 report. In terms of size, it was concluded that the top 10 audit firms in Turkey are similar to world order.

Kandemir (2015) examined regulations related to independent audit in Turkey and tried to reveal the structure of the audit market in our country. Besides the legal dimension of independent audit in the study, information about the general structure of independent audit firms is also included.

Gürol and Tüysüzoğlu (2016) examined the 2014 transparency reports of 75 independent audit firms authorized by POA and conducting PIE audits. The degree of clarity and sufficiency of the information regarding the legal structure and partnership of independent audit firms, key management personnel and engagement partners, the legal structure of the audit network, organizational structure, quality assurance systems, continuous education policies, revenues and pricing principles of engagement partners has been assessed and the proposals have been made so that they can be made to serve in the best way for the purpose of the transparency reports.

Erdogan and Solak (2016) tried to establish the independent audit structure in Turkey by examining the transparency reports and web pages of 72 independent audit firms authorized by POA in 2013. In this context, international cooperations, capital structures, years and centers of activity, the number of the PIEs audits, revenues and engagement teams of the audit firms were investigated.

## **METHODOLOGY**

In this study, which examines the general structure of the independent audit firms authorized by the POA in our country, no research hypothesis was included and a descriptive research was conducted to determine the current situation.



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The scope of the study is 239 independent audit firms authorized by POA as of 8 June 2017. Within the scope of this study, the years of establishment and centers of the independent audit firms, their capital, the number of shareholders, member of board of directors and engagement partners, the size of the engagement teams, whether they are internationally qualified and the share of independent audit revenue in total revenue have been investigated.

According to the independent audit regulation, independent audit firms that perform PIE audits in one calendar year have to report the annual transparency reports to the POA and publish them on their website until the end of the fourth month following the relevant calendar year and the audit firms using the special accounting period until the end of the fourth month following the closing of the accounting period (Independent Audit Regulation, Art. 36/1). Transparency reports of 120 independent audit firms conducting audits of PIEs for 2016 have been reviewed, and it has been revealed that 85 of them have the transparency reports for 2016 while 20 of them do not have any reports as they have not performed PIE audits. As for the other 15, these organizations have not included transparency reports on their web pages or they do not have any web pages at all. The data of independent audit firms which conduct audits except PIE and whose transparency reports cannot be reached have been tried to obtain via firms' own websites, the website of the POA, trade registry gazettes, and interviews with the firm's officials over the phone.

## FINDINGS

In this study, the years of establishment, centers, capital amounts, number of shareholders, member of board of directors and engagement partners and the size of the engagement teams of independent audit firms authorized by POA as of June 8, 2017 were investigated. Table 1 gives the data for this information.

**Table 1.** The Years of Establishment, Centers, Capital Amounts, Number of Shareholders, Member of Board of Directors and Engagement Partners and the Size of the Engagement Teams

<b>The Years of Establishment</b>	<b>N</b>	<b>%</b>	<b>Number of Shareholders</b>	<b>N</b>	<b>%</b>
1981-1989	14	5,91	1-5	80	33,47
1990-1999	32	13,50	6-10	115	48,12
2000-2009	70	29,54	11-15	26	10,88
2010-2017	121	51,05	16-20	13	5,44
<b>Total</b>	<b>237</b>	<b>100</b>	21-25	2	0,84
<b>Centers</b>	<b>N</b>	<b>%</b>	26-28	<b>3</b>	1,26
İstanbul	134	56,07	<b>Total</b>	<b>239</b>	<b>100</b>
Ankara	45	18,83	<b>Member of Board of Directors</b>	<b>N</b>	<b>%</b>
İzmir	15	6,28	1	50	20,92
Bursa	11	4,60	2	44	18,41
Antalya	8	3,35	3	101	42,26
Gaziantep	8	3,35	More than 3	44	18,41
Kayseri	3	1,26	<b>Total</b>	<b>239</b>	<b>100</b>
Samsun	3	1,26	<b>Engagement Partners</b>	<b>N</b>	<b>%</b>
Adana	1	0,42	2	58	24,27
Çanakkale	1	0,42	3	46	19,25
Denizli	1	0,42	4	40	16,74
Elazığ	1	0,42	5	32	13,39

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Eskişehir	1	0,42	6	18	7,53
Kocaeli	1	0,42	7	15	6,28
Malatya	1	0,42	8	9	3,77
Manisa	1	0,42	9	7	2,93
Sakarya	1	0,42	More than 10	14	5,86
Sivas	1	0,42	<b>Total</b>	<b>239</b>	<b>100</b>
Şanlıurfa	1	0,42	<b>Engagement Teams</b>	<b>N</b>	<b>%</b>
Zonguldak	1	0,42	5	34	14,23
<b>Total</b>	<b>239</b>	<b>100</b>	6-15	169	70,71
<b>Capital Amounts</b>	<b>N</b>	<b>%</b>	16-25	22	9,21
Up to 50.000 TL	121	52,16	26-35	8	3,35
50.001-100.000 TL	59	25,43	36-45	2	0,84
101.000-500.000 TL	49	21,12	46-55	1	0,42
More than 500.000 TL	3	1,29	56-67	3	1,26
<b>Total</b>	<b>232</b>	<b>100</b>	<b>Total</b>	<b>239</b>	<b>100</b>

The oldest independent audit firms still active established in our country are “BDO Denet Bağımsız Denetim ve Danışmanlık A.Ş.” and “PWC Bağımsız Denetim ve Serbest Muhasebeci Mali Müşavirlik A.Ş.” established in 1981. The most recent independent audit firm is “Vizyon Grup Bağımsız Denetim A.Ş.” in 2017. Information about the founding years of the two companies (“Gökmen Yeminli Mali Müşavirlik ve Bağımsız Denetim A.Ş.” and “Perge Bağımsız Denetim ve Yeminli Mali Müşavirlik A.Ş.”) could not be found. As can be seen from Table 1, the number of independent audit firms increased in the 2000s. This increase was particularly observed in the years after the Turkish Commercial Code No. 6102 entered into force (especially in 2014 and 2015).

Regarding the distribution of the independent audit firms by their centers, more than half (56.07%) of the independent audit firms are based in Istanbul. This is followed by Ankara, Izmir and Bursa respectively. There is only one center in 12 cities. Although the centers of the independent audit firms are located in 20 cities, these firms have offices in different provinces.

The capital stock of the 232 independent audit firms examined has been found out. Accordingly, it is seen that approximately half (52.16%) of the independent audit firms have a maximum capital of 50.000 TL. The company established with the highest capital is “İHY Bağımsız Denetim ve Yeminli Mali Müşavirlik A.Ş.” with 1.000.000 TL, followed by “İrfan Bağımsız Denetim ve Yeminli Mali Müşavirlik A.Ş.” with a capital of 820.000 TL and “Avrasya Bağımsız Denetim ve Yeminli Mali Müşavirlik Anonim Şirketi” with a capital of 650.000 TL.

When the number of shareholders of the independent audit firms is examined, it is seen that the majority (81.59%) have 1-10 shareholders, of which 48.12% are between 6 and 10 shareholders. While “AG Yeminli Mali Müşavirlik ve Bağımsız Denetim A.Ş.” and “Gökmen Yeminli Mali Müşavirlik ve Bağımsız Denetim A.Ş.” are one-shareholder firms, “Meridyen Kurumsal Çözüm ve Bağımsız Denetim A.Ş.” with 28 shareholders is the independent audit firm that has the highest number of shareholders.

It is seen that the board of directors of independent audit firms has 3 persons with 42.26%. This is followed by single board of directors with 20.92%. “PWC Bağımsız Denetim ve Serbest Muhasebeci Mali Müşavirlik A.Ş.” is the independent audit firm with the largest number of the members of board of directors (16 persons).

The engagement partner is the auditor who is held responsible for the execution of a certain independent audit activity by the independent audit firm and authorized to sign the report on behalf of the independent audit firm. According to the Independent Audit Regulation, one of the issues necessary for the authorization of independent audit firms is that at least 2 engagement partners must be present in independent audit firms (Independent Audit Regulation, Article 13 /ğ). When the number of engagement partners of independent audit firms is examined, it is seen that the highest number of engagement partners composed of 2 persons (24.27%).

It is stated in Article 27 of the Independent Audit Regulation that audits to be carried out by independent auditors should be carried out by the engagement teams consisting of the auditors in the number and quality required by the firm, but this number can not be less than 3. When the engagement teams in independent audit firms are examined, it has been found that the engagement teams have at least 5 people and the majority of engagement teams (70.71%) are between 6 and 15 people. The independent audit firm which has the most crowded engagement team is “DRT Bağımsız Denetim ve Serbest Muhasebeci Mali Müşavirlik A.Ş.” with 67 persons. Assistant auditors are not included in the audit staff.

Independent audit firms can be national or a member of an international network. Table 2 shows the distribution of independent audit firms according to their national/ international characteristics. Of the 239 independent audit firms, the web pages of the 15 could not be found, so 224 independent audit firms were evaluated. Accordingly, it has been determined that the majority (62.05%) of independent audit firms are national and 37.95% are members of an international network. Nexia International is the international network that has the highest number of representative offices in our country. Six independent auditors are members of Nexia International; “Arılar Bağımsız Denetim ve Yeminli Mali Müşavirlik A.Ş.”, “As Bağımsız Denetim ve Yeminli Mali Müşavirlik A.Ş.”, “Dtdenetimturkey Bağımsız Denetim ve Yeminli Mali Müşavirlik A.Ş.”, “Ege Ekip Bağımsız Denetim ve Yeminli Mali Müşavirlik A.Ş.”, “Oluşum Bağımsız Denetim ve Danışmanlık A.Ş.” and “Yöntem Yeminli Mali Müşavirlik ve Bağımsız Denetim A.Ş.”. AGN International, Crowe Howarth International, HLB International and IAPA International have 4 representative offices in our country.

**Table 2. National / International Characteristics**

<b>National / International Characteristics</b>	<b>N</b>	<b>%</b>
National	139	62,05
International	85	37,95
<b>Total</b>	<b>224</b>	<b>100</b>

Finally, the share of revenues from independent audit of independent audit firms in total revenue has been investigated. Since 85 transparency reports of 120 independent audit firms that make PIE audits in 2016 could be examined, 85 companies were investigated. Accordingly, the share of revenue from independent audit in total revenue varies between 3% and 100%. Among the total revenues, “Yöntem Yeminli Mali Müşavirlik ve Bağımsız Denetim A. Ş.” is the independent audit firm with the least amount of revenue from independent audit with % 3. The companies whose total revenues consist of independent audit revenue are “Ban-Den Bağımsız Denetim Hizmetleri A.Ş.”, “MMB Bağımsız Denetim ve Danışmanlık A.Ş.” and “Universal Bağımsız Denetim A.Ş.”

## CONCLUSIONS

The process that began with companies demanding independent audit in order to benefit from international credits in the 1970s in our country continued with the legally mandatory audits. Independent audit first required for banks and then publicly listed companies in capital markets found application in insurance companies and energy market companies over time. During that period, the

authorized body was the CMB and the related organizations made arrangements for their own areas, and as a result, a scattered structure was formed. With the enactment of the Turkish Commercial Code No. 6102 and the Decree No. 660 dated 2 November 2011, the establishment of the POA was centralized and the disorganized structure started to be removed.

In this study, we tried to examine the structural characteristics (the years of establishment and centers of the independent audit firms, their capital, the number of shareholders, member of board of directors and engagement partners, the size of the engagement teams, whether they are internationally qualified and the share of independent audit revenue in total revenue) of 239 independent audit firms authorized by POA in our country. The transparency reports of the independent audit bodies were collected by reviewing the websites of the firms themselves, the website of the POA, the trade registry gazettes, and by interviewing the firm officials over the telephone.

In the early 2000s due to the accounting scandals that began in the United States and spread to the rest of the world new laws were enacted to deal with corruption. In our country, there has been an increase in the number of independent audit firms since the year 2000 and the number of independent audit firms has increased even more in the following years (especially in 2014 and 2015) since the Turkish Commercial Code numbered 6102, which brought radical changes in the field of independent audit.

It has been determined that the majority of the independent audit firms are Istanbul-based, almost half of the capital is 50.000 TL, the number of shareholders varies between 1 and 10, the number of the member of board of directors is 3 in nearly half of these firms, the engagement partners composed of two persons has the highest rate and engagement teams change between 5 and 67. It is also found that the majority of independent audit firms are national and Nexia International is the network that has the highest number of representative offices in our country, and the share of revenue from independent audit varies between 3% and 100% of the total revenue.

## REFERENCES

- Acar, Durmuş - Senal, Serpil - Usul, Hayrettin (2011), “Bağımsız Denetim Kalitesi: Denetim Firmaları Üzerine Bir Araştırma”, Sosyal ve Ekonomik Araştırmalar Dergisi, Issue 22, pp. 273-306.
- Bozdemir, Enver (2013), “Sermaye Şirketlerinde Bağımsız Denetimin Zorunluluğuna İlişkin Yasal Düzenlemeler ve Güncel Gelişmeler”, Mali Çözüm Dergisi, Issue 118, July – August, pp. 67-86.
- Dönmez, Adnan - Ersoy, Ayten (2006), “Bağımsız Denetim Firmaları Bakış Açısıyla Türkiye Bağımsız Dış Denetim Sisteminin Değerlendirilmesi”, Bilig/Türk Dünyası Sosyal Bilimler Dergisi, Issue 36, Winter, pp. 69-91.
- Erdoğan, Sedat - Solak, Bilal (2016), “Türkiye’de Şeffaflık Raporları ve Bağımsız Denetim Sektörüne Yönelik Ampirik Bir Çalışma”, Çankırı Karatekin Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Volume 6, Issue 2, pp. 175-195.
- Ergun, Ülkü (1999), “Bağımsız Denetimde Kalitenin Önemi ve Sermaye Piyasası Kanunu Kapsamında Faaliyet Gösteren Bağımsız Denetim Kuruluşlarının Görünümü”, Muhasebe Bilim Dünyası Dergisi, Volume 1, Issue 1, April, pp. 157- 175.
- Gönen, Seçkin - Uzay, Şaban (2008), Türkiye’de Bağımsız Denetim Kuruluşlarının Görünümü, [http://iibf.erciyes.edu.tr/akademi/mh/suzay/Denetim\\_Kuruluslari.pdf](http://iibf.erciyes.edu.tr/akademi/mh/suzay/Denetim_Kuruluslari.pdf), (04.01.2017).

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---

Gürol, Burcu - Tüysüzöğlü, Tayfun (2016), “Türkiye’de Kamu Yararını İlgilendiren Kuruluşlar Nezdinde Bağımsız Denetim Yapan Denetim Kuruluşlarının Şeffaflık Raporları Üzerinde Bir İnceleme”, Muhasebe ve Denetime Bakış Dergisi, Issue 47, pp. 131-148.

Kamu Gözetimi, Muhasebe ve Denetim Standartları Kurumu, (26.12.2012), Bağımsız Denetim Yönetmeliği, 28509 sayılı Resmi Gazete, <http://www.kgk.gov.tr/Portalv2Uploads/files/Duyurular/v1/BDY/BDYGuncel22Aralik2015.pdf>, (16.02.2017).

Kandemir, H. Kubra (2015), “External Auditing in Turkey: A Critical and Comparative Analysis of the New Law”, European Business Organization Law Review, Volume 16, Issue 4, December, pp. 711-734.

Karagüllü, Eyyüp (2012), “Denetim Ligi 2012”, Forbes Aylık Ekonomi Dergisi, December 2012.

Kardeş, Selimoğlu, Seval – Özbirecikli, Mehmet - Uzay, Şaban- Uyar Süleyman (2015), Bağımsız Denetim, MU-DEN A. Ş., Ankara.

Kepekçi, Celal (2004), Bağımsız Denetim, 5. Edition, Avcıol Basım Yayın, İstanbul.

Uzay, Şaban - Bayat, Saliha Büşra (2016), “6102 Sayılı Türk Ticaret Kanunu’nun Bağımsız Denetim Alanında Getirdiği Yenilikler ve Tartışmalı Konular”, Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi (Muhasebe Denetimi Özel Sayısı), Issue 21, pp. 1503-1513.

Uzay, Şaban - Tanç, Ahmet - Erciyes, Mehmet (2008), “Türkiye’de Muhasebe Denetimi: Geçmişten Geleceğe”, Mali Çözüm Dergisi, Issue 95, pp. 125-140.

<http://www.kgk.gov.tr/>

<http://www.ticaretbicil.gov.tr/>

# THE EVALUATION OF THE SUCCESS IN ACCOUNTING I CLASSES WITHIN THE CONTEXT OF MULTIPLE INTELLIGENCE THEORY

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**Abstract:** *The aim of this study is to identify the multiple intelligence areas of the students having Accounting I classes and studying in the Faculty of Economics and Administrative Sciences at Uludag University, and to determine whether there is a significant relationship between the students' multiple intelligence areas and their academic success in Accounting I classes. Multiple Intelligence(MI) Inventory by Armstrong, which was translated into Turkish by Ahmet Saban, was used in the study in order to determine students' specific strengths. MI Inventory consists of eight different intelligences which are verbal/linguistic, logical/mathematical, visual/spatial, musical/rhythmic, bodily/kinesthetic, interpersonal, intrapersonal and naturalistic, and it is a five-point Likert Scale with 80-items. This scale was used to assess 768 students having Accounting I classes and studying in the Faculty of Economics and Administrative Sciences at Uludag University, and 742 surveys were included in the study. Final grades of the students were taken into account for the academic success in this lesson to be evaluated. The reliability of the scale was measured by Cronbach's alpha coefficient and it was found to be 0.873. Correlation Analysis was performed to determine whether there was a significant relationship between the students' multiple intelligence areas and their academic success in Accounting I. The study revealed that there was not a statistically significant relationship between the success in Accounting I classes and verbal/linguistic, musical/rhythmic, bodily/kinesthetic and interpersonal intelligence, and that there was a positive and statistically significant but not a very strong relationship between the success in Accounting I classes and logical/mathematical, visual/spatial, intrapersonal and naturalistic intelligence.*

**Keywords:** *Multiple intelligence theory, areas of intelligence, accounting*

## INTRODUCTION

Intelligence is an abstract term and; therefore, many scientists and philosophers have disagreed on what it really is and how it should be defined. Conventional theories have often considered mathematical and verbal skills as a measure to determine intelligence. However, human brain has many components of intelligence and traditional notion of intelligence, based on mathematical and verbal skills, is far too limited to account for a broader range of human potential. From this point of view, Gardner expanded the concept of intelligence and proposed his theory of Multiple Intelligences, which includes such areas as visual/spatial, verbal/linguistic, logical/mathematical, musical/rhythmic, bodily/kinesthetic, interpersonal, intrapersonal and naturalistic.

The aim of this study is to identify the university students' multiple intelligence areas and to determine whether there is a significant relationship between the intelligence areas and the academic success in Accounting I classes. To this end, Multiple Intelligence Inventory, which was developed by Armstrong and translated into Turkish by Ahmet Saban, was administered to the students taking Accounting I classes and studying in the Faculty of Economics and Administrative Sciences at Uludag

University between 2016 and 2017. The relationship between this inventory that enables intelligence areas to be assessed and academic success was tested. Final grades of the students were taken into consideration to evaluate the success rate in Accounting I classes.

It was revealed in the study that that there was not a statistically significant relationship between the success in Accounting I classes and verbal/linguistic, musical/rhythmic, bodily/kinesthetic and interpersonal intelligence, and that there was a positive and statistically significant but not a very strong relationship between the success in Accounting I classes and logical/mathematical, visual/spatial, intrapersonal and naturalistic intelligence.

## LITERATURE SEARCH

Although there are a number of definitions to define intelligence, Howard Gardner defines intelligence as “the capacity to solve problems or to fashion products that are valued in one or more cultural settings” (Armstrong, 2009:6). Gardner conducted a research called “Project Zero”, in which he studied cognitive capacities in normal and gifted children. During these studies, he noticed something that could not be explained by psychometric point of view. He said that he was deeply impressed by a physical case related to human nature during his daily studies with children and adults with brain damage, and that humans were capable of a wide range of abilities and it was not that easy to anticipate or compare an individual’s success in a field by judging his success in another field. Having studied these findings, Gardner put forward his theory of multiple intelligences. He described it in detail in his book called “Frames of mind” in 1983(Epçapan, 2013: 1339). He identifies the MI theory with seven intelligences in this book, and then based on his research studies he added another intelligence in his book “Intelligence Reframed” published in 1999. However, though Gardner has identified eight different intelligence areas, he argues that those categories are not enough to describe the multiple abilities of humans and there might be different areas of intelligence(Saban. 2005:6).

**Table 1.** The areas of intelligence in the MI theory

AREAS OF INTELLIGENCE	DEFINITION
Verbal/Linguistic	The ability to use the words effectively both in speech and writing.
Logical/Mathematical	The ability to calculate, quantify, consider propositions and hypotheses for mathematical problems, to perceive and differentiate relationships and connections
Visual/Spatial	The ability to think and imagine in three dimensions
Musical/Rhythmic	The capacity to discern and reproduce tone, rhythm and timbre and the ability to use music to convey emotions
Bodily/Kinesthetic	The ability to use body to convey thoughts and feelings and to solve a problem
Interpersonal	The ability to interact effectively with others and to note distinctions, sensitivity to the moods and temperaments of others, and the ability to understand their motives

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Intrapersonal	The capacity to understand oneself and one's thoughts and feelings, and to use such knowledge in planning and directioning one's life
Naturalistic	The capacity to be interested in natural resources and a healthy environment as well as sensitivity to flora and fauna

Source: Demirel, 2015.

Eight different intelligence areas according to Gardner's MI theory and their descriptions are in table 1. Existential intelligence is considered to be the ninth area of intelligence; however, as empirical evidence is scarce, Gardner is not disposed to add it to the list (Gardner, 2005:9).

There is an extensive collection of research papers on the theory of multiple intelligences. Some of these studies can be summarized as follows:

Besides the studies attempting to create the profile of the individuals according to the theory of multiple intelligences (Oral, 2001; Hamurcu et al., 2002; Loori, 2005; Ekici, 2007; Yenice ve Aktamış, 2010; Tuncer, 2011; Yüce, 2011), there have been some papers studying the relationship between multiple intelligence and academic success (McMahon and Rose, 2004; Razmjoo, 2008; Kurt vd., 2011; Bulut vd., 2012; Ahvan ve Pour, 2016; Kandeel, 2016).

There are also several studies based on opinions on the theory of multiple intelligence (Barrington, 2004; Gürçay and Eryılmaz, 2008; Ozan et al., 2013).

Studies in different areas (Dillihunt and Tyler, 2006; Yıldırım et al., 2006; Karagöz Işık, 2007; Mokhtar vd., 2008; Öngören ve Şahin, 2008; Xie ve Lin, 2009; Can vd., 2011; Erkaçan vd., 2011; Delgoshaei ve Delavari, 2012; Baş, 2016; Madkour ve Mohamed, 2016) suggest that education based on the theory of multiple intelligence is more effective than the traditional one.

In the context of the theory of intelligence, other studies that draw attention in literature are those comparing the multiple intelligence profiles of the individuals with different variables. Berkant and Ekici (2007) carried out a study to evaluate the relationship between primary school teacher candidates' teacher self efficacy belief levels in science teaching and their intelligence types. Müftüler (2008) studied the relationship between the multiple intelligence areas of the university students and their free time preferences. Dilci and Babacan (2011) conducted a study on the relationship between cognitive reading strategies of classroom teacher candidates and their multiple intelligence areas. Çinkılıç and Sayer (2013) studied the relationship between problem solving skills of physical education teacher candidates and their multiple intelligence areas. Moheb and Baghari (2013) studied the relationship between the writing skills of the students studying English as a foreign language and their multiple intelligence areas. Yaz (2013) studied the relationship between Holland's personality types and the multiple intelligence areas of the students of Physical Education and Sports Academy. Kahraman and Bulut Bedük (2016) studied the relationship between the level of perfectionism of skilled learners and their multiple intelligence areas. Sajjadi et al. (2016) studied the relationship between game preferences and multiple intelligence areas.

In recent years there have been a lot of studies on the theory of multiple intelligence, and these studies are often focused on science and are mostly carried out with primary school students (Saban, 2009: 864-865). It is thought that this study will contribute to the literature as there are few studies on the students studying higher education and there is no study on accounting education.



## METHODOLOGY

Armstrong's Multiple Intelligence Inventory was used in order to determine the dominant areas of multiple intelligences of the students. He argues that MI inventory is not an IQ test and should not be used for that purpose. He developed a five-point Likert Scale, which consists of 8 intelligence areas with 10 questions for each (80 questions in total). This inventory was translated into Turkish by Ahmet Saban and he checked its validity and reliability.

The students studying in the Faculty of Economics and Administrative Sciences at Uludag University between 2016 and 2017 and taking Accounting I classes are on the focus of this study. The survey method was used as a means of collecting data. The survey consists of two parts. Personal information of the participants is in the first part, and the MI Inventory is in the second part. 768 out of 2439 registered Accounting I students were included in the study. 742 surveys were evaluated while 26 questionnaires were excluded from the study. The answers to the research questions listed below will be sought:

1. Is there a significant relationship between *the verbal/linguistic intelligence* of the students and their success in Accounting I classes?
2. Is there a significant relationship between between *the verbal/linguistic intelligence* of the students and their success in Accounting I classes?
3. Is there a significant relationship between between *the logical/mathematical intelligence* of the students and their success in Accounting I classes?
4. Is there a significant relationship between between *the visual/spatial intelligence* of the students and their success in Accounting I classes?
5. Is there a significant relationship between between *the musical/rhythmic intelligence* of the students and their success in Accounting I classes?
6. Is there a significant relationship between between *the bodily/kinesthetic intelligence* of the students and their success in Accounting I classes?
7. Is there a significant relationship between between *the interpersonal intelligence* of the students and their success in Accounting I classes?
8. Is there a significant relationship between between *the naturalistic intelligence* of the students and their success in Accounting I classes?

SPSS Statistics 23 was used for the analysis of the data. A frequency analysis related to the students' gender, department and type of education was carried out and their intelligence areas were identified. Correlation analysis was performed to determine if there was a relationship between areas of intelligence and the academic success in Accounting I classes.

Cronbach's Alpha was used to test the reliability of the scale and the value was 0.873.

## FINDINGS

The first thing to have been done in this study was creating the profiles of the students. According to this, there are 368 female(52%) and 356 male(48%) students having participated the study. The majority of the study participants(40.8%) are the students in the department of Public Finance. They are followed by those in Business(31.5%) and Economy(20.4%). The students in Econometrics have

the lowest percentage(7.3%). As Accounting classes are only given for one term in the departments of International Relations, Labour Economics and Industrial Relations and Political Science and Public Administration, the students in those departments have not been included in the questionnaires. As for the type of education, there is almost no difference in distribution.

**Table 2.** The areas of intelligence of the students having participated the study

AREAS OF INTELLIGENCE	N	$\bar{X}$	STANDARD DEVIATION	POINT
Verbal/Linguistic	705	34,19	4,80902	Moderately Developed
Logical/Mathematical	702	36,33	5,39557	Developed
Visual/Spatial	686	36,34	5,20904	Developed
Musical/Rhythmic	686	34,85	5,92774	Moderately Developed
Bodily/Kinesthetic	686	36,27	4,93634	Developed
Interpersonal	701	35,01	4,82774	Developed
Intrapersonal	698	35,97	4,84412	Developed
Naturalistic	697	35,36	5,25152	Developed

The level of development in the areas of intelligence of the students having participated in the study, the average of their intelligence areas and standart deviation can be seen in table 2. Their multiple intelligence scores vary from 10 to 50 and if the calculated average is between 10-18, it is considered “undeveloped”, 19-26 “underdeveloped”, 27-34 “moderately developed”, 35-42 “developed” and 43-50 “highly developed”. The students’ verbal/linguistic and musical/rhythmic intelligences have improved moderately, while their logical/mathematical, visual/spatial, bodily/kinesthetic, interpersonal, intrapersonal and naturalistic intelligence areas have highly developed. Their highest intelligence area is visual intelligence with an average level of 36.34, and the lowest one is verbal intelligence with 34.19.

Correlation Analysis was used to assess the relationship between the areas of intelligence and the academic success in Accounting I classes, the results of which are in table 3.

**Table 3.** The relationship between intelligence areas and the academic success in Accounting I classes

AREAS OF INTELLIGENCE	ACADEMIC ACHIEVEMENT	
	Pearson Correlation	Sig.
Verbal/Linguistic	-,005	,903
Logical/Mathematical	,077	<b>,041</b>
Visual/Spatial	,077	<b>,042</b>
Musical/Rhythmic	-,030	,434
Bodily/Kinesthetic	,039	,305
Interpersonal	-,053	,164

Intrapersonal	,085	<u>.025</u>
Naturalistic	,094	<u>.013</u>

As it can be clearly seen, the sig. value of verbal/linguistic, musical/rhythmic, bodily/kinesthetic and interpersonal intelligences is over 0.05. In other words, there is not a statistically significant relationship between these intelligence areas and the success in Accounting I. As the sig. value of logical/mathematical, visual/spatial, intrapersonal and naturalistic intelligences is less than 0.05, it can be concluded that there is a positive and statistically significant relationship between these intelligence areas and the success in Accounting I classes. However, since the Pearson's correlation coefficients vary between 0.077 and 0.094, this relationship must be weak.

## CONCLUSIONS

Although there are different ideas on how intelligence should be defined, there is not a universally accepted definition. Unlike the traditional view which usually fails to define intelligence in a broader way, Gardner argues that intelligence is multidimensional and each individual has a different intelligence profile.

In this study the multiple intelligence areas of the students having Accounting I classes and studying in the Faculty of Economics and Administrative Sciences at Uludag University have been identified and it has been tried to determine whether there is a significant relationship between the students' multiple intelligence areas and their academic success in Accounting I classes. The fact that the study was carried out on the students having Accounting I classes in the Faculty of Economics and Administrative Sciences at Uludag University between 2016 and 2017 is the shortcoming of the study. According to the results, the students' verbal/linguistic and musical/ rhythmic intelligences have improved moderately, while other intelligence areas have highly developed. Besides, while there is not a relationship between the academic success in Accounting I and four intelligence areas (verbal/linguistic, musical/rhythmic, bodily/kinesthetic and interpersonal intelligences), there is, however weak it is, a positive and statistically significant relationship between this success and the other four intelligence areas (logical/mathematical, visual/spatial, intrapersonal and naturalistic intelligences).

As a result, the relationship between the success in Accounting I classes and verbal/linguistic, musical/rhythmic, bodily/kinesthetic and interpersonal intelligences is similar to the studies of McMahan and Rose (2004), Kurt et al. (2011) and Razmjoo (2008). In addition, its relationship with logical/mathematical intelligence is similar to the studies of McMahan and Rose (2004) and Ahvan and Pour (2016), and intrapersonal intelligence area to Ahvan and Pour (2016).

## REFERENCES

- Ahvan, Yaghoob Raissi- Pour, Hossein Zainali (2016), "The correlation of multiple intelligences for the achievements of secondary students", Educational Research and Reviews, Volume 11, Issue 4, December, pp. 141-145.
- Armstrong, Thomas (2009), Multiple Intelligences in The Classroom, 3. Edition, ASCD Publications, United States of America.
- Barrington, Ernie (2004), "Teaching to Student Diversity in Higher Education: How Multiple Intelligence Theory Can Help", Teaching in Higher Education, Volume 9, Issue 4, October, pp. 421- 434.

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- Baş, Gökhan (2016), “The Effect of Multiple Intelligences Theory-Based Education on Academic Achievement: A Meta-Analytic Review”, Kuram ve Uygulamada Eğitim Bilimleri, Volume 16, Issue 6, pp. 1833-1864.
- Berkant, Hasan Güner- Ekici, Gülay (2007), “Sınıf Öğretmeni Adaylarının Fen Öğretiminde Öğretmen Öz-Yeterlik İnanç Düzeyleri İle Zeka Türleri Arasındaki İlişkinin Değerlendirilmesi”, Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, Volume 16, Issue 1, pp. 113-132.
- Bulut, İlhami- Öner Sünkür, Meral- Oral, Behçet- İlhan, Mustafa (2012), “8. Sınıf Öğrencilerinin Geometrik Düşünme Düzeyleri İle Zekâ Alanları Arasındaki İlişkinin İncelenmesi”, Elektronik Sosyal Bilimler Dergisi, Volume 11, Issue 41, Summer, pp. 161-173.
- Can, Şendil- Gök Altun, Derya- Harmandar, Mansur (2011), “Çoklu Zeka Kuramı’na Dayalı Öğretimin Erişi, Tutum Ve Kalıcılığa Etkisi”, E- Journal of New World Sciences Academy, Volume 6, Issue 1, pp. 147-168.
- Çinkılıç, İnanç- Soyer, Fikret (2013), “Beden Eğitimi Öğretmen Adaylarının Çoklu Zeka Alanları İle Problem Çözme Becerileri Arasındaki İlişkinin İncelenmesi”, Spor Yönetimi ve Bilgi Teknolojileri Dergisi, Volume 8, Issue 1, pp. 4-16
- Delgoshaei, Yalda-Delavari, Neda (2012), “Applying multiple-intelligence approach to education and analyzing its impact on cognitive development of pre-school children”, Procedia- Social and Behavioral Sciences, Volume 32, December, pp. 361- 366.
- Demirel, Özcan (2015), Öğretim İlke ve Yöntemleri Öğretme Sanatı, 21. Baskı, Pegem Akademi, Ankara
- Dillihunt, Monica L.- Tyler, Kenneth (2006), “Examining the Effects of Multiple intelligence Instruction on Math Performance”, Journal of Urban Learning, Teaching, and Research, Volume 2, pp. 131-150.
- Dilci, Tuncay- Babacan, Tuğba (2011), “Sınıf Öğretmen Adaylarının Üstbilişsel Okuma Stratejileri ile Çoklu Zeka Alanları Arasındaki İlişkinin İncelenmesi”, İnönü Üniversitesi Eğitim Fakültesi Dergisi, Volume 12, Issue 3, December, pp. 47-64.
- Ekici, Gülay (2007), “Teknik Eğitim Fakültelerine Öğrenci Yöneliminin Çoklu Zeka Kuramı Açısından Değerlendirilmesi”, Sosyal Bilimler Araştırma Dergisi, Issue 2, pp. 98-114.
- Epçapan, Cahid (2013), “Çoklu Zeka Kuramına Dayalı Öğretim Uygulamalarının Öğrencilerin Okuduğunu Anlama Becerilerine Etkisi”, Turkish Studies, Issue 8, Winter, pp. 1335-1353.
- Erkaçan, İlker- Moğol, Selma- Ünsal, Yasin (2011), “Çoklu Zekâ Kuramının Lise 1. Sınıf Öğrencilerinin Isı -Sıcaklık, Genleşme ve Sıkıştırılabilirlik Konularındaki Akademik Başarılarına ve Öğrenmenin Kalıcılığına Etkisi”, Türk Fen Eğitimi Dergisi, Issue 2, June, pp. 65-78.
- Gardner, Howard(2005), “Multiple Lenses on The Mind”,Paper Presented at The ExpoGestion Conference, Bogoto Colombia, p. 9.
- Gürçay, Deniz- Eryılmaz, Ali (2008), “Çoklu Zeka Alanlarına Dayalı Fizik Öğretimine İlişkin Dokuzuncu Sınıf Öğrencilerinin ve Öğretmenlerinin Görüşleri”, Milli Eğitim, Issue 179, Summer, pp. 138- 152.

- Hamurcu, Hülya- Günay, Yasemin- Özyılmaz Güzin (2002), “Buca Eğitim Fakültesi Fen Bilgisi Ve Sınıf Öğretmenliği Bölümü Öğrencilerinin Çoklu Zeka Kuramına Dayalı Profilleri”, V. Ulusal Fen ve Matematik Eğitimi Sempozyumu Bildiriler Kitabı, Volume 1, pp.. 415-421.
- Kahraman, Süleyman- Bulut Bedük, Şenay (2016), “Multiple Intelligences and Perfectionism in Middle School Gifted Students”, Journal for the Education of Gifted Young Scientists, Volume 4, Issue 2, Aralık, pp.1-13.
- Kandeel, Refat A. A. (2016), “Multiple Intelligences Patterns among Students at King Saud University and Its Relationship with Mathematics’ Achievement”, Journal of Education and Learning, Volume 5, Issue 3, pp. 94-106.
- Karagöz Işık, Dilek (2007), Çoklu Zeka Kuramı Destekli Kubaşık Öğrenme Yönteminin İlköğretim Dördüncü Sınıf Öğrencilerinin Matematik Dersindeki Akademik Başarılarına ve Kalıcılığa Etkisi, Yüksek Lisans Tezi, Adana.
- Kurt, Murat- Çinici, Ayhan- Demir Yavuz (2011), “Dokuzuncu Sınıf Öğrencilerinin Çoklu Zeka Kuramına Gore Zeka Alanları ile Biyoloji Dersine Yönelik Akademik Başarıları ve Cinsiyetleri Arasındaki İlişkinin İncelenmesi”, Mehmet Akif Ersoy Üniversitesi Fen Bilimleri Enstitüsü Dergisi, Issue 3, pp. 51-68.
- Loori, Ali A. (2005), Multiple Intelligences: A Comparative Study Between The Preferences Of Males And Females”, Social Behavior and Personality, Volume 33, Issue 1, pp. 77-88.
- Madkour, Magda and Mohamed, Rafik Ahmed Abdel Moati (2016), “Identifying College Students’ Multiple Intelligences to Enhance Motivation and Language Proficiency”, English Language Teaching, Volume 9, Issue 6, pp. 92-107.
- McMahon, Susan D.- Rose, Dale S. (2004), “Multiple Intelligences and Reading Achievement: An Examination of the Teele Inventory of Multiple Intelligences”, The Journal of Experimental Education, Volume 73, Issue 1, pp.41-52.
- Moheb, Narges- Bagheri, Mohammad S. (2013), “Relationship between Multiple Intelligences and Writing Strategies”, Journal of Language Teaching and Research, Volume 4, Issue 4, pp.774-784.
- Mokhtar, Intan Azura- Majid, Shaheen- Foo, Schubert (2008), “Teaching information literacy through learning styles: The application of Gardner’s multiple intelligences”, Journal of Librarianship and Information Science, Volume 40, Issue 2, June, pp. 93-109.
- Müftüler, Mine (2008), Muğla Üniversitesi’nde Okuyan Öğrencilerin Çoklu Zekâ Alanlarına Göre Rekreasyon Tercihlerinin Belirlenmesi, Yüksek Lisans Tezi, Muğla.
- Oral, Behçet (2001), “Branşlarına Göre Üniversite Öğrencilerinin Zeka Alanlarının İncelenmesi”, Eğitim ve Bilim, Volume 26, Issue 122, October, pp. 19-31.
- Ozan, Ceyhan- Taşgın, Adnan- Bay, Erdal- Kaya, Halil İbrahim (2013), “Sınıf Öğretmenlerinin Çoklu Zekâ Kuramına İlişkin Görüşlerinin Çeşitli Değişkenler Açısından İncelenmesi”, Türk Eğitim Bilimleri Dergisi, Volume 11, Issue 3, pp. 301-322.
- Öngören, Halil- Şahin, Abdurrahman (2008), “Çoklu Zeka Kuramı Tabanlı Öğretimin Öğrencilerin Fen Bilgisi Başarılarına Etkileri”, Pamukkale Üniversitesi Eğitim Fakültesi Dergisi, Issue 23, pp. 24-35.

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
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---

- Razmjoo, Seyyed Ayatollah (2008) “ On The Relationship Between Multiple Intelligences And Language Proficiency”, The Reading Matrix, Volume 8, Issue 2, September, pp. 155-174.
- Saban, Ahmet (2005), Çoklu Zeka Teorisi Ve Eğitim, 5. Baskı, Nobel Yayın Dağıtım, Ankara.
- Saban, Ahmet (2009), “Content Analysis of Turkish Studies about the Multiple Intelligences Theory”, Kuram ve Uygulamada Eğitim Bilimleri, Volume 9, Issue 2, Summer, pp. 859-876.
- Sajjadi, Pejman- Vlieghe, Joachim- De Troyer, Olga (2016), “Relation Between Multiple Intelligences and Game Preferences: an Evidence-Based Approach” Proceedings of the European Conference on Games Based Learning, Volume 1, pp. 565-574.
- Xie, Jingchen- Lin, Ruilin (2009), “Research on Multiple Intelligences Teaching and Assessment”, Asian Journal of Management and Humanity Sciences, Volume 4, Issue 2-3, pp. 106-124.
- Yaz, İsa (2013), Beden Eğitimi Ve Spor Yüksek Okulunda Okuyan Öğrencilerin Çoklu Zeka Alanları İle Holland Kişilik Tipleri Arasındaki İlişkinin Araştırılması, Yüksek Lisans Tezi, Ankara.
- Yenice, Nilgün- Aktamış, Hilal (2010), “Sınıf Öğretmeni Adaylarının Çoklu Zeka Alanlarının Demografik Özelliklere Göre İncelenmesi”, Türk Fen Eğitim Dergisi, Volume 7, Issue 3, September, pp. 86-99.
- Yıldırım, Kasım- Tarım, Kamuran- İflazoğlu Ayten (2006), “Çoklu Zeka Kuramı Destekli Kubaşık Öğrenme Yönteminin Matematik Dersindeki Akademik Başarı Ve Kalıcılığa Etkisi”, Eğitimde Kuram ve Uygulama, Volume 2, Issue 2, July, pp. 81-96.
- Yüce, İsmail (2011), “Çoklu Zeka Kuramına Göre Meslek Yüksekokulu Öğrencilerinin İncelenmesi”, Uluslararası Yükseköğretim Kongresi Yeni Yönelişler ve Sorunlar, Volume 3, Part 14, May, pp. 1876-1880.
- Tuncer, Murat (2011), “ÖSYM Tarafından Yükseköğretim Programlarına Yapılan Yerleştirmelerin Çoklu Zekâ Kuramı Perspektifinden Değerlendirilmesi”, Fırat Üniversitesi Sosyal Bilimler Dergisi, Volume 21, Issue 1, pp. 89-111.

# THE RELATIONSHIP BETWEEN CONTINUOUS AUDITING AND INTERNAL CONTROL

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**Abstract:** Continuous auditing can be defined as the assurance that independent auditors provide simultaneously with, or shortly after, the occurrence of events underlying the subject matter. Continuous audit has the change the way auditors do their audit and companies' infrastructure. Auditing and internal control system has close interaction. The aim of this study is to explore what continuous auditing is and how it interacts with internal control based on international and Turkish literature. We found that continuous auditing have positive impacts internal control, auditors' skill, companies' infrastructure and detection of fraudulent reporting.

**Keywords:** Continuous Auditing, Massive Data, Digital era

## INTRODUCTION

Improvements in the digital era especially internet usage have expanded very fast. Commercial markets have to keep up with these improvements. If companies failed to keep up, they are condemned to death. Changes in the companies have affected related parties too. For example, shareholders can get information from companies' official websites or from legal authorities. This change has made it necessary for interested parties, especially the auditors, to keep up with change. Auditors, provide useful information to related parties about companies' financial statements. These information should be timely, true and they should address the need of related parties. Timely information is very important in this rapid changing world. Timely information affects investment decisions, auditor's audit plan and fee.

Auditing holds an important position in today's conditions. Extensive internet usage creates extensive data. Auditors should collect data and turned them into useful information. They prepare reports about companies' financial statements' accuracy and honesty. In order to create these reports they use different auditing techniques and continuous auditing is one of them. Via continuous auditing, all of the transactions can be audited. In the auditing process, internal control system is at focal point. Internal control system can affect all the transactions; thereby auditor's report is affected as well.

The purpose of this study is to explain what continuous auditing is and how it interacts with internal control system based on literature review. Also, the relationship between continuous auditing, internal control system and marketing audit is discussed.

## **WHAT CONTINUOUS AUDITING IS?**

Auditing is the accumulation and evaluation of evidence about information to determine and report on the degree of correspondence between the information and established criteria. Auditing should be done by a competent, independent person (Arens et al., 2012; 4).

As in every case, auditing also involves risk. Auditing risk refers to the risk that an auditor unknowingly gives positive opinion about financial statements' accuracy and honesty even though they involve major errors. Auditing risk contain three risks which are structural risk, control risk and the risk of uncovering. Auditing risk equals to mathematical multiplying of these three risks. In these risks, control risk is about internal control system. In order for auditors to calculate auditing risk, they must assess companies' internal control system and determine control risk (Güredin, 2010; 225-230). Auditing is crucial both for companies and the related parties. Auditors' report about companies' financial statements accuracy and honesty could affect inverter's decision making. Technological advancement and digitalization has changed lots of things including auditing.

In the rapid changing digital era, continuous auditing (CA) has come to discussion. When examining the literature there is a general acceptance about CA definition. According to the Canadian Institute of Chartered Accountants' (CICA) 1999 report: CA can be defined as the assurance that independent auditors provide simultaneously with, or shortly after, the occurrence of events underlying the subject matter. Singleton and Singleton (2005) said that CA information can be used to provide feedback to employees at all levels, manage corporate governance, and streamline internal coordination and reporting internally and externally across all the business functions. Also Searcy and Woodroof (2003) mentioned that within the CA domain, investors could access a company's information in the form of a website that publishes continuously audited financial information on demand.

In a CA world, companies and auditors should use fully web-based systems. If both sides acquire real time information, this makes the information comparable and timely. Kogan et al. (1999) mentioned that continuous auditing can be feasible only if implemented as a fully automated process, and a process with instant access to relevant events and their outcomes. The only known way to satisfy these requirements is to implement continuous auditing on an online computer system. In line with Kogan et al., Alles et al. (2006) said that CA only achieves its full power, when it takes full advantage of this ability to automate business processes and integrate information flows to develop new real-time analytic procedures far more sophisticated and all-encompassing than anything in use currently.

On the auditor's side, continuous auditing affects auditor's skills and their audit plan. According to Rezaee et al. (2001) CA affects the auditing process in several ways. First, the auditor's knowledge of the client's business and industry has to increase to ensure reliability and relevance of electronic documents, records, and data. Second, the auditor has to better understand the flow of transactions and related control activities to ensure validity and reliability of information in a paperless, RTA (real time accounting) system. Third, the auditor has to use a control risk-oriented audit plan that primarily focuses on adequacy and effectiveness of internal control activities of the RTA system and place less prominence on substantive tests of electronic documents and transactions.

Continuous auditing has many advantages both for companies and auditors. CA enables auditors to test a larger sample (up to 100 percent) of clients' transactions and data faster and more efficiently than the manual testing of auditing around the computer. CA can reduce the amount of time and costs auditors traditionally spent on manual examination of transactions and account balances. CA may also increase the quality of financial audits by allowing auditors to focus more on understanding a client's business and industry and its internal control structure. A real-time accounting system enables organizations to keep their financial reports, customer lists, parts catalogs and price lists updated, on-line, and easily accessible to both internal and external constituencies (Rezaee et al., 2001:151-157). As was mentioned before, information should be timely both for companies and auditors. In parallel with this requirement, Rezaee et al. (2002) said that continuous auditing enables auditors to



significantly reduce and perhaps eliminate the time between occurrence of the client's events and the auditor's assurance services thereon. In this way, investors can make timely decisions. In addition, decreasing the occurrence time means, decreasing audit fee as well.

The challenges to implementing CA services are worth the benefits: a shorter audit cycle, increased flexibility, customizable reports to clients and third parties, and reduced audit-related costs. Certified Public Accounting (CPA) firms moving to a CA environment can create competitive advantages and devote resources to other services (Searcy and Woodroof, 2003:3). According to Singleton and Singleton (2005) CA satisfy an organization's internal needs of enterprise-wide control and governance, facilitates internal and external audits by providing instant feedback on a comprehensive, business wide scope and the appropriate design and implementation of a CA system, used under the guidance of recommended control frameworks, can surpass current systems' fulfillment of accounting concepts, satisfy internal corporate needs, facilitate audits, comply with regulatory standards and, most importantly from the accounting perspective, meet stakeholder demands for useful financial information.

What is clear is that CA will lead to auditors having access to streams of data that they never could obtain cost-effectively before and audit methodologies will have to adapt to this explosion in the magnitude, level of disaggregated detail and timeliness of data (Alles et al., 2006:215).

## **LITERATURE REVIEW**

Globalization and widely use of internet has made companies to focus more on auditing. With the internet, companies can get instant information which affects decision making. Because of obtaining extensive data from the internet, in the literature, there are studies focuses on continuous auditing.

Vasarhelyi and Halper (1991) focuses on an implementation of the Continuous Process Audit System developed at AT&T Bell Laboratories for the AT&T Internal Audit Organization. The approach adopted at AT&T, with the current CPAS prototype, consists of a data provisioning system and an advanced decision support system.

Kogan et al. (1999) focuses on the evolving field of continuous online auditing and provides a framework for identifying research issues related to its reasons, methods, implications, and available experiences.

Flowerday et al. (2006) aims to reach a conclusion about how a generic, yet comprehensive continuous auditing system could make use of the available tools, techniques and technologies for testing internal control and performing tests on transactions.

Alles et al. (2006) made a study about continuous auditing USA experience and considerations for its implementation in Brazil. They found that Brazil lacks audit and auditors. For example, there is only one independent auditor for every 25,000 people in Brazil, whereas in the Netherlands there are one for every 900, in England one for every 1,300 and in the US, one for every 2,300.

In PwC's 2006 report, there are some obvious results about continuous auditing. In that report 392 companies who responded to questions about continuous auditing, 81% reported that they either had a continuous auditing or monitoring process in place or were planning to develop one. Only 19% said they do not have a continuous auditing process in place and have no plans to develop one. Although only 3% claimed to have a fully automated continuous auditing process, 56% said their continuous auditing activities include both manual and automated elements. The remaining 41% said their continuous auditing processes were entirely manual in nature, a statistic that is sure to surprise members of the internal audit community who believe technology is an essential element of any continuous auditing activity. With respect to our other respondents active in continuous auditing, 22% place responsibility for these activities with a separate group within internal audit and 6% place this

responsibility with the company's information technology (IT) group, a number we had expected to be higher. The most common continuous auditing "cycle" is quarterly, with 57% of our respondents falling into this category. Another 34% focus on monthly monitoring activities while only 9% focus on daily applications of their continuous auditing processes. When the focus is on daily applications, organizations are typically conducting high-volume transaction activity in the search for fraud and other anomalies. When the focus of continuous auditing is monthly, auditors are typically looking for management accounting information, such as key performance indicators at a business-unit level that could indicate risk problems. And when the focus is quarterly, auditors are typically looking for entries (adjusting or closing) or transactions of unusual size that could affect quarter-end reports.

Murcia et al. (2008) made a research about continuous auditing literature review. In this sense, the entire Capes' which is an agency within Brazil's Ministry of Education was covered, which means more than 11,000 journals. The objective of this search was to select all papers addressing continuous auditing. Their results showed that Rutgers University (Newark, New Jersey - USA), is the main research center on continuous auditing. Also out of the 57 articles selected, only one presented an empirical research. The other 56 articles in the sample are theoretical and most of studies adopt a conceptual approach.

Cantu et al. (2008) examine the pros and cons of having continuous auditing for business organizations, explore audit models as presented by recent research efforts, and discuss the implications of having a continuous auditing system for a business organization in the context of information quality.

In 2012 Vasarhelyi et al. made a study called CARLAB (Continuous Auditing Research Lab). On their results most of the companies in the CARLAB study were classified in the emerging stage of CA adoption. The reason for not including them as full continuous audit adopters was that they had only partial audit automation and some key monitoring on a regular basis.

There are some studies which focus on continuous auditing as well. In 2006, Ağca hoped that his study will lead to discussing and exploring different perspectives by ensuring that the Continuous Audit approach, which is intensively discussed in all aspects of the international literature, is also on the agenda in the Turkish audit literature. In 2006, Cankar made a study called 'Auditing's New paradigm: Continuous Auditing'. Memiş and Tüm (2011) explored the relationship between continuous auditing process and internal auditing. Topaloğlu (2013) made a specific research on continuous auditing. He explored risk analysis and continuous auditing methods for detection and prevention of social security abuses. Gönen and Rasgen (2013) aimed to reveal applicability of continuous auditing system with audit software via case analysis method.

Orhan and Serçemeli (2015) wanted to put forward how BIST-100 companies are ready for continuous auditing approach by examining their continuous auditing practice levels. They used factor analysis and Mann-Whitney U method. They found that within the scope of their study, companies which experienced the continuous auditing are found to be more ready in terms of personnel than companies which did not experience, in terms of technical and economic there is no difference.

## **RELATIONSHIP BETWEEN CONTINUOUS AUDITING AND INTERNAL CONTROL**

Technological advancement has led to the extensive use of internet. With internet usage, great amount of data are flowing electronically. New auditing techniques such as continuous auditing make it easier to deal with this extensive data.

Continuous auditing has made companies and auditors to access extensive data. In order to translate this extensive data to useful information, auditor's skill, tools and companies' system must be appropriate. In this regard, companies' control mechanism must work flawlessly. For this reason,

internal control is at an important point. On the literature, there are studies that focus on the relationship between internal control and continuous auditing. According to Rezaee et al. (2001) consideration and review of the internal control system is important under a RTA system. This review of internal controls helps the independent auditor assess the internal control risk and formulate an opinion on the level of reliability that can be placed on the internal control structure of an RTA system. In addition, Selimoğlu (2005) adds that the auditor is required to consider the five components of the internal control system which are control environment, risk evaluation, risk assessment, information and communication and monitoring as set out in the COSO (Committee of the Sponsoring Organizations) and Statement on Auditing Standards (SAS). In line with Rezaee et al. and Selimoğlu, Singleton and Singleton (2005) said that CA, therefore, shares the same purpose as internal controls—mitigating risks and leveraging opportunities for improvement. The relationship between CA and internal controls, and their respective components, can be seen as layers or levels that are interrelated. Also, in Turkey, According to Turkish Commercial Code 398, the independent external auditor audits whether the board has established an internal control system capable of timely identification and risk management of the threats that now or may arise. Another study made by Sun et al. (2017) who compares continuous auditing between USA and China. They find that excessive government intervention in business, the lack of competition, independence of auditors, the support from management and the continuous auditing-specific regulations, as well as the technology gap between these countries are main barriers for the implementation of CA in China. They also find that weak internal control especially the lack of a powerful tool to monitor risk management system is a key factor.

Internal control is a process, effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: effectiveness and efficiency of operations, reliability of reporting and compliance with applicable laws and regulations (TIDE, 2016; 1). In this definition, employee participation and management support is the focal point that companies should look up when establishing and maintaining effective and efficient internal control system. Management support and employee participation is intertwined. Management should establish and maintain plan and procedures regarding internal control. They must show great commitment on internal control. With this support, the idea of self-control will be spread enterprise wide. In the internal control system the idea of self-control will come up. If self-control will be established, faulty and fraudulent reporting numbers can be decreased. Therefore, companies' overall performance can be increased. But spreading this idea is not enough to establish solid internal control system. Employees should understand the importance of internal control and act the way the internal control system requires. Effective internal control system will be established only if full management support and employee participation. In Sun et al.'s (2017) study the lack of management support is crucial. Because of this, they could not find positive results about internal control and continuous auditing.

Kuhn and Sutton (2006) mentioned that continuous assurance necessitates activities that monitor both internal controls and transaction processing. Vasarhelyi et al. (2012) approving Kuhn and Sutton's argument by saying that with the emerging of a continuous auditing and continuous monitoring methodology, an on-going, timely review of financial data and internal control of the company is enhanced. Vasarhelyi et al. (2012) shed light the relationship between continuous auditing and internal control system. They said that the internal audit department of each company is responsible for monitor and assess internal control effectiveness and report the assessment result in exception reports. If the irregularity event has been captured, CA systems will generate alarm which will notify internal auditors and management.

Hunton and Rose compared traditional auditing and today's auditing and show the changes of internal control system process. They said that traditional financial audits focus on whether the financial statements fairly represent the financial position of the client. Integrated audits further include the auditor's opinion on the firm's internal control system over financial reporting. As firms move toward the use of dynamic audit process systems, meta-level decision support systems (DSS) will emerge

aimed at supporting the integrated audit on a (near) real-time basis. Such DSSs will continuously scan the underlying DSSs in the pyramid, map internal controls and transactions to financial statement assertions, determine the extent to which financial statements (which might be published on a more frequent basis than quarterly) fairly reflect the financial position of the target entity, and perhaps assess the accuracy and reliability of nonfinancial information emanating from the entity (e.g., earnings forecasts and other voluntary disclosures).

As examined academic studies showed, relationship between internal control and continuous auditing has been studied both from academicians and legal institutions. Internal control system and auditing completes each other. In the auditing process, the auditors assess companies' risk and then they calculate the audit risk. In a company where internal control system work effectively and efficiently, there will be low audit risk.

## **RELATIONSHIP BETWEEN MARKETING AUDIT, CONTINUOUS AUDITING AND INTERNAL CONTROL**

Companies are consists of different departments such as accounting, management, marketing, sales, distribution, logistics. Interaction between these departments is very important for companies in order to continuously operate. These departments cannot be separated with a single line. On the contrary, companies' overall performance depends on how well these departments interact, how fast and reliable information they provide to each other. All of the departments' interaction and these departments' auditing are crucial. Marketing also plays an important role in this interaction. Auditing of all these departments as well as marketing is the focal point in order to provide true and trustworthy financial reports to the related parties. Mizik and Nissim's (2011) study focus on marketing activities and how to improve financial performance. They stated that instead of balance sheet recognition of intangibles, they argue for improved and expanded mandatory disclosures. Consistent, observable, quantifiable, and verifiable information on marketing-related spending and performance drivers can improve performance evaluation, forecasting, internal marketing management process, and external valuation quality. It is imperative for marketers to understand the implications of the marketing-accounting interface for marketing research and practice and to become active participants in the ongoing discussions on how to improve financial reporting. Also Ceren and Yenal (2004) said that marketing decisions, especially the planning and control of future activities, need to be supported by reliable information from a variety of sources.

In order to provide accurate and reliable financial reports, auditors should obtain accurate, reliable and timely information from companies. Companies which have an effective operating internal control system, provide this kind of information to the auditors and therefore to the related parties as well. In this context, marketing audit concept comes to discussion.

Kotler et al. (1977) defines marketing audit as 'an effort to assess the effectiveness and efficiency of marketing policies, strategies, practices and procedures against firm's opportunities and resources.' Tybout and Hauser (1981) defined the main goals of marketing audit as to understand the marketing system, to identify any short run actions that can increase profitability (or corresponding social goals) and, to identify any long run actions that are worth further consideration and analysis.

Foster and Gupta (1994) said that traditionally viewed as distant sciences, accounting and marketing are now in a closer proximity to each other with increased costs in marketing, sales and distribution have required emphasis on effective cost calculation, control and cost management. Marketing costs are an important component of the cost structures of many organizations. In line with Foster and Gupta, Wu (2011) also mentioned about cost calculation. They said that increasing pressure to reduce costs has forced many companies to change the way they do the business and forcing them to reconsider the goals, structure, and effectiveness of their marketing strategies. Here marketing audit comes to aid by identifying any inadequacies in overall marketing structures and recommends the necessary changes to the company's marketing strategies. According to Rothe et al. (1997) the

marketing audit has evolved through years and became a control mechanism to provide marketers with information about the performance of the marketing efforts with a broader concept.

Accounting transactions that relates to marketing should be paid attention in the auditing process. When auditing marketing-sales and distribution transactions auditor should check whether invoices are prepared according to the form provisions, invoices quantities and amounts are matched with accounting records, invoices quantities and amounts are matched with warehouse information, value added tax (VAT) information on the invoices are matched with VAT information on the accounting records, information shown in the vendor records matched with input information shown in the input bills etc. (Şen, 2003: 560-561).

Based on literature review it can be said that marketing audit holds an important position in the auditing process and internal control. Kotler's marketing audit definition is in line with internal control system's definition which focuses on effectiveness and efficiency of the firms' overall performance. As auditing process involved to continuous auditing, marketing process should also keep up the pace. Today's digital world demands much faster and accurate data for decision makers. In today's condition, as Rothe (1997) and Mizik and Nissim (2011) said, marketers also change the way they do business. They should keep up with the sudden changes and adapt themselves. Just like continuous auditing require auditor's to adds new skills, marketers also add new skills such as data transformation, how to interpret data that obtain from CA system and how to adapt internal control system.

## **METHODOLOGY**

This study is an exploratory study. This kind of studies is ideal if the researcher focus on 'What is happening?' question. This method is useful if the researcher tries to expand his/her knowledge and understand the different aspects of the subject. Various ways can be followed to carry out an exploratory work. First of all, doing in depth literature review and secondly talking to specialist. By doing these, new aspects will be developed regarding the subject (Altunışık et al., 2012: 71). In this study, literature review about continuous auditing was made. In this review, international and local articles were found. As result of this, in depth knowledge on CA was obtained. After that, the advantages of CA and the relationship between CA and internal control tried to be discussed. Based on this, we shed light to the readers what continuous auditing is, how it affects auditors and companies. Also we show how continuous auditing and internal control has in common with marketing audit.

## **FINDINGS**

Based on literature review following results have been found:

- Continuous auditing requires solid infrastructure, management support, qualified auditor and employee. With continuous auditing, auditors should seek to gain new attributes in order to run this tool.
- Via continuous auditing, companies' all transactions will be audited, therefore nothing will go unnoticed.
- In order to transform continuous auditing's extensive data into useful information, companies should invest on technological infrastructure and use fully web-based systems.
- With continuous auditing, mitigation of risks and leveraging opportunities for improvements will be succeeded.
- Continuous auditing is faster than traditional auditing. There is a time difference between CA and traditional auditing (TA). In the TA, if somebody made a mistake and tries to cover this, there will be time to do this. On the other hand, CA decreases this time difference due to the fact that transactions will be audited shortly after its occurrence in the CA. For this reason, fraudulent reporting can be prevented.

- In the CA process consideration and review of internal control is important. Without proper internal control system, CA system cannot be functional. These systems complete each other. Effectively working internal control system provides accurate and honest information for CA. on the other hand, if irregularities happen CA system detects and report this situation to responsible ones.
- Auditor who uses CA system should also consider five internal control requirements which are control environment, risk assessment, control activities, information and communication and monitoring. These components affect auditors' audit risk calculation. If proper and effectively working internal control system appear in a company, it can be said that there will be low audit risk (Provided that other conditions remain constant).
- Even though CA system offers lots of advantages, there will be lot to do about technological infrastructure, auditor qualification, web security, qualified employee, management support, legal regulations, data warehousing and internal control system reliance.
- Marketing audit also has the same purpose as internal control. Both of them focus on efficiency and effectiveness issues. In order to provide this, both systems demand accurate and reliable information. Based on literature, CA can provide this kind of information.
- Just like auditors, CA also change the way marketers do their business. Marketers also should obtain different kinds of skills.
- CA and internal control system depends on how well companies' departments interact with each other and marketing also plays an important role in this interaction.

## **CONCLUSIONS**

Continuous auditing is a process that enables companies and auditors to access massive data. Massive data has no meaning unless it turned to information. In continuous auditing, auditor must transform massive data to useful information for related parties. In the rapid changing digital era, auditors should improve their skills too. They must know how to access digital data, how they obtain it and how they turn data to information by using computer assisted audit programs. Continuous audit has made auditors to deal with %100 data. In this way, auditors have no chance to miss fraudulent reporting. In order to achieve this, companies should establish internal control systems and make this system work effectively. In a situation where internal control system is effective and auditors are qualified, continuous auditing is perfectly suited. In CA and internal control interaction, it is important to determine the interaction between companies' departments. All of departments play an important role as well as marketing. In line with internal control, marketing audit also focuses on the effective and efficient use of the companies' resources and in order to achieve this goal, marketers also need accurate and reliable information. In this situation, CA steps in. CA's ability to provide timely and %100 percent data, gives an opportunity to all business departments to collect data and transform them into useful information.

Based on literature review, our research has shed light the importance of continuous auditing and its relationship with internal control system and these systems' interaction with marketing department. In line with literature, personal skills are important in order to run continuous auditing. Also, companies' technical adequacy, management's opinion on CA and internal control attracts attention as well. In our study, we show what continuous auditing is how it interacts with internal control, what marketing audit is and how it can related with internal control system and CA based on literature review.

## **REFERENCES**

- Ağca, Ahmet (2006), "Sürekli Denetim: Denetimde Bir Devrim Mi Yoksa Bir Hayal Mi?", The World of Accounting Science Journal, Volume 8, Issue 1, pp. 63-78.
- Alles, Michael G.- Tostes, Fernando- Vasarhelyi, Miklos A.- Riccio, Edson Luiz (2006), "Continuous Auditing: The USA Experience And Considerations For Its Implementation In Brazil",

- JISTEM-Journal Of Information Systems And Technology Management, Volume 3, Issue 2, pp. 211-224.
- Altunışık, Remzi-Coşkun, Recai-Bayraktaroğlu, Serkan-yıldırım, Engin (2012), Sosyal Bilimlerde Araştırma Yöntemleri, SPSS Uygulamalı, Sakarya Publishing, Sakarya, 7th Edition.
- Arens, Alvin A.- Elder, Randal J.- Beasley, Mark S. (2012), Auditing and Assurance Services, Pearson, 14th Edition.
- Cankar, İsa (2006), “Denetimin Yeni Paradigması: Sürekli Denetim”, Theory and Development of Evidence in Auditing, Issue 23, pp. 69-81.
- Cantu, Ivan- Liu, Lai- Zhou, Haiyan (2008), “Continuous Auditing”, Paper Presented At The SWDSI 2008, Houston, Texas.
- Ceran, Yunus – İnal, M. Emin (2004), “Maliyet bilgileri temeline dayalı pazarlama kararları için pazarlama muhasebesi”, Erciyes University Economic and Administrative Sciences Journal, Issue 22, pp. 63-83.
- Flowerday, Stephen- Blundell, A. W.- Von Solms, Rossouw (2006), “Continuous Auditing Technologies And Models: A Discussion”, Computers & Security, Volume 25, Issue 5, pp.325-331.
- Foster, George - Gupta, Mahendra (1994), “Marketing, cost management and management accounting”, Journal of Management Accounting Research, Issue 6, pp. 43-77.
- Gönen, Seçkin-Rasgen, Mithat (2015), “Sürekli Denetim Sisteminin Bir Yazılım Programında Uygulanabilirliğine İlişkin Örnek Olay Çalışması”, International Alanya Business Administration Journal Volume 7, Issue 1, pp. 181-191.
- Güredin, Ersin (2010), Denetim ve Güvence Hizmetleri, Türkmen bookstore, 13th Edition.
- Hunton, James E.- Rose, Jacob M. (2010), “21st century auditing: advancing decision support systems to achieve continuous auditing.”, Accounting Horizons, Volume 24, Issue 2, pp. 297-312.
- Kogan, Alexander- Sudit, Ephraim F.- Vasarhelyi, Miklos A.(1999), “Continuous Online Auditing: A Program Of Research”, Journal Of Information Systems, Volume 13, Issue 2, pp. 87-103.
- Kotler, Philip - Gregor, William - Rodgers, William (1977), “The marketing audit comes of age”, Sloan Management Review, Volume 18, Issue 2, pp. 25-43.
- Kuhn, J. Randel- Sutton, Steve G. (2006), “Learning from WorldCom: Implications for fraud detection through continuous assurance.”, Journal of Emerging Technologies in Accounting, Volume 3, Issue 1, pp. 61-80.
- Memiş, Mehmet Ünsal- Tüm, Kayahan (2011), “Sürekli Denetim Süreci Ve İç Denetim İle İlişkisi”, Erciyes University Faculty of Economics and Administrative Sciences Journal, Issue 37, pp. 145-162.
- Mizik, Natalie - Nissim, Doron (2011), “Accounting for marketing activities: Implications for marketing research and practice”, Working Paper, Columbia business School.
- Murcia, Fernando Dal-Ri- Cruz de Souza, Flávia- Borba, José Alonso (2008), “Continuous auditing: A literature review”, Revista Organizações em Contexto-online, Volume 4.7, pp. 1-17.

- Orhan, M. Suphi-Serçemeli, Murat (2015), "An Investigation On Applicability Of continuous Auditing Approach In Internal Auditing Strategy."
- Pricewaterhousecoopers (2006), State Of The Internal Audit Profession Study: Continuous Auditing Gains Momentum.
- Rezaee, Zabihollah- Elam, Rick- Sharbatoghlie, Ahmad (2001), "Continuous Auditing: The Audit Of The Futur", Managerial Auditing Journal, Volume 16, Issue 3, pp. 150 – 158.
- Rezaee, Zabihollah- Sharbatoghlie, Ahmad- Elam, Rick- McMickle Peter L.(2002), "Continuous Auditing: Building Automated Auditing Capability.", Auditing: A Journal Of Practice & Theory, Volume 21, Issue 1, pp.147-163.
- Rothe, James. T. - Harvey, Michael G. - Jackson, Candice E. (1997), "The marketing audit: Five decades later", Journal of Marketing Theory and Practice, Volume 5, Issue 3, pp. 1-16.
- Searcy, Dewayne L.,- Woodroof, Jon B.(2003), "Continuous Auditing: Leveraging Technology", The CPA Journal, Volume 73, Issue 5.
- Selimoğlu, Seval K.(2005), "Denetim Olgusunun Kurumsal Kaynak Planlaması (ERP) Sistemleriyle Bütünleştirilmesi", 7. Türkiye Muhasebe Denetimi Sempozyumu.
- Singleton, Tommie-Singleton, Aaron J.(2005), "Auditing Headaches? Relieve Them With Car" Journal Of Corporate Accounting & Finance, Volume 16, Issue 4, pp.17-27.
- Sun, Ting- Alles, Michael- Vasarhelyi, Miklos (2017), "Adopting continuous auditing : A cross-sectional comparison between China and the United States", Managerial Auditing Journal, Volume 30, Issue 2, pp. 176-204.
- ŞEN, Selim, (2003), "Hatalı ve Hileli İşlemlerin Tespiti için Denetim Teknikleri", Yaklaşım Publishing.
- Topaloğlu, Sıddık (2013), "Sosyal Güvenlik Suiistimallerinin Tespiti Ve Önlenmesi İçin Risk Analizi Ve Sürekli Denetim Yöntemleri", TISK Academy, Volume 8, Issue 16, pp. 204-220.
- Turkey Internal Auditing Institute Publishing (2016), İç Kontrol – Bütünleşik Çerçeve Ve Ekler, No:11.
- Tybout, Alice M. - Hauser, John R. (1981), "A marketing audit using a conceptual model of consumer behavior: Application and evaluation", The Journal of Marketing, pp. 82-101.
- Vasarhelyi, Miklos A.- Halper, Fern B.(1991), "The Continuous Audit Of Online Systems." Auditing: A Journal Of Practice And Theory.
- Vasarhelyi, Miklos- Romero, Silvia- Kuenkaikaew, Siripan- Littley, Jim (2012), "Adopting Continuous Auditing/Continuous Monitoring In Internal Audit", Isaca Journal Volume 3, pp. 1-5.
- Vasarhelyi, Miklos.- Alles, Michael- Kuenkaikaew, Siripan- Littley, James (2012). "The acceptance and adoption of continuous auditing by internal auditors: A micro analysis.", Working Paper, pp. 1-28.
- Wu, Wen Kuei (2011), "Market environment, marketing audit and performance: Empirical evidence from Taiwanese firms", Wufeng District, Taichung, Taiwan: Chaoyang University of Technology, pp. 1-16.



# AUDIT WITH BENFORD ANALYSIS: AN APPLICATION ON PUBLIC HOSPITALS

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**Abstract:** *The information that produced by the accounting information system must be correct and unbiased to be able to make right decisions. A transaction that would show the financial statements from what they are actually, may hurt decision-makers. Along with many ways to detect fraud in accounting, all sorts require cost and time. It is also very difficult to control all actors in all directions because of the universe's width. Digital analysis techniques, which have become widespread in recent years, provide opportunities for expanding, facilitating and accelerating the audit process. One of these techniques, Benford Analysis, stands out for its simplicity and low cost. Benford's analysis is based on the Benford's Law, which states that the distribution of numbers are different in each digit. According to the Benford's Law, distributions that do not match expected values in a random data set are considered fraud signals. Within the scope of Benford Analysis, First Digit, Second Digit and First Two Digit tests were applied to the income and expense accounts of the two public hospitals operating in Turkey. As a result, it was determined that the one of analyzed hospitals is in compliance with the Benford Law and the other hospital data showed incompatibility.*

**Keywords :** *Benford's Law, Digital Analysis, CAATs, Fraud Detection*

## INTRODUCTION

The first occurrence of Benford's Law is based on a two-page article by American astronomer and mathematician Simon Newcomb, published in the American Journal of Mathematics in 1881, about the frequency of numbers seen in number digits. Newcomb has revealed that the frequency of digits (0-9) is not equal in a number, and has created a table showing the probability of each digit occurrence (Newcomb, 1882:39). Accordingly, the frequency of a number seen in the first digit decreases from 1 to 9. In 3.digit the probabilities are very close to each other, and from the 4.digit onwards the difference becomes uncertain. This rule gives signs about original formation within large number clusters (Newcomb, 1882) Newcomb expresses the possibility of a non-zero significance digit at the first digit of the number as follows: (Hill, 1998, 358)

Probability (first digit =d)= $\log_{10} (1+1/d)$ , (d=1, 2,....., 9)

Newcomb's model was almost forgotten for 57 years until Frank Benford named physicist made similar observations. Benford showed on the table the frequency of each digit in the number of digits, taking the average of the distribution results obtained from 20,229 different data sets in his 1968 issue of The Law of Anamorphous Number published in the Proceedings of the American Philosophical Society. These observations, which are collected from a variety of geographical and demographic sources such as river lengths, population numbers, newspaper circulation, football league statistics, atomic weights and mortality rates. The graph below shows Benford's results according to these findings; (Benford, 1937; 553)

**Table 1.** First, Second, Third, and Fourth Digit Proportions of Benford's Law

	<b>Position in Number</b>			
<b>Digit</b>	<b>1st</b>	<b>2nd</b>	<b>3rd</b>	<b>4th</b>
0		0,1197	0,1018	0,1002
1	0,3010	0,1139	0,1014	0,1001
2	0,1761	0,1088	0,1010	0,1001
3	0,1249	0,1043	0,1006	0,1001
4	0,0969	0,1003	0,1002	0,1000
5	0,0792	0,0967	0,0998	0,1000
6	0,0670	0,0934	0,0994	0,0999
7	0,0580	0,0904	0,0990	0,0999
8	0,0512	0,0876	0,0986	0,0999
9	0,4576	0,0850	0,0983	0,0998

Source : Nigrini, 2011:6

The next stage of Benford's research was to derive the expected frequencies of the counts in number digits. The formulas for the digit frequencies are shown next with D1 representing the first digit, D2 the second digit, and D1D2 the first-two digits of a number.

$$\text{Prob}(D_1=d_1) = \log(1+(1/d_1)); d_1= (1,2, 3...9)$$

$$\text{Prob}(D_2=d_2)= \log(1 (1/ d_1 d_2 )); d_2 (1,2,3... 0)$$

$$\text{Prob}(D_1D_2 = d_1d_2)=\log(1+(1/ d_1d_2))$$

$$\text{Prob}(D_2= d_2 | D_1= d_1) = \log(1+(1/ d_1d_2))/\log(1+(1/ d_1))$$

(Durtschi, 2004;19)

Professor of Mathematics Ted Hill, in a 1996 article published in Statistic Science, used the measure of invariance of mathematically reinforcing data of Benford's Law to show that the number of jurisdictions is independent of the unit in which they are expressed (Hill, 1998, 361). Newcomb's equation has expanded to include step combinations:

$$P(d_1,d_2,d_3...) = \log_{10}[1+(d_1,d_2,d_3....d_k)-1]$$

Example; The probability of a number starts with 314 =  $\log_{10}(1+(314)^{-1})=0,0014$  (Hill, 1999;29).

After Varian an economist, suggested that Benford's law could be used to test the validity and reliability of data in social sciences, the first accounting application was made by Carslaw (Durtschi, 2004; 21). The fact that the incomes of the company were rounded up by the managers on the psychological boundaries, were reached by uncomformity of distribution of the data with Benford's Law (Drake, 2004; 21). Thomas (1989) observed that in the application of the net profit data, the number 0 is higher in the second step and the opposite is true for the loss amounts. Moreover, it is observed that the number of 5 is more than expected and 9 is less. It has been found that the profit figures are caused by the downward turn of the upward numbers (Thomas, 1989, 787).

If the incidence of the numbers shows a remarkable incompatibility with the Benford's Law, it may indicate that these numbers do not occur naturally. If this happens in accounting, the possibility of fraud will come to mind. From this hypothesis, Mark J. Nigrini thought that Benford's Law could be used as a method of fraud dedection (Nigrini, 2001, 2). It has been shown that as many accounting data as from expenses to sales compatible to the Benford Law, and deviations from the law in this data can be revealed by statistical tests. When the data were measured by the Benford Conformity tests, occured large differences between the original data and fraudulent data.

Simply Benford's Law expresses the expected frequency of the number of digits. The Benford's Law, has been proven to be valid in data sets which was formed naturally, covering a wide range of areas from stock market closing data to newspaper circulation, GNP amounts of countries, surface area of rivers, greenhouse gas emission values to ballot counting. Therefore, this tool is considered very useful in auditing, since the occurrence of a situation different from the expected frequency indicates that the numbers are influenced by human intervention. The model is so easy and cheap that it has become widely used in the field audit to detect fraud and errors.

## **METHODOLOGY**

There are five important tests in the use of the Benford's Law. These are first digit test, second digit test, first two digit test, first three digit test and the last two digi test. The first and second digit tests are high level conformity tests in the selection of data. First two Digit and First Three Digit tests can be used to select audit targets. The last two digits test is a strong test for detecting the derived digits, it can be used to determine the rounding. The poor compatibility of the data sets with Benford may be a signal of abnormality in data. Therefore, if 3 datasets in 4 datasets are compatible with Benford's Law, and one set incompatible, the strategy should be to focus on the incompaible dataset. Because fraud risk is high (Nigrini, 2012: 74). Data sets to be tested for compliance with the Benford's Law are required to satisfy the following requirements (Quick, 2005: 1290).

- The data must indicate the same type events. For example all city census or all yearly sales.
- The lower or upper limit of the values in the dataset should not exist. The maximum and minimum limits disrupt the distribution.
- The values in the data set should not be assigned numbers. It is one of the main conditions of the law that the numbers are formed randomly in the natural way (Akbaş, 2007, 196).

Benford's Law can be better applied to large data sets. As the size of the dataset grows, the efficiency of the analysis also increases. (Drake and Nigrini: 132) Research has shown that the level of conformity with Benford's Law is higher for uper 4 digit numbers. Benford Analysis Stages;

1. Determining the dataset
2. Considering possible trends

3. Removing abnormal areas
4. Entering the data in the software program.
5. Digital (digit tests) analysis performing.
6. Comparing the results with expected values.
7. Testing compatibility with statistical analysis.

Chi-Square, Z-test and Kolmogorov Simirnov tests can be used to analyze the conformity of the results. However, a deviation which should be regarded as normal due to the size of the data set can be seen as a fraud signal in these tests. Therefore, Absolute mean deviation (MAD) test, which does not include the number of data, is preferred to other statistical tests. The deviation between the result and the expected value (MAD) is calculated as follows when the compatibility with Benford's Law is tested;

$$= \frac{\sum_{i=1}^K |AP - EP|}{K}$$

AP; Actual distributions, EP; Benford Distributions. K is 9 for the first step test and 90 for the first two step test. The results are evaluated according to the following critical values. (Nigrini, 2011; 160)

**Table 2.** Critical Values and Conclusions for Various MAD Values

<b>First Digit</b>	<b>Second Digit</b>	<b>First Two Digits</b>	<b>Conclusion</b>
0,000 – 0,006	0,000 – 0,008	0,0000 – 0,0012	Close Conformity
0,006 – 0,012	0,008 – 0,010	0,0012 – 0,0018	Acceptable Conformity
0,012 – 0,015	0,010 – 0,012	0,0018 – 0,0022	Marginally Acceptable Conformity
>0,015	>0,012	>0, 0022	Nonconformity

Source: Nigrini, 2011;160

In this study, the 2015 accounting data of two public hospitals operating in the same city in Turkey were subjected to Benford Analysis. The analyzed data consist; 800 Budget Revenue Account and 830 Budget Expenditure Account book records. To this account data; applied first digit, second digit and the first two digits tests of Benford Analysis. The deviation between the expected values and the actual values compared with the critical values given as MAD values in theory. Nonconform data will be considered as a red flag, and will enable to focus on for detailed audit. The real names of the hospitals were kept confidential, named A and B in the study.

## APPLICATION & FINDINGS

### A Hospital

#### 800 Budget Revenue Account

The 800 account consists of 3251 data. 262 data were removed from the dataset because of small then 10. In Figure 1, shows the results of the First Digit test of Hospital A's 800 budget revenues account . It is observed that the distributions are close to the Benford distributions. The MAD value calculated as 0.00799. When compared with the critical values table, it is seen that the data set's Acceptable Conformity output. 800 Budget Revenues Account Second Digit Test results observed that the actual distributions deviate from the Benford Distributions. The deviations in the numbers 1, 7 and 9 are striking. MAD value calculated as 0,01507 is evaluated as nonconformity. Accordingly results of the first two-digit test, the numbers 10, 12, 26, 30, 45 and 60 made spikes. The calculated MAD value is 0.00263, In the MAD critical values table 0.0022 is considered as nonconformity limit. But it should be considered that the boundary is very close.

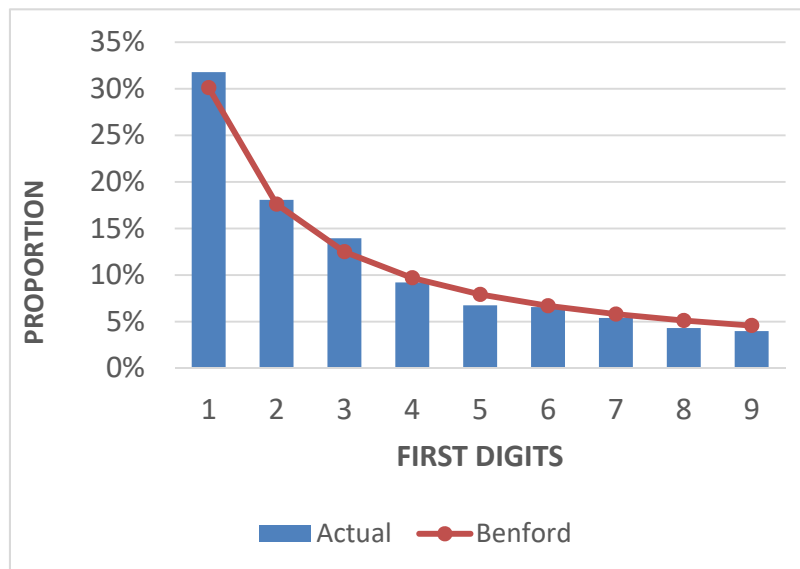


Figure 1. 800 Account First Digit Test Results

#### 830 Budget Expenditure Account

The data of 830 account consists of 7489 count. Data was removed from the dataset since 109 datas were smaller than 10. According to results of the first digit test shown that the expected and actual values in geometric form follow each other. The calculated MAD value is 0.00770. This value is within the Acceptable Conformity limits. Result of the Second Digit test shows that, some deviations are striking. Particularly the count 8 is above the expected distribution. The MAD value calculated as 0.00529 and corresponds to the Close Conformity range. According to the results of the first two digit test , the numbers 10, 17, 38 multiply the peak. The MAD value is calculated as 0.00188. This value is in the Acceptable Compliance range. Nigrini (2011) states that 4-5 spikes on the chart should be regarded as normal.

**B Hospital**

**800 Budget Revenue Account**

B hospital's 800 budget revenue account consist 1024 data. Since 162 of them are smaller than 10, they are removed from the dataset. When we look at the results of the first step test shown in Graph 8, geometrically incompatibility be observed. The MAD value calculated as 0.02194 and is above the compliance limit of 0.015. The first step test was considered incompatible with Benford. According to the results of the Second Digit test, the apparent geometric mismatch multiplies. Numbers except 2, 8 and 9 showed significant deviations from expected values. According to the MAD value calculated as 0.02710, the dataset was incompatible with the Benford Law. The results of the first two digit test accordingly, deviations from the expected distribution are quite apparent. For example, the data starting by 30, 60 and 90 are too high. Calculated MAD value is 0.0055 which is higher than the highest compliance limit of 0.0022, qualifies the dataset as incompatible.

**830 Budget Expenditure Account**

B hospital has 1406 data in 830 Budget Expenditure Account .90 of these are smaller than 10, removed from data set. According to the results, the first digit distributions do not follow Benford's law. The MAD value calculated for the First Step is 0.01745. This value considered incompatible for reason of above the compliance limits. The results of the Second digit test show that the geometric incompatibility strikes at the first moment. The MAD value is calculated as 0.01238, which is in the nonconformity range. Looking at the results of the first two digit tests, many actual points seen below and above the expected distribution. Due to calculated MAD value 0.00333 is above the upper limit of compliance of 0.0022, the test result considered nonconformity

**CONCLUSIONS**

In this study, the accounts of Budget Revenues and Budget Expenditures of two public hospitals operating in the same city of Turkey were subjected to Benford analysis. The Benford Analysis gives results that usefull to comment on the authenticity of the data according to the conformity between expected distributions and actual distributions. Sumarized results of the first, second and first two digit tests applied are given in Table 3. The calculated MAD values for each test and data set were evaluated according to the compliance upper limit and rated as compatible or incompatible. Accordingly, the results of the analysis of Hospital A generally appeared to be compatible. Two incompatible results of Hospital A, do not disrupt the general picture as they are very close to the conformity limit. All of the analysis results of Hospital B were out of compliance. It can be said that only one result is close to the conformity limit, but this does not changes the overall appearance.

The fact that the results of two public hospitals operating in the same area and on the same city is clearly different from eachother, one of them fallows Benford's Law and the other din not, can be interpreted as a signal that the authenticity of the data. Deviations from Benford's Law dustributions may utulized as a red flag. In the majority of datasets, compliance with Benford's law is another factor supporting that a small number of incompatible data may be abnormal This results may usefull for auditor for chose audit field and apply in-depth auditing techniques. Also noticeable peaks in the test results may give clues as to the reasons for the deviation.

**Table 3. Benford Analysis Results of Hospitals**

		800 BUDGET REVENUE ACCOUNT		830 BUDGET EXPENDITURE ACCOUNT		
	TEST	CONMPLIANCE LIMIT	MAD VALUE	RESULT	MAD VALUE	RESULT
A	FIRST DIGIT	0,0150	0,0080	COMPATIBLE	0,00770	COMPATIBLE

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	SECOND DIGIT	0,0120	0,0151	INCOMPATIBLE	0,00529	COMPATIBLE
	FIRST TWO DIGIT	0,0022	0,0026	INCOMPATIBLE	0,00188	COMPATIBLE
<b>B HOSPITAL</b>	FIRST DIGIT	0,0150	0,0219	INCOMPATIBLE	0,017445	INCOMPATIBLE
	SECOND DIGIT	0,0120	0,0271	INCOMPATIBLE	0,012385	INCOMPATIBLE
	FIRST TWO DIGIT	0,0022	0,0056	INCOMPATIBLE	0,003326	INCOMPATIBLE

The Benford analysis gives an indication of the fact that the data contain anomalies, but by making deep audit can be say these signals are truly fraud signs. The greatest benefit of the method is that it can be used in the selection of the research universe. The auditor can determine the risky firms that he or she will choose for in-depth analysis within the large audit universe with the help of this analysis. In future studies, the research can be expanded by applying other tests and different accounting data found in the Benford analysis. Critical values in the literature can also be redefined under sectoral or regional conditions.

## REFERENCES

- Akkaş, M., (2007). Denetimde Benford Kanunu'nun Uygulanması, Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Volume 9, Issue 1, pp. 191 - 206
- Alagöz, Ali - Ay, Mustafa (2001), Muhasebe Denetiminde Benford Kanunu Temelli Dijital Analiz, Selçuk Üniversitesi Sosyal ve Ekonomik Araştırmalar Dergisi, Issue 4, pp. 5976
- Benford, F. (1938). The Law of Anomalous Numbers, Proceedings of the American Philosophical Society, Volume 78, Issue 4, March, pp. 551-572
- Boztepe, E. (2013). Benford Kanunu ve Muhasebe Denetiminde Kullanılabilirliği, EUL Journal of Social Sciences, Volume 4, Issue 1, Jun, pp 73-83
- Carslaw, C. (1988). Anomalies in Income Numbers: Evidence of Goal Oriented Behavior, The Accounting Review, Volume 63, Issue 2, April, pp. 321-327
- Cleary, R. - Thibodeau, J.C. (2005). Applying Digital Analysis Using Benford.s Law to Detect Fraud: The Dangers of Type I Errors, Auditing: A Journal Of Practice & Theory, Volume 24, Issue 1, April, pp 77.81
- Çakır, S. (2004). Muhasebe hilelerinin Tespitinde İstatistiksel Yöntemler (Benford Yönteminin İrdelenmesi), Dokuz Eylül Üni., Sos. Bil., Enstitüsü, İzmir
- Çalış, Y. vd. (2015). Hilenin Ortaya Çıkartılmasında Bilgi Teknolojilerinin Önemi ve Bir Uygulama, Muhasebe ve Finansman Dergisi, July, pp. 93-108
- Çubukçu, S. (2009). Muhasebe Hilelerini Ortaya Çıkarmada Benford Modeli'nin İlk İki Basamak Yaklaşımı ile Kullanılması, MÖDAV, Issue 3, pp. 113-142
- Demir, M. (2014). Benford Yasası Ve Hile Denetiminde Kullanılması, İstanbul Ticaret Üni., Sosyal Bilimler Enstitüsü, İstanbul

- Diekmann, A. (2007). Not the First Digit! Using Benford's Law to Detect Fraudulent Scientific Data, *Journal of Applied Statistics*, Volume 34, Issue 3, April, pp. 321–329
- Drake, P. - Nigrini, M. (2000). Computer Assisted Analytical Procedures Using Benford's Law, *Journal of Accounting Education*, Issue 18, pp. 127-146
- Durtschi, C.-Pacini, C. (2004). The Effective Use of Benford's Law to Assist in Detecting Fraud in Accounting Data, *Journal of Forensic Accounting*, Issue 5, pp. 17-34
- Erdoğan, M. vd. (2014). Muhasebe Hilelerinin Denetiminde Benford Yasası, Gazi Kitabevi, Ankara
- Hill T.P. (1998). The First Digit Phenomenon, *American Scientist*, Volume 86, Issue 4, Jun-July, pp 358-363
- Hill, T.P. (1999). The Difficulty of Faking Data, *Chance*, Volume 12, Issue 3, pp. 27-31
- <http://www.nigrini.com>, (10.02.2016)
- Kocameşe, M. (2006). Benford Kanunu Ve Vergi Denetiminde Kullanılabilirliğinin İncelenmesi, Marmara Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul
- Newcomb, S. (1881). Note on the Frequency of Use of the Different Digits in Natural Numbers, *American Journal of Mathematics*, Volume 4, Issue 1, pp. 39-40
- Nigrini, J. M. (2001). Digital Analysis Using Benford's Law: Tests and Statistics for Auditors, *EDPACS*, Volume 28, Issue 9, pp. 1-2
- Nigrini, J. M. (2012), Benford's Law Applications for Forensic Accounting, Auditing and Fraud Detection, New Jersey: John Wiley & Sons
- Nigrini, J.M. (1996). A Taxpayer Compliance Application of Benford's Law, *The Journal of the American Taxation Association*, Issue 18, pp. 72-90
- Nigrini, J.M. (2015). Persistent Patterns in Stock Returns, Stock Volumes, and Accounting Data in the U.S. Capital Markets, *Journal of Accounting Auditing & Finance*, Volume 30, Issue 4, pp. 541–557
- Nigrini, J.M. - Miller, S. (2009). Data Diagnostics Using Second-Order Tests of Benford's Law, *Auditing: A Journal Of Practice & Theory*, Volume 28, Issue 2, pp. 305–324
- Nigrini, J.M.- Mittermaier J. (1997). The Use of Benford's Law as an Aid in Analytical Procedures, *Auditing: A Journal of Practice & Theory*, Volume 16, Issue 2, pp. 52-57
- Özdemir, M. (2014). Muhasebe Denetiminde Benford Kanunu ve Ölçekten Bağımsızlık Yönteminin Sınanmasına Yönelik Bir İnceleme, İstanbul Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul
- Özer, G.-Babacan, B. (2013). Benford's Law and Digital Analysis Application on Turkish Banking Sector, *Business and Economics Research Journal*, Volume 4, Issue 1, pp. 29-41
- Rauch, B. Vd. (2011), Fact and Fiction in EU-Governmental Economic Data, *German Economic Review*, Volume 12, Issue 3, pp. 243–255
- Thomas, J.K. (1989) Unusual Patterns in Reported Earnings, *The Accounting Review*, Volume 64, Issue 4, October, pp. 773-787



Türkyener, C.M. (2007). Benford Yasası ve Mali Denetimde Kullanımı” Sayıştay Dergisi, Issue 64, pp. 111-122

Uzuner, M. (2014). Benford Yasasının Borsa İstanbul’da İşlem Gören Bankaların Konsolide Bilançolarına Uygulanması, Finansal Araştırmalar ve Çalışmalar Dergisi, Issue 10, January, pp. 73-82

Wendy, K.T.C.-Gaines, B.J. (2007). Breaking the (Benford) Law: Statistical Fraud Detection in Campaign Finance, The American Statistician, Volume 61, Issue 3, August, pp. 218-223

[www.benfordonline.net](http://www.benfordonline.net) (15.03.2017)

Yanık, R. - Samancı T. (2013). Benford Kanunu ve Muhasebe Verilerinde Uygulanmasına Ait Kamu Sektöründe Bir Uygulama, Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, Volume 17, Issue 1, pp. 335-348

# THE POSSIBLE OUTPUTS OF INTERNATIONAL INTERNSHIPS IN ACCOUNTING EDUCATION

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**Abstract:** As it is known, the internship programs are meant to complete the practical learning process by the students. In recent years, in many countries, internships have come to the forefront in terms of business education by higher education institutions. Industry-based internships also make it easier for students to make active learning. A curriculum development supported by theoretical knowledge on which implementation is based on IFRS, which is accepted in the world, and accounting education can respond to changing environmental conditions. This study explains the importance of the mentioned subject and opens up the possibility of international internship opportunities in terms of educational system in Turkey.

**Keywords:** International Internships, Accountig Education, ActiveLearning in Accounting Education, Educational System in Turkey

## INTRODUCTION AND LITERATURE REVIEW

When the literature on international education is examined, active learning is mentioned as the most effective learning method in terms of learning process of individuals. Gaining experience and skills from first-hand allows students to increase their level of knowledge they have taken in the class and to see their effects in practice. Because the classroom environment at school can never provide real life complexity and problem solving. When one evaluates the mentioned situation in terms of accountants, supporting the candidates' learning process with internship programs allows them to see Real Accounting Implementation. In support of this, the American Accounting Association (AAA) states that in an accountant's academic preparation process practical experience has vital importance. The premise role of accounting in the construction of organizations and economics demonstrates that accounting education in particular must have high-quality experience and knowledge in terms of both the national and international reporting environment. However, since accounting is a language born of human needs and offering socio-economic reality, professionals in this field must also have the same knowledge and experience. At this point, according to Burnett (2003), accounting education has to change the existing teaching methods due to environmental pressures. Because of the question "What is the future of accounting education?", It is necessary to look for answers that are integrated with global trends and that the training process needs a modernization. This study explains the importance of the mentioned subject and opens up the possibility of international internship opportunities in terms of educational system in Turkey.

## **METHODOLOGY**

In this paper, the researchers defined the strategy is the comparative case study. As a research strategy. As a research strategy, the case study is used in many situations to contribute to our knowledge of individual, group, organizational, social, political, and related phenomena. Additionally, as Yin (1994:1) has pointed out, case studies are the preferred strategy when 'how' or 'why' questions are being posed. Here, the researcher chose the case study approach as a research methodology not only because of the 'how' and 'why' questions, but also because this strategy does not require control of behavioural events, and focuses on contemporary events. The importance of each condition forced the researcher to use the case study as a research methodology or research strategy (Ceylan, 2014: 110). On the base of the explanations this study is submitted to a comparative case analysis on international internships' effects on accounting education. It is primarily designed for undergraduate and postgraduate courses in comparative and international aspects of accounting education on the base of international internships.

## **FINDINGS AND DISCUSSION**

According to AICPA, there is little doubt that the educational methods that exist in terms of accounting education for the future are insufficient in terms of content. At this point, the most important point that accounting educators and field professionals point out together is that the knowledge of the field is conveyed to the students who are still learning. An international internship program can be recommended as an educational tool to be used in this field. As it is known, the internship programs are meant to complete the practical learning process by the students. In recent years, in many countries, internships have come to the forefront in terms of business education by higher education institutions. Industry-based internships also make it easier for students to make active learning. A curriculum development supported by theoretical knowledge on which implementation is based on IFRS, which is accepted in the world, and accounting education can respond to changing environmental conditions. In this regard, one can see that in the Turkish education system the internships programmes are not seen as the complementary component of the education system. Therefore not only the educators but also the administrators should underline the importance of the vocational education or the internship programmes for specific subjects especially accounting.

## **REFERENCES**

- Accounting Education Change Commission (AECC). (1990). Objectives of education for accountants: Position Statement Number One. *Issues in Accounting Education*, Volume 5, Issue 2, Fall, pp. 307-312
- Beard, D. F. (1998). The status of internships/cooperative education experiences in accounting education. *Journal of Accounting Education*, Volume 16, Issue 3, pp. 507-516.
- Boyce, G., Williams, S., Kelly, A., & Yee, H. (2001). Fostering deep and elaborative learning and generic (soft) skill development: the strategic use of case studies in accounting education. *Accounting education*, Volume 10, Issue 1, pp. 37-60.
- Burnett, S. (2003). The future of accounting education: A regional perspective. *Journal of Education for Business*, Volume 78, Issue 3, pp. 129-134.
- Byrne, M., Flood, B., & Willis, P. (2002). The relationship between learning approaches and learning outcomes: a study of Irish accounting students. *Accounting Education*, Volume 11, Issue 1, pp. 27-42.

- Ceylan, C. (2014) , Educational Governance In Turkey: The Role Of Islamic Social Movements In The New Public Management Age, An Unpublished thesis submitted to The University of Manchester for the degree of Doctor of Philosophy in the Faculty of Humanities.
- Cummings, B., Bennett R. E., & Normand C. J. (2001, Winter). Meeting the challenge: The university accounting program corporate America needs. *Management Accounting Quarterly*. Retrieved June 25, 2002 from <http://www.mamag.com/winterO1/wOlcummi ngs.htm>
- Klibi, M. F., & Oussii, A. A. (2013). Skills and attributes needed for success in accounting career: Do employers' expectations fit with students' perceptions? Evidence from Tunisia. *International Journal of Business and management*, Volume 8(8), 118.
- Schmutte, J. (1986). Accounting internships: The state of the art. *Journal of Accounting Education*, 4(1), 227-236.
- Warinda, T. (2013). Accounting students' evaluation of internship experiences from a skills perspective. *International Journal of Asian Social Science*, 3(3), 783-799.
- Yin, R.K. (2003), *Case Study Research, Design and Methods*, 3rd ed., Vol: 5, Sage, Thousand Oaks, CA.

# THE RELATIONSHIP BETWEEN CORPORATE GOVERNANCE AND CORPORATE FINANCIAL PERFORMANCE – EVIDENCE FROM EMPIRICAL STUDIES

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**Abstract:** *This research suggests that companies that aim for good corporate governance also have better financial performance. Previous research in this area has not led to a broader consensus of this assertion, in terms of the intensity of this relationship and also according to its direction. This research is based on analysis of 50 empirical studies conducted in 13,769 companies worldwide, in which the existence and nature of the relationships between the various characteristics of corporate governance are analyzed, on the one hand, and various variables of corporate financial performances, on the other hand. The results of the research confirm that there is a positive relationship between corporate governance and corporate financial performances.*

**Keywords:** *Corporate Governance, Corporate Performance, Financial Performance*

## INTRODUCTION

Corporate governance and its impact on company performance have triggered much interest among scholars and practitioners in the recent years. Corporate governance encompasses the relationships among stakeholders with the aim of setting objectives, establishing the means for attaining those objectives and monitoring the performance (Co-Operation and Development 2004). Several theories are closely related to the corporate governance and its importance for better performance of companies. Namely, according to the agency theory, adequately developed set of structures and mechanisms are necessary to align the interest of all stakeholders, while according to the stewardship theory, such a set will ensure commitment to achievement of a common goal among all stakeholders.

Increasing efforts are made to improve corporate governance practices in companies so as to protect the interest of shareholders and regulate shareholder–management relations as a means of not only avoiding any possible misuse of power but also of optimizing the company management system and its monitoring as well as improving the overall performance of the company. In this context, the corporate governance structures regulate the rights and responsibilities of different stakeholders, such as the supervisory board, management board, shareholders, creditors, auditors, and alike, and set the procedures for decisions making thus making the process more accurate and management less inclined to make errors or misuse power.

The research on corporate governance mainly focuses on several components as the size and the independence of the board, the demographic diversity of the board members, board remuneration, duality of the CEO, education level and working experience of board members, existence of independent directors, ownership structure and alike. These corporate governance practices are considered to be most effective variables of 'good governance' and have thus been in the focus of most of the empirical studies in this field. However, recent studies on the link between 'good governance' practices and firm performance, measured either in financial or non-financial metrics, have not generated strong enough evidence so as to reach a broad consensus among academicians on the positive effect of corporate governance on a firm's performance.

## **LITERATURE REVIEW**

There are many empirical studies that explore the correlation between corporate governance and corporate financial performance. For example, Esra and Allam (2015:44) prove that there is a strong correlation between certain variables of financial performance, such as Return on Assets (ROA) and Return on Equity (ROE) with two Corporate Governance characteristics, namely, size and the independency of board of directors. However, in the same research they also point out that in some companies, certain variables of corporate governance, in this particular research ownership of the largest shareholder, have a strong negative association with ROE (45). Other variables of corporate governance that positively impact corporate financial performance are size of the board of directors and size of the audit committee (Danoshana and Ravivathani, 2014:121, Onakoya et al., 2014:18, Siriwardhane, 2008:15). The analysis conducted by Bunea and Turlea (2016:331) showed a close relationship between the independence of the Board members and ROA. Mashayekhi and Bazaz (2008:170) found a significant positive relationship between non-executive members of the board and financial performance. They concluded that the independence of the Board increases diversification, which will contribute both to lower risks and to improving the financial performance of a company.

However, other studies have concluded that there is limited impact of certain variables of corporate governance on a company's share prices and their overall financial performance (Gupta and Sharma, 2014:11).

While others indicate that board meeting frequency is negatively related with the company's performance (Danoshana and Ravivathani, 2014:121). Masood Fooladi (2011:488) in his research indicates that CEO duality is negatively associated with a company's performance measured by ROE and ROA, explaining that CEO duality is found to reduce the board of directors' efficiency. There are also studies that for some variables of corporate governance, whose results contrary to similar research, show negative correlations between those variables and the financial performances of companies. For example, Yermack (1996:211) in his analysis of 452 large US corporations for the period 1984 to 1994 finds that the negative relation between board size and corporation value attenuates as the board become large.

## **METHODOLOGY**

This analysis of the correlation between CG and a firm's financial performance is based on the technique of literature studies. Studies that were analyzed, and in which the degree of correlation between corporate governance variables and corporate financial performance variables was assessed, were searched in the following research databases: Ebsco, CEEOL, DOAJ, EconBiz, EconLit, JSTOR, Scopus and SSRN. The research was conducted using the following key terms: *corporate governance*, *corporate accountability*, *corporate governance in relation to corporate financial performance*, and *economic performance*. A list with relevant articles was received from each of the research databases, and only the articles with correlation based on empirical studies or other type of relation between corporate governance variables and corporate financial performance variables were reviewed. Totally there were 50 studies all in electronic format available at the end of February 2017. Correlations between CG and corporate financial performance, based on the nature of the relations between these

two types of variables, were organized into four different categories: positive, negative, neutral and mixed relation.

In this respect, it should be emphasized that there are certain limitations of this methodology. Namely, it cannot be argued with certainty that all the firms included within the framework of this study are actually different, that is, that same firms have not been analyzed by different authors within the framework of other studies. Also, another limitation can be the manner in which the research was chosen, whose results are analyzed within the framework of this research. It is based on random choice, which however, came down to a selection of the first ten received results according to the given search criteria in the respective research bases.

The last restriction of the applied methodology is that in the analysis of the empirical research, the consistency of the methodologies applied by various studies is not taken into account, nor the method according to which they make their own conclusions. Accordingly, some of the results obtained can additionally be analyzed in-depth, if the various variables of the studied phenomena are taken into consideration, which would provide a more objective interpretation and understanding of the obtained results of certain correlations with contradictory, or seemingly opposing intensities or directions. The research that would follow after this study should take into consideration all, or at least some of these limitations and it should respond appropriately in this respect. For example, future researches and analyses should investigate the correlation between different categories of corporate governance and corporate financial performance, giving a more in-depth view of the problem.

## **FINDINGS**

Within the framework of this research, findings were analyzed from within 50 empirical studies with which 13,769 worldwide firms had been covered. The structure and the industries to which the firms belong to, as well as the degree of the development of the economies in which they operate are not always known, so the same are not treated in this research. All studies that fulfilled the requirement of searching through research databases are organized in one list (Table 1), which includes the following elements: Author(s), year of the research, number of analyzed companies and the following four different categories of relations between CG and corporate financial performance: positive (if correlation exist and if it is  $>0$ ), negative (if correlation exist and if it is  $<0$ ), neutral (if CG is not related to any corporate financial performance) and mixed (if the research findings are mixed positive and negative on different variables examined by the research).

**Table 1.** Review of the studies on correlation between CG and corporate financial performance

	Authors, year of study	Number of analyzed companies	<i>CG pays</i> (positive correlation between CG and corporate financial performance)	<i>CG doesn't matter</i> (neutral correlation between CG and corporate financial performance)	<i>CG costs</i> (negative correlations between CG and corporate financial performance)	<i>mixed correlations</i> between CG and corporate financial performance
1	Gürbüz, O., Aybars, A. and Kutlu, Ö. (2010)	164	Positive			
2	Foo, Y.B. and Zain M.M. (2010)	481	Positive			
3	Esra, A. and Allam, H. (2015)	48				Mixed
4	Danoshana, S., and Ravivathani, T. (2014)	25				Mixed
5	Vo, D., and Phan, T. (2013)	77	Positive			

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6	Guo, Z., and Kumara, U. (2012)	174			Negative	
7	Sami et al. (2011)	158	Positive			
8	Fooladi, M. (2011)	236			Negative	
9	Siriwardhane, P. (2008)	86	Positive			
10	Obradovich, J., Gill A., and Biger N., (2014)	189	Positive			
11	Bunea, M., and Țurlea, E., (2016)	28	Positive			
12	Müller, V.O., (2014)	277	Positive			
13	Bayrakdaroglu, A., Ersoy, E., and Citak, L., (2012)	41	Positive			
14	Quaresma, A., Pereira, R., and Dias, Á., (2013)	69	Positive			
15	Ali, A., and Bin Nasir, S., (2015)	134	Positive			
16	Zago, C., and de Mello, G.R., (2016)	48	Positive			
17	Lu., C.C., Kuan, T.H., and Liu, C.C., (2015)	912			Negative	
18	Collins, G.N., (2013)	169	Positive			
19	Ayerbe, C.G., Torres, P.R., and Luna, J.L., (2014)	1,916	Positive			
20	Higgins, D., Toms, S., and Filatotchev, I., (2015)	147		Neutral		
21	Peni, E., and Vähämaa, S., (2012)	62	Positive			
22	Kara, E., Erdur, D.A., and Karabiyik, L., (2015)	33	Positive			
23	Kamarudin, F., Nassir, A.M., Yahya, M.H., Said, R.M., and Nordin, B.A., (2014)	74	Positive			
24	Alshubiri, F.N., (2013)	77	Positive			
25	Ezzi, F., and Jarboui, A., (2016)	96	Positive			
26	Dobre, F., and Brad, L., (2015)	250				Mixed
27	Rahman, H.U., Ibrahim, M.Y., and Ahmad, C.A., (2015)	300	Positive			

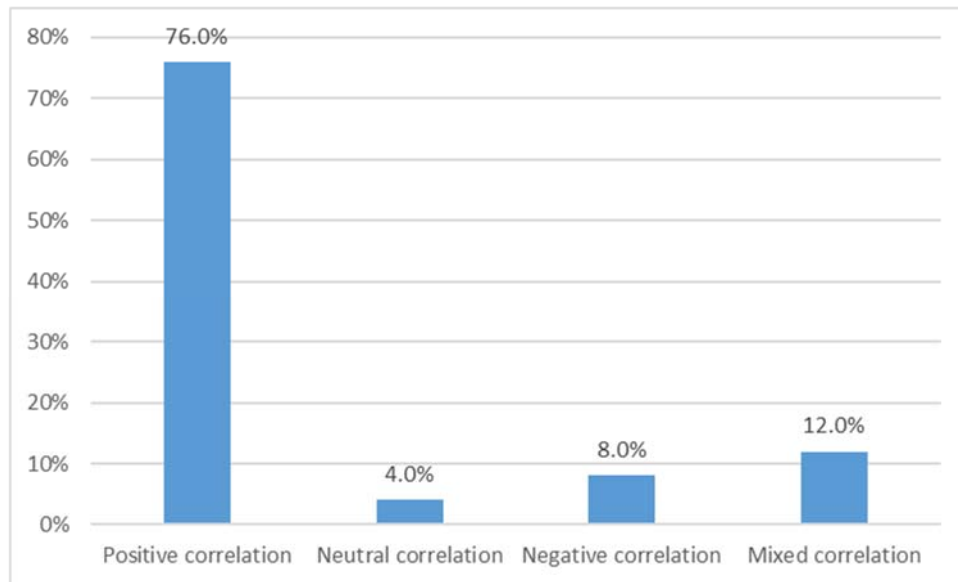


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28	Pandya, H., (2011)	12				Mixed
29	Grove, H., Patelli, L., Victoravich, L.M., and Xu, P.T., (2011)	236	Positive			
30	Ivashkovskaya, I., and Stepanova, A., (2011)	300	Positive			
31	Alabede, J.O., Muff, T., (2015)	241	Positive			
32	Janda, K., and Turbat, B., (2013)	90	Positive			
33	Dhaouadi, K., (2014)	274	Positive			
34	Kharti, L.E., (2014)	10	Positive			
35	Tai, L., (2015)	57	Positive			
36	Citak, L., (2015)	19	Positive			
37	Gruszczynski, M., (2006)	37	Positive			
38	Chaghadari, M.F., and Chaleshtori, G.N., (2011)	30			Negative	
39	Rouf, A.M., (2012)	94	Positive			
40	Dogan, M., Agca, V., and Karayel, M.,	136	Positive			
41	Zubiarre, M.A., Andicoechea, L., and Saitua, A., (2016)	50	Positive			
42	Makki, M.A., and Lohdi, S.A., (2014)	150	Positive			
43	Rani, N., Yadav, S.S., and Jain, P.K., (2014)	155	Positive			
44	Tuan, N.V., and Tuan, N.A., (2014)	1,516	Positive			
45	Nuryaman, N., (2012)	43	Positive			
46	Farooque, O.A., van Zijl, T., Dunstan, K., and Karim, W., (2007)	723				Mixed
47	Ayaydin, O.A., Florackis, C., and Ozkan A., (2014)	1,068	Positive			
48	Gupta, P., and Sharma, A.M., (2013)	5		Neutral		
49	Goel, P., and Ramesh, R.S., (2016)	120	Positive			

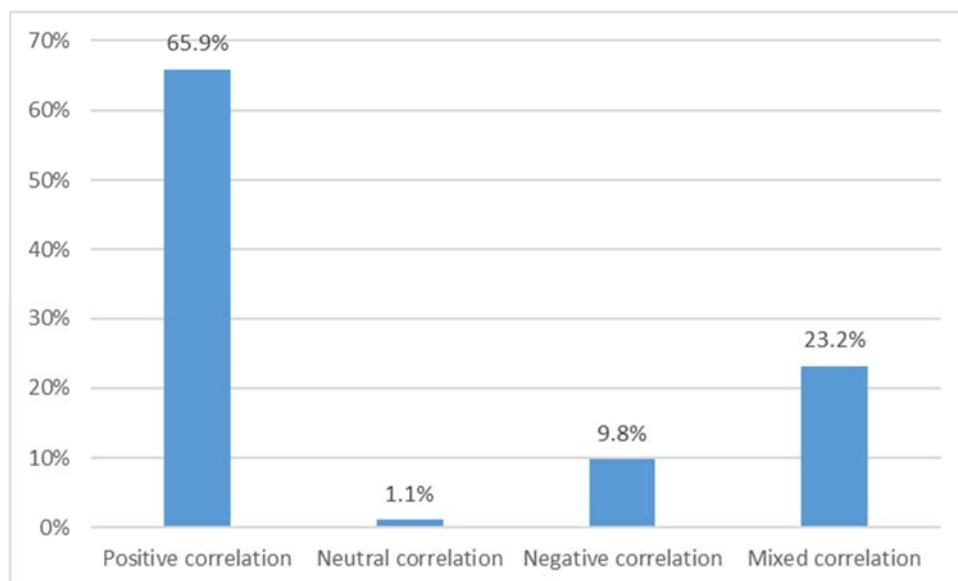
50	Lee, S., (2012)	2,132				Mixed
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Figure 1 shows a summary of the research findings. It is obvious that over 92% of analyzed studies find a non-negative correlation between corporate governance and corporate financial performance. Only four studies out of sample of 13,769 companies found a negative correlation.



**Figure 1.** Share of analyzed studies

Figure 2 shows that almost 91% out of 13,769 companies analyzed with the examined studies indicate non-negative correlation between CG and corporate financial performance. In 9.8% companies covered by all studies there is negative correlation between CG and financial performance variables.



**Figure 2.** Share of analyzed companies

This research shows that the majority of the included studies found a positive relationship between corporate governance and corporate financial performance (76.0% of studies, 65.9% of companies), while only 4.0% of studies (1.1% of companies) showed no significant relationship between a corporate governance and corporate financial performance. Only four studies (9.8% of analyzed companies) showed a negative relationship between CG and company financial performance.

## **CONCLUSIONS**

The analysis confirms the positive effects of corporate governance on financial performance of companies. However, although the positive correlation between corporate governance and firm performance prevails, the number of studies that show mixed or negative correlation cannot be neglected. However, a closer look at the methodology used in the studies reveals differences as to the set of variable used and the size of the samples which could explain some of the inconsistency. It should be taken into consideration that the majority of studies that determined negative or mixed correlation between corporate governance and firm performance include rather small sample (with the exception of Lu, C.C., Kuan, T.H., and Liu, C.C., 2015; Farooque, O.A., van Zijl, T., Dunstan, K., and Karim, W., 2007; Lee, S., 2012). In addition, several studies analyze only a single aspect of corporate governance and its impact on financial performance. There is obvious inconsistency in the set of variable used as well. Namely, the sets of corporate governance-related variables include different elements of 'good governance' implying that there exists no standardized general measure that defines 'good governance' as a starting point upon which research should investigate the link with other firm-related performances.

Having said the above, future research and analyses should investigate the correlation between different categories of corporate governance and corporate financial performance, giving a more in-depth view of the problem. Nevertheless, one cannot neglect the positive relation between corporate governance and financial performance found so far.

## **REFERENCES**

- Esra, A.- Allam, H., (2015), The impact of corporate governance on firm performance: evidence from Bahrain stock exchange, *European Journal of Business and Innovation Research*, Volume 3, Issue 5, pp.25-48.
- Gupta, P.- Sharma, A.M. (2014), A Study of the Impact of Corporate Governance Practices on Firm Performance in Indian and South Korean Companies. *Procedia - Social and Behavioral Sciences*, Volume 133, pp.4-11.
- Danoshana, S.- Ravivathani, T. (2014), The impact of the corporate governance on firm performance: A study on financial institutions in Sri Lanka. *Merit Research Journal of Accounting, Auditing, Economics and Finance*, Volume 1, Issue 6, pp.118-121.
- Onakoya, A.B.- Fasanya, I.O.-Ofoegbu, D.I. (2014), Corporate Governance as Correlate for Firm Performance: A Pooled OLS Investigation of Selected Nigerian Banks. *IUP Journal of Corporate Governance*, Volume 13 Issue 1, pp.7-18.
- Fooladi, M. (2011), Corporate Governance and Firm Performance. *International Conference on Sociality and Economics Development*, IPEDR Volume 10, IACSIT Press, Singapore, pp.484-489.
- Yermack, D. (1996), Higher market value of companies with a small board of directors, *J. Financ. Econ.* Volume 40, pp.185-212.

- Bunea, M.- Țurlea, E. (2016), The impact of the supervisory board structure on bank performance, *Audit Financiar*, Volume 14, Issue 3(135), pp. 326-333.
- Siriwardhane, P. (2008), Broadening the Boardroom: Corporate Governance Company Performance in Sri Lanka, *Eight International Business Research Conference*, Dubai, pp.1-16.
- Mashayekhi, B.- Bazaz, M.S., (2008), Corporate governance and firm performance in Iran. *Journal of Contemporary Accounting & Finance*, Volume 4, number 2, pp. 151-172.
- Higgins, D.- Toms, S.- Filatotchev I., (2015), Ownership, financial strategy and performance: the Lancashire cotton textile industry, 1918–1938, *Business History*, Volume 57, No. 1, pp.96–120.
- Kampouridis, G.- Yiannopoulos, A.Ch., Giannopoulos, G.I., and Tsirkas, S.A., (2015), The Relationship Between TQM and Financial Performance of Greek Companies of Structural Construction Sector During Crisis Period, *Journal of Economics and Business*, Volume 18-2015, No. 1, pp.61-78.
- Fülöp M.T.- Cordoș G.S., (2013), Auditor-Client Tenure Analysis and Its Effect on Auditor Independence, *Audit Financiar*, Volum 11, Issue 105 (9), pp. 3-11.
- Gîrbină M.M.- Albu N.- Albu C.N., (2012), Corporate governance disclosures in Romania, in Nguyen, D.K and Boubaker, S. (Eds.) *Board Directors and Corporate Social Responsibility*, Palgrave Macmillan, pp. 122-144 (of which 7 of the candidate), p. 274.
- Gill A.- Biger N., (2013), The impact of corporate governance on working capital management efficiency of American manufacturing firms. *Managerial Finance*, Volume 39, Issue 2, pp. 116–132.
- Guiral A.- Rodgers W.- Ruiz E.- Gonzalo J.A., (2010), Ethical dilemmas in auditing: dishonesty or unintentional bias, *Journal of Business Ethics*, Volume 91, pp 151–166.
- Hahn P.D.- Lasfer M., (2016), Impact of foreign directors on board meeting frequency, *International review of financial analysis*, Volume 46, pp. 295-308.
- Heslin P.- Donaldson L., (1999), An organizational portfolio theory of board composition. *Corporate Governance: An International Review*, Volume 7, pp. 81–88.
- Iacob A. I.- Müller V.O., (2014), The impact of board composition on the financial performance of FTSE100 Constituents, *Second World Conference on Business, Economics and Management*, *Procedia - Social and Behavioral Sciences*, Volume 109, pp. 969-975.
- James D., (1933), The Modern Corporation and Private Property, in Adolf A. Berle Jr. and Gardiner C. Means, *Indiana Law Journal*: Volume 8, Issue 8, Article 11.
- Krafft J.- Qu J.- Quatraro F.- Ravix J-L., (2014), Corporate governance, value and performance of firms: new empirical results on convergence from a large international database, *Industrial and Corporate Change Journal*, Volume 23, Issue 2, pp.361-368.
- Landier A.- Sauvagnat J.- Sraer D.- Thesmar D., (2013), Bottom-Up Corporate Governance, *Oxford Univ. Press, Review of Finance Journal*, Volume 17, Issue 1, pp. 161-201.

# DETERMINATION OF THE LOCATION OF ESTABLISHMENT WITH ELECTRE METHOD: BURSA PROVINCE AUTOMOTIVE INDUSTRY CASE

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**Abstract:** *The choice of site of establishment is a strategic decision that require high capital investment and difficult and costly to alter in the short term. Since the location of establishment decision requires the assessment of several criteria and alternatives, it is difficult to make an optimal business decision. In the process of location of establishment decisions, which has a complex structure, Multi-Criteria Decision Making (MCDM) techniques are widely used since it is both a strategic topic and requires a series of evaluation factors during the assessment stage. In the present study, the selection of the location of automotive industry in Bursa province is analyzed using the ELECTRE technique, one of the MCDM methods. For this purpose, Bursa, Nilüfer, Demirtaş, Hasanağa, Kayapa Reclaimed, and Akçalar Reclaimed Industrial Parks, where the automotive industry is established in Bursa province, were determined as alternative locations of establishment. In conclusion, the conducted analyses demonstrated that the optimum establishment location for the automotive industry in Bursa was the Demirtaş Industrial Park.*

**Keywords:** Selection of the site of establishment, Electre method, automotive industry, Bursa.

## INTRODUCTION

Globalization affected all nations in the world since the end of the 20th century and diminished social, cultural, and especially economic borders between the countries. As a result, the world became a huge market and competition is globalized as well. The sustenance of corporate activities in this competitive environment depends on the success of their strategic decisions starting from the foundation phase. The most important decisions taken during this phase are the decisions made on the size of the enterprise, the production method and the location of the enterprise. The site of establishment translates into planning the future based on the present conditions. (Köksal and Emirza, 2011: 77). The selection of the establishment site is one of the most important strategic decisions taken since its consequences are long-term, it requires high capital investment and determines the direction of all decisions taken from the beginning.

The site of establishment is briefly the geographical area where the business would operate. Establishment site decisions are also made in situations such as growth, market expansion / change, as well as during the initial establishment of the enterprises. Establishment site decisions are made when looking for answers for questions such as where and in what amount the fixed assets such as production facilities, warehouses, distribution centers, etc. would be located (Uludağ and Deveci, 2013: 259). The accuracy of the decision made at this stage would increase the profitability of the enterprise and affect the future positively as well as ensuring the achievement of business objectives

and goals. Furthermore, it is very significant in providing a competitive advantage for the business in an environment where there is a harsh competition due to the fact that there exists a competition between several domestic and foreign producers (Köksal and Emirza, 2011: 77; Alp and Gündoğdu, 2012: 8). In the case of inaccurate selection of the site of establishment, several problems such as raw material procurement, marketing, transport costs, transportation, communication and infrastructure problems increase the overhead cost, and thus increasing the unit costs (Eleren, 2007: 281). When choosing the enterprise establishment site, three important stages are involved (Akyüz and Soba, 2013: 188); these are the selection of the region where the plant will be built, the selection of a special area within this region, and the selection of the site within this area. Each of these stages requires assessment of several criteria and alternatives. Multi-Criteria Decision Making (MCDM) techniques are widely used in site selection decisions which are very complicated by nature.

The automotive industry provides high added value to the economy in which it operates, accelerates technological advances, increased export revenues and develops strategic areas such as transportation and infrastructure. The automotive industry has a high multiplier effect and added value on economic growth, since it is a customer and supplier of several other industries (Automotive Sector Report, 2017: 7). However, this close relationship with other industries also has a strategic significance since a problem in the industry could quickly contaminate other industries. The global developments in the automotive industry resulted in the rapid development of the industry in Turkey. In 2016, total Turkish exports decreased by 1%, while the automotive industry exports increased by 13%. It was the leading industry in total exports with a share of 16.8% (OSD, 2016: 2).

Furthermore, rapid developments in the automotive industry have resulted in the rapid development of the automotive subsidiary industry in Turkey. The main and subsidiary industrial corporations in the automotive industry are generally located in the Marmara Region. The presence of two large automobile factories and two "industrial zones" in Bursa caused the automotive industry to concentrate in this particular area (T.C. Ekonomi Bakanlığı, 2016: 3). In 2011, a total of 1,234,637 vehicles were produced in Turkey, of which 660,934 were manufactured in Bursa. In the first nine months of 2012, the production of vehicles in Bursa was 423,903 units. In the same period, the total automotive production in Turkey was 828,690 vehicles. Bursa is an automotive production center with the automotive production facilities located in the province (BTSSO, 2015: 14).

The objective of the present study is the application of the selection of automotive industry site of establishment in Bursa province using the ELECTRE MCDM method. For this purpose, Bursa, Nilüfer, Demirtaş, Hasanağa, Kayapa Reclaimed, and Akçalar Reclaimed Industrial Parks, where the automotive industry is established in Bursa province, were determined as alternative locations of establishment. As a result of the conducted analysis, Demirtaş Industrial Park was determined as the optimum site of establishment.

## **LITERATURE REVIEW**

Soner and Önüt (2006) conducted a study that aimed to select the most suitable suppliers by considering more than one qualitative and quantitative criteria using the methods of ELECTRE and AHP. Akyüz and Soba (2013) determined the optimal site of establishment for the textile business that would be established in Uşak province among three alternative locations using the ELECTRE method. Şişman ve Eleren (2013) conducted the study that aimed to select the most suitable among different automobile brands using the ELECTRE and Gray Relational Analysis MCDM techniques based on a number of criteria. Soba (2014) used the Analytical Hierarchy Process (AHP) and the ELECTRE methods to determine which district of the Uşak province would be more appropriate to establish a bank.

## METHODOLOGY

The main principle of the ELECTRE method is to determine the superiority relations by conducting paired comparisons between the alternatives and separately for each criterion. The superiority relation between the alternatives  $A_i$  and  $A_j$ , depicted as  $A_i A_j$ , demonstrates that although alternative  $i$  is not relatively superior to the alternative  $j$ , a decision maker could take the risk to determine that alternative  $A_i$  is superior to  $A_j$ . In multi-criteria decision making problems, in the classical model, a preference order (weak order) that satisfies the conditions of integrity and transitivity among the alternatives is attempted to be constructed to select the best alternative based on the criteria (Pohekar, 2004: 365-381).

The main objective of the study was the application of selection of the automotive industry establishment site in Bursa province with the ELECTRE method. For this purpose, Bursa, Nilüfer, Demirtaş, Hasanağa, Kayapa Reclaimed, and Akçalar Reclaimed Industrial Parks, where the automotive industry is established in Bursa province, were determined as alternative locations of establishment.

During the application of the ELECTRE method, industrial parks were identified as 6 decision locations and 6 evaluation factors were used. Different weights were assigned for the criteria used as evaluation factors. Thus, the weights of the evaluation criteria that would be used when selecting a location for an automotive industry corporation were determined by interviewing industry managers, industrialists and experts. The evaluation criteria and related weights used in the study were as follows:

- K1 : Proximity to the market (0,19)
- K2 : Proximity to the raw material (0,17)
- K3 : Transportation facilities (0,13)
- K4 : The price of the land (0,18)
- K5 : Energy costs (0,21)
- K6 : Infrastructure : 0,12

## ELECTRE METHOD AND FINDINGS

**1st Step:** At this stage, a questionnaire was applied to 30 individuals in the automotive industry identified with random sampling and the participants were asked to score the features of the industrial parks between 0-100 and the mean results were included in a final table. At the same time, this table functioned as the Standard Decision Matrix (A), which constitutes the first step in the implementation of the ELECTRE method. In the standard decision matrix, lines were reserved for the industrial parks and the evaluation criteria were assigned to the columns.

**Table 1.** Standard Decision Matrix (A)

		Proximity to market	Proximity to raw material	Transportation facilities	Price of the land	Energy costs	Infrastructure
Y1	Bursa IP	85	75	90	50	70	95

Y2	NOSAB	85	75	90	50	45	90
Y3	Demirtaş IP	85	75	95	60	95	90
Y4	Hasanağa IP	65	45	50	75	60	65
Y5	Kayapa R. IP	65	45	50	75	60	65
Y6	Akçalar R. IP	65	45	50	76	60	56

**2nd Step:** The matrix was normalized using the values in the standard decision matrix with the following formula.

$$x_{ij} = \frac{a_{ij}}{\sqrt{\sum_{k=1}^m a_{kj}^2}} \quad i = 1, 2, K, \dots, m, \quad j = 1, 2, K, \dots, n$$

**3rd Step:** At this stage, the weighted standard decision matrix (V) was created. To reflect the significance differences between the evaluation factors for the decision makers to the ELECTRE solution, each value in the normalized decision matrix (X) was multiplied by the weights of the criteria in the corresponding column to form the V matrix.

**4th and 5th Steps:** Here, for Step 4, each set of fitness (C) corresponds to a set (cluster) of unfitness (D). For instance, in our application, the Y2 alternative was superior to the Y4 alternative for criteria 1, 2, 3, and 6, and weaker for criteria 4 and 5.  $CY2Y4 = (1,2,3,6)$  and  $DY2Y4 = (4,5)$ . The fitness and unfitness indices were calculated with the following formulas using the sets of fitness and unfitness determined in step 4.

$$C_{pq} = \sum_j W_j \quad D_{pq} = \frac{\left( \sum_{j=0} \left| v_{pj^0} - v_{qj^0} \right| \right)}{\left( \sum_j \left| v_{pj} - v_{qj} \right| \right)}$$

**6th Step:** The superiority comparison was conducted based on the superiority of the fitness index  $C_{pq}$  and inferiority of the unfitness index  $D_{pq}$ . For this purpose, initially, the averages of C and D values

and  $(C^- \text{ ve } D^-)$  were calculated. If  $C_{pq} \geq \bar{C}$  and  $D_{pq} \leq \bar{D}$ , then the alternative  $A_p$  was preferred to alternative to  $A_q$ . For each value, a matrix of superiority was established based the case where this value was greater than, equal to, or smaller than the threshold value. For example, since  $C(Y2, Y3) = 0,480$  is smaller than the threshold value  $c(0,692)$ , the superiority matrix was formed with the expression  $NO = 0$  and  $C(Y3, Y1) = 0,880$  was greater than the  $c$  threshold, the superiority matrix was formed with the expression  $YES = 1$ . For the unfitness matrix, since  $D(Y1, Y4) = 0,438$  was greater than threshold  $d(0,305)$ , then  $NO = 0$  and since  $D(Y3, Y4) = 0,263$  was smaller than threshold  $d$ , then  $YES = 1$ .



**7th Step:** At this stage, net fitness and unfitness indices were calculated. For example, the C value of Y1 was calculated as follows:

$$CY1 = (CY1Y2+ CY1Y3+ CY1Y4+ CY1Y5+ CY1Y6) - (CY2Y1+ CY3Y1+ CY4Y1+ CY5Y1+ CY6Y1) = (1+0,480+0,820+0,820+0,820) - (0,670+0,880+0,180+0,180+0,180) = 1,850$$

**Table 7. Net Fitness and Unfitness Index Values**

		NET FITNESS (C)	NET UNFITNESS (D)
Y1	Bursa IP	1,850	-0,291
Y2	NOSAB	-0,190	1,258
Y3	Demirtaş IP	2,840	-2,746
Y4	Hasanağa IP	-1,560	0,540
Y5	Kayapa R. IP	-1,560	0,540
Y6	Akçalar R. IP	0,230	0,698

When these indices were examined, the industrial park with the highest C value and the lowest D value was the Demirtaş Industrial Park. Thus, Demirtaş Industrial Park was selected as the most suitable site of establishment for automotive industry in the province of Bursa.

## CONCLUSIONS

Establishment site selection is a strategic decision and it is difficult to change this decision in the short term. Thus, the process is more comprehensive and cost more when compared to other studies. It is much more accurate to determine the optimal site location before conducting studies such as demand forecasts, cost-benefit calculations. However, when there are several alternatives while determining the site of the establishment and the existence of the criteria that affect the selection makes it a difficult decision. Inaccurate site selection increases the costs and jeopardizes the future economic life of the business. Thus, it is more adequate to consider the problem of site selection as a strategic issue and also as a MCDM problem since it includes several evaluation factors in the assessment phase. In the present study, MCDM ELECTRE method was preferred.

When determining the site of establishment in Bursa, the most important criteria that affect the establishment of an automotive corporation were determined as Energy Cost, Proximity to the market, Price of Land, Proximity to Transportation, Transportation Facilities and Infrastructure based on the weights of the criteria that affect the alternatives. In recent years, a rapid growth was observed in the automotive industry in Turkey. Bursa has become one of the prominent provinces in the country due to increasing investments and the developing industry. Therefore, although there are several established industrial parks in the province, six industrial parks that host automotive industry corporations were considered as alternatives in the present study and Demirtaş Industrial Park was determined as the most suitable site of establishment based on the weights of evaluation factors.

In conclusion, Demirtas Industrial Park, which was determined as the optimum establishment site, was followed by the Bursa Industrial Park. Considering the weight of the evaluation factors, the Energy Cost was considered as the most important criterion, plays a decisive role in the selection of the site of establishment. To be able to select other industrial zones as a site of establishment, it is necessary to lower Energy Costs in these parks.

## REFERENCES

- Akyüz, Yılmaz – Soba, Mustafa (2013), “Electre Yöntemiyle Tekstil Sektöründe Optimal Kuruluş Yeri Seçimi: Uşak İli Örneği”, *Uluslararası Yönetim İktisat ve İşletme Dergisi*, Volume 9, Issue 19, pp.185-198
- Alp, Selçuk – Gündoğdu, Ceren E. (2012), “Kuruluş Yeri Seçiminde Analitik Hiyerarşi Prosesi ve Bulanık Analitik Hiyerarşi Prosesi Uygulaması”, *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Volume 14, Issue 1, pp.07-25
- Bursa Ticaret ve Sanayi Odası (2015), “Otomotiv Sektör Raporu ve Yerel Otomotiv Stratejisi”
- Eleren, Ali (2007), “Kuruluş Yeri Seçiminin Fuzzy Topsis Yöntemi ile Belirlenmesi: Deri Sektörü Örneği”, *Akdeniz İ.İ.B.F Dergisi*, Issue 13, pp.280-295
- Köksal, Yüksel – Emirza, Emin (2011), “Kuruluş Yeri Açısından Cadde ve Alışveriş Merkezi Mağazacılığının Karşılaştırılması: Ankara İlinde Bir Araştırma”, *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Volume 8, Issue 16, pp.75-87
- Otomotiv Sanayi Derneği (2016), “Otomotiv Sanayii 2015 Yılı Küresel Değerlendirme Raporu”
- Pohekar, Ramachandran M. (2004), “Application of Multi-criteria Decision Making to Sustainable Energy Planning-A Review”, *Renewable & Sustainable Energy Reviews*, Volume 8, Issue 4
- Soner, Selin - Önüt, Semih (2006), “Çok kriterli tedarik seçimi: bir ELECTRE – AHP uygulaması”, *Mühendislik ve Fen Bilimleri Dergisi*, pp.110–120.
- Soba, Mustafa (2014), “Banka Yeri Seçiminin Analitik Hiyerarşi Süreci ve Electre Metodu ile Belirlenmesi: Uşak İlçeleri Örneği”, *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Volume 11, Issue 25, pp.459-473
- Şişman, Bilal – Eleren, Ali (2013), “En Uygun Otomobilin Gri İlişkisel Analiz ve Electre Yöntemleri İle Seçimi”, *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, Volume 18, Issue 3, pp.411-429
- Türkiye Sınai ve Kalkınma Bankası (2017), “Otomotiv Sektör Raporu Türkiye Otomotiv Sanayii Rekabet Gücü ve Talep Dinamikleri Perspektifinde 2020 İç Pazar Beklentileri”
- Türkiye Cumhuriyeti Ekonomi Bakanlığı (2016), “Otomotiv Ana ve Yan Sanayi Sektör Raporu”
- Uludağ, Ahmet S. (2013), “Kuruluş Yeri Seçim Problemlerinde Çok Kriterli Karar Verme Yöntemlerinin Kullanılması ve Bir Uygulama”, *AİBÜ Sosyal Bilimler Enstitüsü Dergisi*, Volume 13, Issue 1, pp.257-28

# MUTUAL INTERACTION BETWEEN CORPORATE GOVERNANCE AND ENTERPRISE RISK MANAGEMENT: A CASE STUDY IN BORSA ISTANBUL STOCK EXCHANGE

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**Abstract:** *Corporate governance and enterprise risk management (ERM) issues have become important issues such as the big corporate scandals following the Enron, the 2008 global economic crisis, the deepening of financial markets, the increase of shareholder numbers in firms and the importance of investor expectations. Some issues such as financial stability, sustainable growth and stakeholder responsibilities related to corporate governance increase the effectiveness of the ERM, taking by management of the risk response related to ERM, ensuring reasonable assurance of reaching objectives, managing risk reporting, etc. In this study, the interrelationships between ERM and corporate governance, which are two mutually influential subjects, were researched. In the logistic regression analysis of 231 companies and time samples for 2009-2015 period, it was seen that corporate governance and ERM positively influenced each other.*

**Keywords:** *Corporate Governance, Enterprise Risk Management, Panel Logit Model*

## INTRODUCTION

Corporate governance debates continue until the early 1980s. Some of the business executives in the USA have not taken stockholder interests into account, but have turned to profit maximization instead of maximizing shareholder value. As a result of these initiatives, issues such as the participation of shareholders in decision-making processes, the social responsibilities of companies, their sustainability and business democracy have come to the fore (Top and Öge, 2012: 105).

Corporate governance is a management approach based on concepts such as accountability, responsibility, public disclosure and transparency. Corporate governance does not only include shareholders and managers, but also customers, suppliers and creditors (Baskıcı, 2015: 164). The goal of corporate governance is to help create an atmosphere of trust, transparency and accountability necessary to develop long-term investments, financial stability and the honesty of businesses, and to support stronger and more inclusive societies on this end (G20 / OECD, 2016:7).

In the mid-1990s, ERM emerged as a new approach to risk management and thinking in an understanding of how to deal with risks in modern risk management (Kleffner et al., 2003: 54, Simkins and Ramirez, 2008: 580; Fraser et al., 2015: 1 ). This new understanding and thinking has been expressed as strategic risk management, enterprise level risk management, holistic risk

management, integrated risk management and finally the most compromised concept of enterprise risk management.

The concept of risk management joined the concept of corporate governance in the late 1990s. The concept of corporate governance has evolved since the late 1980s as a result of reaction of corporate scandals in the United States and the United Kingdom. These scandals and losses have helped to significantly increase the scope and depth of existing regulations in operational risk management (Merna and Al-Thani, 2008: 269).

Corporate governance is the most important aspect of developing an economic activity that balances the relationship between the management of an enterprise, its board of directors, its shareholders and other stakeholders. ERM is the core component of corporate governance (Demidenko and McNutt, 2010: 803). Corporate governance has a wide range of issues and risk management is an integral part of a successful corporate governance organization (Hopkin, 2010: 175). ERM is at least as important an element of corporate governance as internal control (TÜSİAD, 2008: 69). It is not right to evaluate ERM outside of corporate governance. In businesses where there is no corporate governance, it is not possible to talk about institutional risks. There is an intertwining between ERM and corporate governance (Bozkurt, 2010: 26).

Corporate governance emerged from two main sources: (1) the practice of regulatory agencies and organizations; and (2) risk-based management (Carden et al., 2015: 137). It is necessary for the risk management to involve the whole of the enterprise, the involvement of the enterprise in decision making processes, the concern of all employees of the risk culture and risk philosophy, the importance of financial reporting and transparency in risk management and the necessity of good management practices of risk management in the end are situations that improve corporate governance.

ERM increases institutionalization in businesses as well as the ability to respond appropriately to risks (Simkins and Ramirez, 2008: 572). ERM provides practices and safeguards that are tailored to corporate governance procedures, the company's risk tolerance and risk appetite (The Conference Board, 2007: 13). The most important contribution of ERM in terms of corporate governance is to protect the interests of shareholders in a minimum level and to maximize shareholder value (TÜSİAD, 2008: 69).

## **LITERATURE**

There are many studies in the academic literature based on corporate governance and / or ERM. In a significant part of these studies, the concepts of corporate governance and ERM were examined separately. Most of the studies related to corporate governance have tried to determine the effects of corporate governance and the determinants of corporate governance.

Studies by Mitton (2002), Drobetz et al. (2004), Bhadat and Bolton (2007), Switzer and Tang (2009), Karamustafa et al. (2009), Varshnedy et al. In the literature, on the other hand, studies to measure the effects of ERM on firm value and firm performance generally; Gordon et al. (2009), Pagach and Warr (2010), Sugarcia (2011), McShane et al. (2011), Hoyt and Liebenberg (2011), Bertinetti et al. (2013), Baxter et al. (2013), Li et al. (2014), Grace et al. (2015), and Farrell and Gallagher (2015). Beasley et al. (2005), Önder and Ergin (2012), Baxter et al (2013), Bertinetti et al. (2013) and Farrell and Gallagher (2015) for determining the factors affecting ERM applications, as well as Liebenberg and Hoyt (2003).

In addition to these, the studies that the corporate governance and ERM have taken together have been the subject of this study. The studies investigating the relationship between corporate governance and ERM and the effects on each other; (1) studies that are theoretical, theoretical, model proposals and qualitative evaluations (2) application and analysis studies. Studies in which qualitative assessments are made; Brown and others (2009), Demidenko and McNutt (2010), Boghean (2015) and Carden and

others (2015). On the other hand, studies that are analyzed through numerical values and variables; Kleffner and others (2003), Brezeanu and others (2011), Akindele (2012), Paape and Spekle (2012) and Mandacı and Kahyaoğlu (2012).

**Tablo 1. Literature**

Studies	Explanation	Result
Kleffner, A. E., Lee, R. B. and McGannon B. (2003)	want to explain the use of ERM by Canadian companies and the role that corporate governance plays in ERM implementation decisions	ERM applications were becoming more widespread and there will be differences between corporate governance standards
Brown, I, Steen, A. and Foreman, J. (2009)	to investigate the relationship between risk management practices and corporate governance in Australia	corporate governance structure of the work will enable companies to better manage the risks they face
Demidenko and McNutt (2010)	add to the debate on good governance and ERM in Russia and Ukraine	the key component of corporate governance, has been demonstrated as a way to improve risk management practices in businesses.
Brezeanu, P., Al Essawi, M. S., Poanta, D. and Badea, L. (2011)	to investigate the impact of corporate governance on enterprise-level risk management systems in NASDAQ	corporate governance affected risk management systems
Akindele (2012)	the relationship between risk management and corporate governance on bank performance in Nigeria	better corporate governance led to better risk management
Paape and Spekle (2012)	the impact of corporate governance regulations on ERM application levels	corporate governance did not affect ERM development
Mandacı and Kahyaoğlu (2012)	the impact of corporate governance on corporate risk management	the corporate governance did not affect the ERM
Boghean (2015)	corporate governance and risk management impact on decision-making processes	Risk management decisions were made on the basis of analyzes.
Carden, L. L., Boyd, R. O. and Valenti, A. (2015)	the safe working environment is related to risk management practices	requires regulatory to reduce health and safety risks in the way risk management

## METHOD

The variables used in the study are shown in Table 2. Companies' ERM and corporate governance practices are used as dummy variables. Variables that can not be measured but can be counted in regression models are called dummy, shadow, or dummy variable. Dummy variables are transformed into countable variables by assigning specific values to unmeasured variables (Dikmen, 2012: 155). Among the regressions in which dummy variables are used as dependent variables are logit models.

Corporate governance variable has been formed as "1" or "0" according to the inclusion in the BIST Corporate Governance index. ERM variables are assigned as "0" for companies that do not have ERM application "1" in line with the information obtained from the detailed examination of the company's annual reports.

Leverage (LEV), profitability (ROA) and size variables (LOGSIZE) are the control variables used in the study. In order to determine the effect of corporate governance on ERM, the following panel logit model was created. LOGSIZE, LEV and ROA are the control variables that are expressed and determined to have an effect on ERM and corporate governance in the literature.

$$ERM_{it} = \beta_0 + \beta_1 CORGOVERN_{it} + \beta_2 LOGSIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \mu_{it} \quad (1)$$

The following panel logit model was used to determine the effect of ERM on corporate governance using the above control variables

$$CORGOVERN_{it} = \beta_0 + \beta_1 ERM_{it} + \beta_2 LOGSIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \mu_{it} \quad (2)$$

**Table 2. Variables Used and Explanations**

Variables and Abbreviations	Abbreviation of Variables	Explaining Variables
ERM Application	ERM	ERM if Applied "1", if not applied "0"
Corporate Governance	CORGOVERN	CORGOVERN if Applied "1", if not applied "0"
Company Size	LOGSIZE	Natural Logarithm of Total Assets
Financial Leverage	LEV	Total Debt/Total Assets
Return on Assets	ROA	Net Profit/Total Assets

## FINDINGS

Table 3 shows the regression results. Accordingly, it is seen that the effect of corporate governance on ERM is economically and statistically significant. It has been determined that corporate governance positively affects ERM implementations.

**Table 3. Logistic Regression Result (Random Effect Models)**

The Effect of CORGOVERN on ERM					The Effect of ERM on CORGOVERN			
	Coef.	Std. Err.	Z	P	Coef.	Std. Err.	Z	P
ERM					9.3322	2.4337	3.83	0.000
CORGOV	2.7150	1.0076	2.69	0.007				
ERN								
LEV	3.2670	2.4529	1.33	0.183	-17.353	8.5845	-2.02	0.043
ROA	6.2480	4.4256	1.41	0.158	-19.310	24.276	-0.80	0.426
dLOGSIZE	7.1896	8.9126	0.81	0.420	7.1896	8.9126	0.81	0.420
Sabit	-2.5319	1.5665	-1.62	0.106	-13.761	5.8139	-2.37	0.018
Number of obs: 198 Number of groups : 33					Number of obs: 198 Num. of gr. :			
Wald chi2 (4) = 8.70 Prob>= chibar2 = 0.000					33Wald chi2 (4) = 24.60			
Hausman chi2(4) = 9.02 (Prob>chi2 = 0.0605)					Prob>= chibar2 = 0.000 Hausman			

LR chi2_c = 32.187	chi2(4) = 0.00 (Prob>chi2 = 1.0000) LR chi2_c = 174.400
Note: The symbol "d" shows the difference variable.	

As a result of the second regression, it is seen that ERM applications positively affected corporate governance and this effect is economically and statistically significant. Corporate governance and ERM's affirmation of each other positively supported the resultant theory. This is because issues such as the fulfillment of stakeholder expectations of corporate governance, the acquisition of investor trust, and the achievement of financial stability are also issues that support ERM applications. On the other hand, issues such as the taking of risk related decisions of ERM at institutional level, providing reasonable assurance of reaching business objectives, and transparency in reporting and decision making are also issues that increase the effectiveness of corporate governance. This result is most similar to the study of Akindele (2012) in the literature. Akindele (2012) study showed a positive relationship between corporate governance and ERM. Moreover, the result of corporate governance in the work of Brezeanu et al. (2011) positively affects the ERM, which is similar to the result of the positive effect of the corporate governance used in this study on ERM.

## RESULTS

The big corporate scandals and global financial crisis in recent years have increased the importance of corporate governance and ERM concepts, and two studies and researches on corporate governance, ERM related business, regulatory organizations and universities have become widespread. It is not possible to distinguish between corporate governance and ERM concepts, and it is possible to say that the two concepts have increased their effectiveness by influencing each other.

In this study, it is aimed to determine the interaction between corporate governance and ERM in the sample of companies registered in BİST operating in Turkey in 2009-2015 period. In the panel logistic regression analyzes made, it was seen that both the corporate management affected on ERM and the ERM affected on the corporate governance positively.

## REFERENCES

- Baskıcı, Ç. (2015). Kurumsal Yönetim Uygulamalarında İç Kontrol Sisteminin Önemi: Borsa İstanbul Şirketleri Üzerine Bir Araştırma. *Uluslararası Yönetim İktisat ve İşletme Dergisi*. Volume 11, Issue 25, pp. 163-180.
- Baxter, R.- Bedard, J. C.- Hoitash, R - Yezegel, A. (2013). Enterprise Risk Management Program Quality: Determinants, Value Relevance, and the Financial Crisis. *Contemporary Accounting Research*. Volume 30, Issue 4, pp. 1264-1295.
- Beasley, M. S.- Clune, R. - Hermanson, D. R., (2005). Enterprise Risk Management: AN Emprical Analysis of Factors Associated with the Extent of Implementation, *Journal of Accounting and Public Policy*, Issue 24, pp. 521-531.
- Bertinetti, G. S.- Cavezzali, E. - Gardenal, G. (2013). The Effect of The Enterprise Risk Management Implementation on The Firm Value of European Companies, *WorkingPaper Series*, <http://virgo.unive.it/wpideas/storage/2013wp10.pdf>, (13.07.2014).
- Bhadat, S. - Bolton, B. (2008). Corporate Governance and Firm Performance. *Journal of Corporate Finance*. Volume 14, Issue 3, pp. 257-273.
- Bozkurt, C. (2010). Risk, Kurumsal Risk Yönetimi ve İç Denetim. *Denetışim Dergisi*. Issue 4, pp. 17-30.

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- Carden, L. L.- Boyd, R. O. - Valenti, A. (2015). Risk Management and Corporate Governance: Safety and Health Work Model. *Southern Journal of Business and Ethics*, Issue 7, pp. 137-148.
- Demidenko, E. - McNutt, P. (2010). The Ethics of Enterprise Risk Management as a Key Component of Corporate Governance. *International Journal of Social Economics*, Volume 37, Issue 10, pp 802-815.
- Drobetz, W.- Schillhofer, A.- Zimmermann, H. (2004). Corporate Governance and Expected Stock Returns: Evidence from Germany. *European Financial Management*, Volume 10, Issue 2, pp. 267-293.
- Farrell, M.- Gallagher, R. (2015). The Valuation Implications of Enterprise Risk Management Maturity, *The Journal of Risk and Insurance*, Volume 82, Issue 3, pp. 625-657.
- Fraser, J.- Simkins, B. J. (Edit). (2010). *Enterprise Risk Management: Today's Leading Research and Best Practices for Tomorrow's Executives*, John Wiley&Sons Inc., New Jersey, USA.
- Gordon, L. A.- Loeb, M. P.- Tseng, C-Y. (2009). Enterprise Risk Management and Firm Performance Contingency Perspective, *Journal of Accounting and Public Policy*, Volume 28, Issue 4, pp. 301-327.
- Hopkin, P. (2010). *Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management*. USA: KoganPage Limited.
- Hoyt, R. E.- Liebenberg, A.P. (2011). The Value of Enterprise Risk Management. *Journal of Risk and Insurance*. Volume 78, Issue 4, pp. 795-822.
- Karamustafa, O.- Varıcı, İ.- Er, B. (2009). Kurumsal Yönetim ve Firma Performansı: İMKB Kurumsal Yönetim Endeksi Kapsamındaki Firmalar Üzerinde Bir Uygulama. *Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*. Volume 17, Issue 1, pp 100 –119.
- Kleffner, A. E.- Lee, R. B.- McGannon B. (2003). The Effect of Corporate Governance on the Use of Enterprise Risk Management: Evidence from Canada. *Risk Management and Insurance Review*. Volume 6, Issue 1, pp. 53-73.
- McShane, M. K.- Nair, A.- Rustambekov, E. (2011). Does Enterprise Risk Management Increase firm Value? *Journal of Accounting, Auditing & Finance*. Volume 26, Issue 14, pp. 641-658.
- Merna, T.- AL-Thani, F. F. (2008). *Corporate Risk Management*. John Wiley&Sons Ltd. England.
- Mitton, T. (2002). A Cross-Firm Analysis of the Impact of Corporate Governance on the East Asian Financial Crisis. *Journal of Financial Economics*. Issue 64, pp. 215–241.
- OECD (2016). *G20/OECD Principles of Corporate Governance (Turkish Version)*. OECD Publishing. Paris.
- Önder, Ş.- Ergin, H., (2012), Determiners of Enterprise Risk Management Applications in Turkey: An Empirical Study with Logistic Regression Model on The Companies in ISE(Istanbul Stocks Exchange), *Business and Economic Horizons*, Volume 7, Issue 1, pp. 19-26
- Pagach, D.- Warr, R. (2010). The Effects of Enterprise Risk Management on Firm Performance. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1155218](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1155218), (26.10.2014).
- Simkins, B.- Ramirez, S. A. (2008). Enterprise-Wide Risk Management and Corporate Governance. *Loyola University Chicago Law Journal*. Volume 39, Issue 3, pp. 570- 594.



Switzer L. N.- Tang, M. (2009). The Impact of Corporate Governance on the Performance of U.S. Small Cap-Firms. *International Journal of Business*. Volume 14, Issue 4, pp. 341-355.

The Conference Board. (2007). *Emerging Governance Practices In Enterprise Risk Management*. Research Report. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=963221](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=963221), (26.10.2014).

Top, S.- Öge, E. (2012). *Yeni Ekonomide İşletmelerin Kurumsallaşması ve Kurumsallaşmanın Boyutları*. Yeni Ekonomi. İstanbul: Beta Basım.

Türk Sanayicileri ve İşadamları Derneği-TÜSİAD. (2008). *Kurumsal Risk Yönetimi*. İstanbul: Yayın No 452.

# RELATIONSHIP BETWEEN THE COUNTRY RISK AND THE DIRECT FOREIGN CAPITAL INVESTMENT: TURKEY CASE

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**Abstract:** Countries need to obtain foreign exchange inflows in order to be able to intervene in the volatility of the exchange rates when necessary and to balance the demand with the foreign exchange supply in the country. Tourism revenues, portfolio investments made by foreign investors and capital investments are crucial for the countries to be able to meet the foreign exchange demand for domestic market prices. This trilateral power of proxy is the ability to attract a permanent foreign investor to a foreign direct investment country. Taking these factors into consideration, it is desirable to determine whether the credit default swap rates and credit ratings of the countries affect foreign direct investment or not. In this respect, it is examined whether there is a relation between foreign capital investment and credit default swap rates and secondly, is there any relation between foreign capital investment and credit notes.

**Keywords:** Country Risk, Credit default swaps, Credit rating, Foreign direct investment

## INTRODUCTION

Credit Default Swap (CDS) rates and credit ratings can be used as proxy for country risk. In this study, the relationship between the credit default swap ratio and the foreign direct investment inflow is examined. By the way, it is debatable how accurate ratings of credit rating agencies' assessment. In particular, it is questionable how well credit rating agencies are not transparent enough about the methods they use to set country grades. With this study, foreign investors investing in Turkey are searched for the question of credit rating given by the credit rating agencies to the country. In this context, it has been examined in which sectors the foreign direct investment in Turkey is made more intensively, and an examination of the relationship between the country's credit rating and foreign direct investment. In addition, it is examined whether there is a meaningful difference in sectors.

## LITERATURE

İnsel and Sungur (2003) have found that in the long run there is no permanent relationship between capital movements and economic indicators. With this determination, it is necessary to examine the dynamic relations between capital movements and economic indicators and to determine the meaningful relations within short term imbalances.

Erkan and Demircioğlu (2011) point out that country ratings provide objective information about the credibility of the country for the effects on direct foreign capital investments and lead to international

investors. However, evaluations about Turkey weaken this thesis and that foreign direct investment from Turkey has almost not affected.

Emir, Uysal and Dođru (2013) aimed to determine whether there is a correlation between foreign direct investment in Turkey and country risk and macroeconomic variables. For this purpose, the relationship between foreign direct investment and country risk, openness rate, foreign trade deficit, gross domestic product, political risk and real exchange rate for the period 1992: 1-2010: 4 has been examined. According to the results of the "Granger causality test" in their studies, they pointed out that the changes in the level of the country risk and the political risk level have one way effects on the Foreign Direct Investment. On the other hand, they came to the conclusion that the Foreign Direct Investment has no effect on the country's risk.

Güneş (2007) stated that instead of restrictive policies, countries should focus on ensuring the economic stability and market development policies in order to attract international funds. Furthermore competitive free market, and rational macroeconomic policies will minimize the risks on operations.

In Özcan and Arı's (2010) study shows that, FDI is mainly effected by the increase on GDP and amount of the existing investment at previous periods.

Kargı (2014), in his study, analyze the effects of macroeconomic indicators on credit ratings. Study shows that Moody's and Fitch's credit rates are generally positive and stable and S&P's credit rates are more closely related with the economic variables of Turkey.

Bevan and Estrin (2000, 2004) have examined European countries in their work searching the determinants of FDI. In this study, FDI from Central and Eastern European countries and some transition economies from Western Europe in 1994-1998 period was analyzed by panel data model. While there is a positive relationship between FDI and the market size of the source and host countries, it has been determined that the unit labor cost is negatively related with FDI. On the other hand, the risk of the host country is estimated to be insignificant.

In their study, Topal and Gül (2016) aimed to reveal the relationship between the economic risk and the FDI. In the study, the relationship between economic risk and FDI and macroeconomic variables and FDI was tested using time series analyzes for 2003: 1 - 2014: 1 period. According to the findings obtained after the analysis, FDI positively effected by the Economic risk, current account deficit and inflation, while it is negatively affected by the real exchange rate. In addition, the findings also show that the country's risk level decreases as the FDI that comes to the country, so the relationship between economic risk and FDI is not one-way. On the other hand, when other explanatory variables are taken into account, one-way causality relationship emerges from inflation to current deficit and from FDI to inflation.

Tukenmez and Kutay (2016) analyzed the effect of the country risks on stock prices of Turkey and Argentina –two of the developing countries - for the period 1996:10 - 2013:12. First, a cointegration test was conducted and for Turkey a long term relationship between the country's financial and political risk and stock index was determined. On the other hand, for Argentina the data showed that there is a relationship between financial risk and stock index but no relation with political and economic risk levels. The Granger test in the second phase revealed that there is a two-sided causality relationship between financial risk grade and stock market index for both countries.

## **METHODOLOGY**

In this study, we run "VAR Granger Causality/Block Exogeneity Wald Tests" to look at the relationship between variables. The model established for the Granger causality test is not a structural

econometric model. This model aims to carry out causality tests, not predictions of the future. For this reason, the model variables must be prefiltered or stationary (Granger 1988).

Equation of a bivariate VAR model is;

$$X_t = A(L)X_t + B(L)Y_t + u_{1t}$$

$$Y_t = C(L)X_t + D(L)Y_t + u_{2t}$$

Here; A, B, C, D expresses the parameters and L expresses the lag length.

The variables in this study are CDS rates (CDS), FDI in Manufacturing Industry (MI), FDI in Retail Industry (RI), Total FDI (TI) and the Credit Rates of Turkey (CR). We have CDS data by using Bloomberg data provider and Credit Rates (S&P, Fitch, Moody's) from "trading economics" data. Foreign Direct Investment data of Turkey is taken from Central Bank of Turkey (cbt) data bank.

We used the monthly data to analyze the relationship between CDS and foreign direct investment (FDI) between January 2005 and June 2016. For analyze the relationship between CR and FDI, we used the monthly data between January 2006 and January 2017.

In order to be able to perform the analysis, the letters representing the country note were numbered. For instance, if country have Aaa credit note, it have number 1 (if positive) or 2 (if stable) or 3 (if negative). If country have Aa1 or AA+ credit note, it have number 4 (if positive) or 5 (if stable) or 6 (if negative). The number was given by this method to country credit rates. The "Table 1" shows the long term rating scale of credit rating agencies.

**Table 1.** Long term rating scale of credit rating agencies.

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-
Ba1	BB+	BB+

Ba2	BB	BB
Ba3	BB-	BB-
B1	B+	B+
B2	B	B
B3	B-	B-
Caa1	CCC+	CCC
Caa2	CCC	CCC
Caa3	CCC-	CCC
...	...	...

Source: [www.curriedwealthbuilding.com](http://www.curriedwealthbuilding.com)

## RESULTS

In order to determine the causality relation between the data, all the series were subjected to the test of stationarity first. The results of the stationarity test are shown in the table below.

**Table 2.** Results of Augmented Dickey-Fuller Test Statistic.

Variables	Augmented Dickey-Fuller test statistic	
	Level	
	Constant (Prob. Value)	Constant and Linear Trend (Prob. Value)
CDS	0.0159*	0.0710**
MI	0.0000*	0.0000*
RI	0.0000*	0.0000*
TI	0.0098*	0.0000*

Stationary test results show that all variables are stable at level. After that, it was tried to determine the most suitable lag length. For this purpose, we look for the values of Akaike information criterion (AIC), Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ). Thereafter, the “VAR Granger Causality/Block Exogeneity Wald Tests” was performed by using EViews.

All these steps were repeated over and over when comparing the two variables.

The Null Hypothesis: “X” does not Granger Cause “Y”.

**Table 3.** The summary “VAR Granger Causality/Block Exogeneity Wald Tests” for CDS and FDI.

<b>Null Hypothesis</b>	<b>Probability</b>	<b>H<sub>0</sub> Reject</b>
RI does not Granger Cause CDS	0.0000	+
CDS does not Granger Cause RI	0.0149	+
MI does not Granger Cause CDS	0.8888	
CDS does not Granger Cause MI	0.5833	
TI does not Granger Cause CDS	0.0307	+
CDS does not Granger Cause TI	0.1924	

The relationship between CR and FDI has also been examined following the same process. CR series are not stable at level. So we used difference of series to stabilize them. All d(CR) and d(FDI) data's are stable at level.

Moody's and Manufacturing Industry VAR Granger Causality/Block Exogeneity Wald Tests results show that Manufacturing Industry is Granger Cause of Moody's (Probability 0.0067). There is no other Granger Causality between FDI variables and other Credit Rating Agencies.

## **CONCLUSIONS**

In this study, it was attempted not to specify to what extent the foreign direct investment inflows to Turkey affected the country's risk. The retail sector has been found to have a two-way causality relationship with CDS. This means that there is a relationship between foreign direct investment in the retail sector and the country's risk premium. Moreover, the change in the country risk premium affects foreign direct investment inflows to the retail sector. Besides, the total foreign direct investment inflow for the analyzed period affects the country risk premium, but the country risk premium does not affect the total foreign direct investment inflow.

When the relationship between the country credit rating and direct foreign investment inflows is examined, it seems that manufacturing industry data affects Moody's data. However, Moody's data does not affect manufacturing industry data. There is no relationship has been established between other rating agencies and direct foreign investment inflows.

All these results show that, except the retail sector, foreign direct investment inflows are not related to the country's risk. However, in the change of country risk, the foreign direct investment that the country can attract is effective.

## **REFERENCES**

Bevan, Alan A. - Saul Estrin (2000), “The Determinants of Foreign Direct Investment in Transition Economies”, William Davidson Institute Working Paper, Issue.342, October 2000.

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
OHRID-MACEDONIA/3-5 JULY 2017**

---

Bevan, Alan A.- Saul, Estrin (2004), “The determinants of foreign direct investment into European transition economies”, *Journal of Comparative Economics*, Issue. 32, pp. 775–787.

Erkan, M. - Demircioğlu, M. Y., (2011), “Türkiye’ye Verilen Derecelendirme Notlarının Doğrudan Yabancı Yatırım Girişine Etkisinin Yıllar İtibariyle İncelenmesi”, İnönü Üniversitesi, Hukuk Fakültesi Dergisi, Volume 2, Issue 1, pp. 209-239.

Emir, M.- Uysal, M.- Doğru, B., (2013), “Ülkelerin Risklilik Durumu ile Ülkeye Gelen Doğrudan Yabancı Yatırım Arasındaki İlişki: Türkiye Örneği”, Atatürk Üniversitesi, İİBF Dergisi, Volume 27, Issue 2, pp. 79-92.

Güneş, S., (2007), “Uluslararası Sermaye Hareketlerini Etkileyen Faktörler: Türkiye Örneği”, *Sosyoekonomi*, 2007, Issue 1, pp. 11-32.

Granger C. (1988), “Causality, Cointegration and Control”, *Journal of Economic Dynamics and Control*. Issue 12, pp. 551-59.

İnsel, A. - Sungur, N. (2003), “Sermaye Akımlarının Temel makroekonomik Göstergeler Üzerindeki Etkileri: Türkiye Örneği-1989:III-1999:IV”, *Türkiye Ekonomi Kurumu, Tartışma Metni*, Nu.8.

Kargı Bilal (2014). “Uluslararası Kredi Derecelendirme Kuruluşları ve Türkiye’nin Kredi Notu Üzerine Gözlemler (1998-2003).” *Journal of Academic Social Science Studies*, Volume.7, Issue 1, pp.351-370.

Özcan, B. - Arı, A. (2010), “Doğrudan Yabancı Yatırımların Belirleyicileri Üzerine Bir Analiz: OECD Örneği”, *İ.Ü., Ekonometri ve İstatistik Dergisi*, Issue 12, pp 65-88.

Topal M. H. - Gül Ö.S. (2016). “Ekonomik Risk ile Doğrudan Yabancı Sermaye Yatırımları Arasındaki İlişki: Türkiye Örneği”, *Gümüşhane Üniversitesi Sosyal Bilimler Enstitüsü* Volume 7 Issue 15.

Tükenmez N.M.- Kutay N. (2016). “Ülke Riskinin Hisse Senetleri Getirileri Üzerine Etkisi: Türkiye ve Arjantin Piyasaları İçin Bir Karşılaştırma”, *Atatürk Üniversitesi, Sosyal Bilimler Enstitüsü Dergisi*, Volume 20 , Issue 2, pp. 631-645

<http://curriedwealthbuilding.com/July-10,-2010--More-Evidence-of-Media-Corruption.php>, (10.02.2017)

[www.tcmb.gov.tr](http://www.tcmb.gov.tr), (10.02.2017)

[www.tradingeconomics.com](http://www.tradingeconomics.com), (10.02.2017)

# MOMENTUM ANOMALY: RESEARCH IN BIST 100 INDEX

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**Abstract:** *Stock market anomalies are mispricings arise from irrational investor behaviours. Investors can obtain abnormal returns based on certain investment strategies in anomaly observed markets. The purpose of this study is to investigate the existence of momentum anomaly in BIST 100 index during the period July 2008 to June 2015. Jegadeesh and Titman (1993) J month and K month method were used in the study. Findings reveal the existence of momentum anomaly in 9-month portfolio and 9,12-month investment strategies, in 12-month portfolio and 6, 9, 12-month investment strategies in BIST 100 Index.*

**Keywords :** *Anomaly, Momentum Anomaly, BIST 100 Index*

## INTRODUCTION

Investment Professional, academics novice traders spend a great deal of time and effort to discover anomalies. Because the phenomenon of anomaly has a significant return potential for investors (Singal, 2006:8). The study investigated existence of momentum anomaly during the period July 2008- June 2015 in Bist 100 Index. In this context, "Is momentum anomaly valid in BIST 100 Index?" The answer was searched. Study sample consists of stocks be traded regularly In BIST 100 Index during the researcn period.

Study employed Jegadeesh and Titman (1993) J month / K month method. In this context, firstly winner and loser portfolios created then the sucess of the momentum investment strategies tested for different investment periods.

24 different momentum investment strategy tested, 20 of these strategies generate positive abnormal return, significant results has revealed that momentum anomaly existed in 9-month portfolio and 9, 12-month investment strategies, in 12-month portfolio and 6,9,12-month investment strategies.

## LITERATUR REVIEW

Efficient Market Hypothesis is one of the main theory of traditional finance. Fama (1965) defined efficient market as " where there are large number of rational, profit-maximisers actively competing, with each trying to predict future market values of individual securities and where important current information is almost freely available to all participants (Fama,1965:76). According to hypothesis; financial markets at any time all the security prices reflect all available information. Security pricess follow random walk thus prediction of future stock price movements is not possible based on fundemental or technical analysis. Investors can not obtain abnormal return depending on any investment strategy.

Researches to estimate share prices and returns revealed contradicting results with Efficient Market Hypothesis. These events called as anomaly. In Anomaly observed markets can be obtained return



based on certain investment strategies. The continuity of the anomalies can make systematic returns. Results of Kahneman and Tversky's studies emerged a new area as known behavioral finance which trying to explain anomalies' reasons and research effects of heuristics and bias on investment decisions. In this contexts, Behavioral finance aims to improve understanding investors and financial markets by applying behavioral sciences like as psychology and sociology (Baltussen, 2011:2).

Fundamental market anomalies are January, day of the week, momentum, firm size, book to market ratio, price earning ratio, low price and overreaction anomalies.

Momentum anomaly refers that abnormal return is possible by using momentum investment strategy, which involves buying stocks that have performed well in the past 3-12 months (winner), short selling those that perform poor in the same period (loser). Although the first study was made by Levy (1967), reference study was made by Jegadeesh and Titman (1993) on momentum anomaly. Jegadeesh and Titman concludes that momentum investment strategies generate return between 8-18 % 3-12 months period. Chan, Jegadeesh and Lakonishok (1996) find that winner portfolio generates 8,8 % return more than loser portfolio, Rouwenhorst (1998) winner portfolio which created with international diversification have performed better 1% than loser portfolio. Conrad and Caut (1998) point out momentum investment strategies are profitable 3-12 months period, Rouwenhorst (1999) find existence of momentum anomaly in 7 out of 20 emerging stock Exchange although evidences refer to momentum anomaly in Istanbul Stock Exchange results are not significant. O'Neal (2000) concludes that momentum investment strategies generate abnormal returns. Moskowitz and Grinblatt (1999) find existence of industry momentum and industry momentum strategies are more profitable than momentum strategies including individual stocks. Jegadeesh and Titman (2001) find that momentum returns persist in 90's year, too. Hon and Tonks (2002) in UK, Cleary, Doucette ve Schmitz (2005) in Canada, provide evidence in momentum anomaly. Griffin Ji and Martin (2005) conclude that momentum investment strategies generate positive return as global except that Turkey. Wang (2008) finds momentum existed in Uk, Germany, Chine except that Japan. Fama and French (2015) show that momentum anomaly findings in some North America, Europe, and Asia Pasific countries. Foltice and Langer (2015) document individual investors can obtain abnormal return by using momentum investment strategies.

Studies on the Istanbul Stock Exchange, Bildik and Gülay (2002) conclude that momentum anomaly not existed. Barak (2006) find positive autocorelation on stock returns before some spesific corporate news like as merger, dividend, capital increase. Balı (2010) concludes that momentum anomaly existed just 60 months invesment periods and volume is important for predictibility of stock return. Kandır and İnan (2011) point out that abnormal returns can be obtained 12 months investment period. Erson and Ünlü (2013) document positive momentum returns in 6 months portfolio and 6 months investment strategy. Çöllü (2015) categorised stocks micro, small and big, results show momentum anomaly is strong for all levels in 12-month investment strategy.

## **METHODOLOGY**

The existence of the momentum anomaly in the BIST 100 Index was investigated on the study. In this context, is the momentum anomaly valid with in the scope of the BIST 100 Index in July 2008-June 2015 period? The answer is searched. It is expected that the results of the study will be useful for stock investors in shaping investment strategies.

The sample of the study is stocks traded regularly in BIST 100 Index for period July 2008-June 2015. There are 46 stocks traded regularly in this period. The dataset used in the research is daily opening and closing prices of the stocks during July 2006-June 2015.<sup>1</sup> Data was obtained from the Istanbul Stock Exchange Data Platform.

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<sup>1</sup> Beta coefficients were calculated using 2 years data. Fort his reason, the data set covers the previous 2 years.

Study employed Jegadeesh and Titman (1993) J and K month method. First, stocks ranked in the descending order according to the cumulative returns of J=3, 6, 9, 12-month at the end of each “t” month and winner and loser portfolios are created, then the abnormal returns of winner and loser portfolios are calculated by using Capital Assets Pricing Model (CAPM) model at the following K=1, 2, 3, 6, 9, 12- month periods, which are called investment periods.

First, the monthly returns of the stocks were calculated using equation 1 to create portfolios.

$$r_{i,t} = \ln(P_{it} / P_{i,t-1}) \quad (1)$$

$r_{i,t}$  : The rate of return on stock i in month of t

$P_{it}$  : The closing price of stock i in month of t

$P_{i,t-1}$  : The closing price of stock i in month of t-1

Second, J-month cumulative returns of stocks were calculated using equation 2.

$$R_{i,J} = \left( \prod_{t=-j}^{-1} (1 + r_{i,t}) - 1 \right) \quad (2)$$

$R_{ij}$  : J-month cumulative return of stock i

J : Portfolio period

Stocks ranked J-month cumulative return in the descending order, according to ranking top 30% stocks constituted portfolio P<sub>1</sub>, which represents winner portfolio, bottom 30% constituted P<sub>5</sub>, which represents loser portfolio.

The abnormal returns of P<sub>1</sub> and P<sub>5</sub> portfolios were calculated during the investment period. CAPM for return calculations and return of BIST 100 Index as market return were used. Return of the market was calculated using equation 3, abnormal returns of portfolios were calculated using equation 4.

$$r_{mt} = \ln(E_t / E_{t-1}) \quad (3)$$

$r_{mt}$  : The return of BIST 100 Intex in month of t

$E_t$  : The Closing value of BIST 100 Intex in month of t

$E_{t-1}$  : The Closing value of BIST 100 Intex in month of t-1

$$ar_{i,t} = r_{i,t} - r_{fit} - (\beta_{i,t} (r_{mt} - r_{fit})) \quad (4)$$

$ar_{i,t}$  : The abnormal return of stock i in month of t

$r_{it}$  : The expected return of stock i in month of t

$r_{mt}$  : The return of market in month of t

$\beta_{i,t}$  : Beta Coefficient

$r_{ft}$  : Risk free interest rate<sup>2</sup>

Stock's K=1,2,3,4,6,9,12-month cumulative abnormal returns calculated using equation 5.

$$CAR_{i,K} = \left( \prod_{t=1}^K (1 + ar_{i,t}) - 1 \right) \quad (5)$$

$K$  : Investment period

$CAR_{i,K}$  : The cumulative return of stock  $i$  in  $K$ -month investment period

Cumulative abnormal return of portfolio P<sub>1</sub> and P<sub>5</sub> were calculated using equation 6.

$$CAR_{P,K} = \sum_{l=1}^n CAR_{i,n} \quad (6)$$

$n$  : Number of Stock

Portfolios monthly average cumulative abnormal returns were calculated using equation 7.

$$ACAR_{P,K} = \sum_{l=1}^n CAR_{P/K} \quad (7)$$

$ACAR_{P,K}$ : Average cumulative abnormal return of portfolio

## FINDINGS

Momentum investment strategies generates abnormal return in market observed momentum anomaly. Table 1 shows results of momentum investment strategies, which including portfolio of P<sub>1</sub> and P<sub>5</sub>.

**Table 1.** Average Cumulative Abnormal Returns

The values of J and K are different portfolio and investment periods. The average cumulative abnormal returns are presented in this table. The $t$ statistics are reported in the parantheses.						
P <sub>1</sub> -P <sub>5</sub>						
	K=1	K=2	K=3	K=6	K=9	K=12
<b>J= 3</b>	0,0045	0,0031	0,0003	-0,0012	-0,0001	0,0001
	(0,82)	(0,87)	(0,09)	(-0,55)	(-0,06)	(0,09)

<sup>2</sup> Risk free interest rate is calculated by converting the annual compound interet rate of treasury bond into monthly values.  $((1+\text{annual compound interet rate})^{1/12}-1)$

<b>J=6</b>	-0,0035	-0,0013	0,0000	0,0014	0,0007	0,0005
	(-0,68)	(-0,35)	(0,01)	(0,66)	(0,43)	(0,32)
<b>J=9</b>	0,0001	0,0028	0,004	0,0033*	0,0030***	0,0028***
	(0,03)	(0,74)	(1,34)	(1,67)	(2,10)	(2,41)
<b>J=12</b>	0,0045	0,0038	0,0045	0,0041**	0,0048***	0,005***
	(0,84)	(1,05)	(1,63)	(2,19)	(3,37)	(4,25)
***%1, **%5, *%10 Significant						

According the findings in Table 1, which shows 24 different momentum investment strategies; 6 and 9 month investment periods including 3-month portfolio strategy, 1 and 2-month investment periods including 6 month portfolio strategy, loser portfolio yielded more abnormal return and momentum investment strategies generated negative abnormal return. All investment periods including 9 and 12-month portfolio periods generated positive abnormal return.

Findings revealed significant results for 9 and 12-month investment periods, in 9 month portfolio strategy and 6, 9 and 12-month investment periods in 12-month portfolio strategy. It is observed that as the investment period increases, the abnormal returns increase in the 12-month portfolio strategy. The highest momentum return is in the 12-month investment period including 12-month portfolio strategy among the results confirming the existence of the momentum anomaly.

## CONCLUSIONS

Studies documented that momentum anomaly is valid for 3-12-months investment period in international markets. The findings of the study, in which 24 different momentum investment strategies tested, revealed existence of momentum anomaly for the investment periods of 6, 9, 12 months, in 12-month portfolio strategy, 9 and 12 months investment periods in 9 month portfolio strategy in BIST 100 Index. Findings show momentum investment strategy is beneficial in the medium term in BIST 100 Index and investors can obtain abnormal return.

The sample of the study is stocks traded regularly in BIST 100 Index for research period. Stocks traded in BIST 100 Index are updated four times in a year. The number of stocks traded regularly decrease as result of merger, withdrawal of index as the research period lengthens. The research period and number of stocks are among the limitations of the research.

In the future studies can be investigated short term existence of momentum anomaly using weekly returns, sector momentum and the momentum anomaly in future and option markets.

## REFERENCES

- Balı, Selçuk (2010), *Momentum ve Zıtlık Stratejileri-Teori ve Uygulama*, İkinci Baskı, Çatı Kitapları, İstanbul.
- Baltussen, Guido (2011), “Behavioral Finance:An Introduction”, Working Paper, New York University & Erasmus University Rotterdam, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1488110](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1488110) (02.11.2015)
- Barak, Osman (2008), “İMKB’de Aşırı Reaksiyon Anomalisi ve Davranışsal Finans Modelleri Kapsamında Değerlendirilmesi”, *Gazi Üniversitesi İİBF Dergisi*, Volume 10, Issue 1, pp.207-229.
- Bildik, Recep - Gülay, Güzhan (2002), “Profitability of Contrarian vs Momentum Strategies:Evidence from Istanbul Stock Exchange”, *EFMA 2002 London Meetings*, [https://papers.ssrn.com/sol3/papers2.cfm?abstract\\_id=315379](https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=315379) (12.09.2016)
- Chan, Louis K.C.- Jegadeesh, Narasimhan - Narasimhan - Lakonishok Josef (1996), “ Momentum Strategies”, *The Journal Of Finance*, Volume 51, Issue 5, December, pp.1681-1713.
- Cleary, Sean - Doucette, David – Schmitz, John (2005), “Industry Affects, Do Not Explain Momentum in Canadian Stock Returns”, *Investment Management and Financial Innovations*, Volume 2005, Issue 2, pp.49-60.
- Conrad, Jennifer - Kaul, Gautam (1998), “ An Anatomy of Trading Strategies”, *Review of Financial Studies*, Volume 11, Issue 3, July, pp. 489-519.
- Çitilci, Tuğberk (2014), “Para & Psikoloji”, Beta Yayınları, İstanbul.
- Çöllü, Duygu Arslantürk (2015), *Kesitsel Anomaliler ve Borsa İstanbul Üzerine Bir Araştırma*, Siyasal Kitabevi, Ankara.
- Erdoğan, Muammer – Elmas, Bekir (2010), “Hisse Senedi Piyasalarında Görülen Anomaliler ve Bireysel Yatırımcı Üzerine Bir Araştırma/The Anomalies Seen In The Stock Markets And A Research On The Individual Investor”, *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Volume 14, Issue 2, pp .21-33.
- Ersoy, Ersan – Ünlü, Ulaş (2013), “Size, Book to Market Ratio and Momentum Strategies: Evidence From Istanbul Stock Exchange”, *International Journal of Economic Perspectives*, Volume 77, Issue 3, September, pp.28-33.
- Fama, F. Eugene (1965), “The Behavior of Stock Prices”, *The Journal of Business*, Volume 38, Issue 1, January, pp.34-105.
- Fama, F. Eugene (1970), “Efficient Capital Markets;A Review Of Theory and Empirical Work”, *The Journal of Finance*, Volume 25, Issue 2, December, pp.383-417,
- Fama E. Eugene – French, Kennet R. (2012), “Size, value, and momentum in international stock returns”, *Journal of Financial Economics*, Volume 105, Issue 3, September, pp.457-472.
- Foltice, Bryan- Langer, Thomas (2015), “Profitable Momentum Trading Strategies for Individual Investors”, *Financial Markets and Portfolio Management*, Volume 29, Issue 2, May, pp.85-113.

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
OHRID-MACEDONIA/3-5 JULY 2017**

---

- Griffin, John M. - Ji, Xiuqing – Spencer (2005), Martin, “Global Momentum Strategies:A Portfolio perspective”, *The Journal Of Portfolio Management*, Volume 31, Issue 2, pp.23-39.
- Hon, Mark T. – Tonks, Ian (2002), “Momentum in the UK Stock Market”, *Journal of Multinational Financial Management*, Volume 13, Issue 1, February, pp.43-70.
- Kandır, Serkan Yılmaz – İnan, Halime (2011), “Momentum Yatırım Stratejisinin Karlılığının İMKB’de Test Edilmesi”, *BDDK Bankacılık ve Finansal Piyasalar*, Volume 5, Issue 2, ss.51-70.
- Jegadeesh, Narasimhan - Titman, Sheridan (1993), “ Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency, *Journal of Finance*, Volume 48, Issue 1, March, pp.65-91.
- Jegadeesh, Naransimhan - Titman, Sheridan (2001), “ Profitability of Momentum Strategies:An Evaluation of Alternative Explanations, “ *The Journal Of Finance*, Volume 56, Issue 2, April, pp.699-720.
- Lee, Charles M.C – Swaminathan, Bhaskaran (2000), “Price Momentum and Trading Volume”, *The Journal of Finance*, Volume 55, Issue 5, October, pp.2017-2069.
- Levy, Robert A. (1967), “Relative Strength as a Criterion for Investment Selection”, *Journal of Finance*, Volume 22, 4, December, pp. 595-610.
- Moskowitz, Tobias J. – Grinblatt, Mark (1999), “Do Industries Explain Momentum?”, *The Journal of Finance*, Volume 54, Issue 4, August, pp. 1249-1290.
- O’Neal, Edward (2000), “Industry Momentum and Sector Mutual Funds”, *Financial Anaysts Journal*, Volume 56, Issue 4, pp. 37-49.
- Rouwenhorst, K.Geert (1998), “ International Momentum Strategies”, *The Journal Of Finance*, Volume 53, Issue 1, February, pp.267-284.
- Rouwenhorst, K.Geert (1999), “Local Return Factors and Turnover in Emerging Stock Markets”, *The Journal of Finance*, Volume 54, Issue 4, August, pp.1439-1464.
- Singal, Vijay (2006), *Beyond The Random Walk Aguide to Stock Market Anomalies and Low-Risk Investing*, Oxford, USA.
- Statman, Meir (1999), “Behaviorial Finance:Past Battles and Future Engagements”, *Financial Analysts Journal*, Volume 55, Issue 6, November, pp.18-27.
- Tunçel, Ahmet Kamil (2013), “Aşırı Tepki Hipotezinin Test Edilmesi: Borsa İstanbul Örneği”, *Uludağ Üniversitesi İktisadi ve İdari bilimler Fakültesi Dergisi*, Volume 32, Issue 2, pp.113-122.
- Vasiliou, Dimitrios - Eriotis, Nikolaos – Papanthasiou, Spyros (2008), “Incorporating Technical Analysis into Behavioral Finance: A Fiel Experiment in the Large Capitalization firms of the Athens Stock Exchange”, *International research Journal of Finance and Economics*, Volume 9, Issue 14, pp.100-112.
- Wang, Daxue (2008), “Are Anomalies Still Anomalous? An Examintion of Momentum Strategies in Four Financial Markets”, *IESE Business Scholl Working Paper*, WP-775, December.

# MEASURING SUSTAINABILITY PERFORMANCE OF FIRMS IN MANUFACTURING INDUSTRY IN TURKEY BY USING A MULTI CRITERIA DECISION MAKING METHOD

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**Abstract:** *The importance of the sustainability has been increasing rapidly and there is a need to measure sustainability performance of firms with its three dimensions (environmental, economic and social). The aim of this study is to determine the sustainability performances of companies operating in the manufacturing industry in the BIST Sustainable Index by using GRA method. The specified criteria relating to firms' economic, environmental, and social performance were compiled from the firms' sustainability reports of 2015. Firms' performances have been analyzed based on 5 financial, 4 social and 5 environmental criteria and firms have been listed based on their sustainability performance. According to the results of the analysis, Tofaş has the best performance based on the economic performance, Arçelik has the best performance based on the environmental performance and Ülker has the best performance based on the social performance. But when we evaluate the performances of firms' altogether with three dimensions, Tofaş ranks first in the sustainability performance and is followed by Ford Otosan and Arçelik.*

**Keywords:** *Sustainability, Corporate Sustainability, Sustainability Performance, Multi Criteria Decision Making, Grey Relational Analysis (GRA).*

## INTRODUCTION

Nowadays, companies are facing increasing pressure from stakeholders to demonstrate social and environmental responsibility and are asked to provide information about how they manage social issues and environmental problems. Because of this sustainability reporting and sustainability performance becomes a hot topic and attracts attention of stakeholders' and academicians' more. An increasing number of enterprises have begun reporting their sustainability activities such as achieved energy and emission reductions, water reuse and recycle ratio, social justice, and equality. Sustainability reports are prepared and published on a voluntary basis by businesses. In recent years, stock exchanges have made some attempts, such as the calculation of sustainability index in order to enhance transparency, raise awareness on sustainability. BIST Sustainability Index has been launched on the 4<sup>th</sup> of November 2014 with the code XUSRD. BIST Sustainability Index aims to provide a benchmark for Borsa Istanbul companies with high performance on corporate sustainability and to increase the awareness and practice on sustainability in Turkey. Although the number of enterprises publishing sustainability reports in Turkey has been growing, it is still inadequate. The importance of the sustainability has been increasing rapidly and there is a need to measure and compare sustainability performances of firms with its three dimensions (environmental, economic and social).

In most cases sustainability can be considered as a multi criteria decision making (MCDM) problem. MCDM methods provide a useful framework for measuring and evaluating sustainability performance. The aim of this study is to determine the sustainable performances of companies operating in the manufacturing industry in the BIST Sustainable Index in 2016 by using GRA which is a MCDM method. When we assess the firms' sustainability performance by taking into three dimensions altogether, firms performances are; Tofaş ranks first, followed by Ford Otosan, Arçelik, Ülker, Otokar, Kords Global, Anadolu Efes and CCI.

## **LITERATURE**

Öznel, Köse and Aytekin (2012) used compromise programming to assess the Henkel Company's environmental and social performance by years. Özçelik and Avcı Öztürk (2014), evaluated the sustainability performance of banks in Turkey that issue sustainability reports by using grey relational analysis method. Tañç and Gümrah (2015), evaluate the environmental performances of companies operating in the manufacturing industry in the Istanbul Stock Exchange (ISE) in 2013 with TOPSIS method. Acar, Kılıç and Güler (2015), used TOPSIS method and assessed environmental sustainability of a group of firms in textile industry. Alp, Öznel and Köse (2015), aims to assess the corporate sustainability performance of a firm that operate in the chemical industry, by using Multi Attribute Utility Theory which is a MCDM method. They used entropy method to give weights to the criteria. Aracı and Yüksel (2016), in their study explained the sustainable added value that is used for the measurement of sustainability performance and calculate the sustainable added value of firms in BIST Sustainability Index. Ergüden and Çatlıođlu (2016), used TOPSIS method and examined contribution of the energy companies to the sustainability based on the environmental criteria. Erol, Turgay and Özmen (2016), propose a multi criteria corporate sustainability management system for the assesment of firms' corporate sustainability performance and tested this method by using a firm's data. Aydın (2016), developed a modelling approach for the measurement of corporate social and environmental performance. And under this purpose presented a five-stage tree structured performance model.

Review of existing research about sustainability performance in Turkiye reveals that evaluating sustainability performance on a sectoral basis is quite limited due to lack of data. The studies conducted about sustainability performance in Turkiye take one firm and research sustainable performance with three dimensions by years, or assess sustainable performances of firms in one dimension especially environmental dimension. No studies take three dimensions altogether and assess sustainable performances of firms in a sector. Only Aracı and Yüksel measure sustainable performances of more firms but they assess according to the sustainable added value.

Lee and Saen (2012), in their study used DEA approach to measure corporate sustainability performance in Korean electronics industry. Chang, Kuo and Chan (2013), in their study determined the change in corporate sustainability performance over time. They used DEA in order to create a composite index of corporate sustainability performance and measured changes in efficiency by using the Malmquist index for three consecutive years. Gonzales et al. (2014), combined different tools (Sustainability Balanced Scorecard, Analytic Network Process and Alignment Matrix for Sustainability Strategy) to help managers in sustainability performance measurement and assessment. Harik et al. (2015), established a relevant framework that would assess the current situation of an industry through aggregation of environmental, social, economical as well as manufacturing variables, based on the Analytic Hierarchy Process (AHP).

## **3. METHODOLOGY**

In this study firms in BIST Sustainability Index and that operate in manufacturing industry are assessed and sustainability performances are evaluated by using Grey Relational Analysis (GRA) which is a MCDM method. MCDM problems have very significant effect on theory and practical. The aim of MCDM problems are finding the best alternative among the decision criteria (Garg et al., 2015: 2).



MCDM techniques can evaluate various alternatives in different units and use quantitative and qualitative variables simultaneously (Akkoç and Vatansever, 2013: 57).

Sustainability performance measurement problem can be defined as a MCDM problem because of the three dimensions of sustainability and their indicators. Economic, environmental and social dimensions are the main criteria, their indicators are the sub-criteria and the firms are the alternatives of the problem. In order to find the best alternative according to their sustainability performances GRA method has been proposed to define the alternative which has the best sustainability performance. The method provide us a useful way for dealing with a multi criteria sustainability performance measurement problem.

GRA is a quantitative method to explore similarity and dissimilarity between an alternative and the reference alternative (Kung and Wen, 2007: 843). If there is a consistent trend of change between the alternative and ideal alternative, their relational grade will be high otherwise, their relationship will be lower (Li and Zhang, 2014: 663).

In the GRA method, there are no limitations to the values that the alternatives gain for the criteria. The values expected to be large or small and those expected to have an ideal level can be calculated all together during the decision making process (Özçelik and Avcı Öztürk, 2014: 197).

GRA includes the following six steps (Wu, 2002: 211-212; Zhai et al, 2009: 7074; Tayyar et al, 2014: 29-31; Doğan, 2013: 217-218; Özçelik and Avcı Öztürk, 2014: 198-200):

**Step 1:** Construction of an initial decision matrix  $X = x_{ij}$ . There are  $m$  alternatives characterized by  $n$  criteria and  $x_{ij}$  is the value of the  $i^{\text{th}}$  alternative with respect to  $j^{\text{th}}$  criterion.

$$X_{ij} = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ \cdot & \cdot & & \cdot \\ \cdot & \cdot & & \cdot \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix} \quad (1)$$

**Step 2:** Normalization of the data set.

In order to make values free of unit the normalization process is done. Data can be normalized one by one of the three types; i. e., larger-is-better, smaller-is-better and nominal-is-best.

For larger-is-better transformation  $x_{ij}$  can be transformed to  $x_{ij}^*$  with the formula (2):

$$x_{ij}^* = \frac{x_{ij} - \min_j x_{ij}}{\max_j x_{ij} - \min_j x_{ij}} \quad (2)$$

For smaller-is-better, the formula to transform  $x_{ij}$  to  $x_{ij}^*$  is:

$$x_{ij}^* = \frac{\max_j x_{ij} - x_{ij}}{\max_j x_{ij} - \min_j x_{ij}} \quad (3)$$

If there is a nominal value for the criteria nominal-is-best transformation is applied and  $x_{ij}$  can be transformed to  $x_{ij}^*$  with the formula (4) where  $x_{idl(j)}$  is the ideal (target) value for the  $j^{\text{th}}$  criterion and  $\max_j x_{ij} \geq x_{idl(j)} \geq \min_j x_{ij}$ .

$$x_{ij}^* = 1 - \frac{|x_{ij} - x_{idl(j)}|}{\max \left\{ \max_j x_{ij} - x_{idl(j)}, x_{idl(j)} - \min_j x_{ij} \right\}} \quad (4)$$

After the normalization process, all the three types of criteria have been transformed into the “larger-is-better” type with the maximum value at “1”.

**Step 3:** Construction of the normalized matrix  $X^* = x_{ij}^*$  and generation of the reference series. In this step normalized matrix is constructed by using the normalized values in Step 2.

$$X_{ij}^* = \begin{bmatrix} X_{11}^* & X_{12}^* & \dots & X_{1n}^* \\ X_{21}^* & X_{22}^* & \dots & X_{2n}^* \\ \cdot & \cdot & & \cdot \\ \cdot & \cdot & & \cdot \\ X_{m1}^* & X_{m2}^* & \dots & X_{mn}^* \end{bmatrix} \quad (5)$$

$x_{0j}^*$  is the reference value which is related to the  $j^{\text{th}}$  criterion and is determined by the largest normalized value of each criterion.

$$x_{0j}^* = \max_j \{x_{ij}^*\} \quad (6)$$

$$X_{0j}^* = \{x_{01}^*, x_{02}^*, \dots, x_{0n}^*\} \quad (7)$$

**Step 4:** Difference matrix calculation.

In this step  $\Delta_{oi}(j)$  values are calculated and they show the differences between normalized values and their reference values. Then the difference matrix is constructed as follows:

$$\Delta_{0ij} = |x_{0j}^* - x_{ij}^*| \quad (8)$$

$$\Delta_{ij} = \begin{bmatrix} \Delta_{011} & \Delta_{012} & \dots & \Delta_{01n} \\ \Delta_{021} & \Delta_{022} & \dots & \Delta_{02n} \\ \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ \Delta_{0m1} & \Delta_{0m2} & \dots & \Delta_{0mn} \end{bmatrix} \quad (9)$$

**Step 5:** Grey relational coefficient calculation.

Grey relational coefficient is calculated by formula (10)

$$\gamma_{0ij} = \frac{\min_i \min_j \Delta_{0ij} + (\zeta \times \max_i \max_j \Delta_{0i})}{\Delta_{0ij} + (\zeta \times \max_i \max_j \Delta_{0i})} \quad (10)$$

where,  $\zeta$  ( $0 \leq \zeta \leq 1$ ) is known as distinguishing coefficient. DMs prefer to take 0.5 as a  $\zeta$ , because this value usually offers moderate distinguishing effects and good stability.

**Step 6:** Grey relational grade calculation.

If all decision criteria have equal importance degree, grey relational grade  $\Gamma_{0i}$  can be calculated as:

$$\Gamma_{0i} = \frac{1}{n} \sum_{j=1}^n \gamma_{0ij} \quad (11)$$

For different importance degrees grey relational grade can be calculated by the formula (12):

$$\Gamma_{0i} = \sum_{j=1}^n w_j \times \gamma_{0ij} \quad , \quad \sum_{j=1}^n w_j = 1 \quad (12)$$

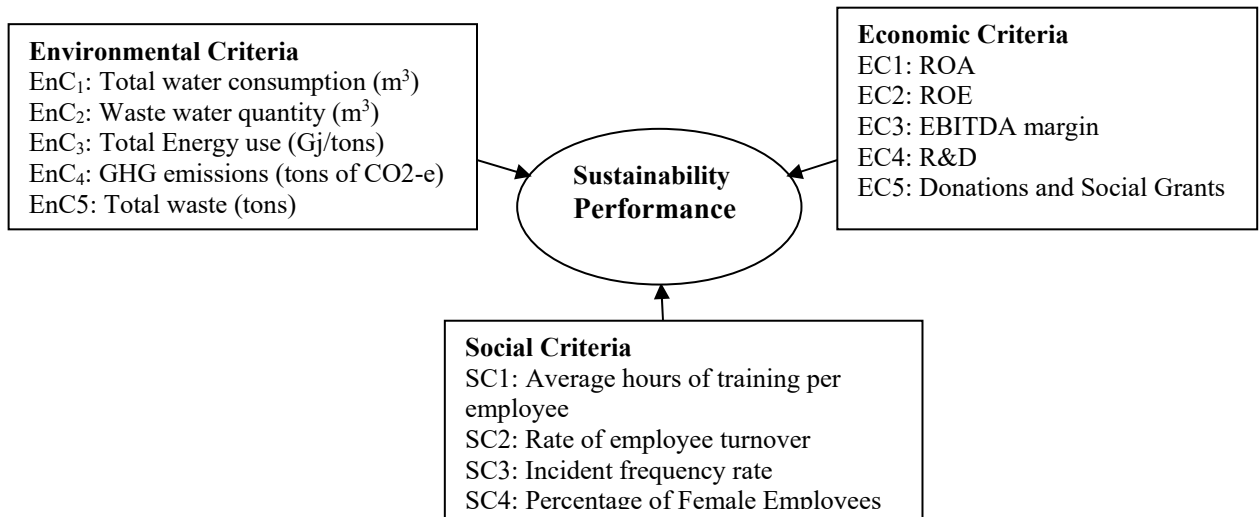
$\Gamma_{0i}$  is the grey relational grade which indicates the magnitude of similarity (correlation) measured between the alternatives' series and reference series. Grey relational grade is used to evaluate overall performance of alternatives depending on all the criteria used in analysis. The alternative with the highest grade of relation will be identified as a best solution (or closest to the ideal reference series).

The firms that are in BIST sustainability index and operate in manufacturing industry are shown in Table1. The firms not issuing sustainability reports are eliminated because the needed datas are not found in their sites and activity reports. Because of lack of information, only 8 manufacturing firms' sustainability performance are assessed. These firms are shown in bold in Table 1.

**Table 1.** Manufacturing Firms In Bist Sustainability Index For The Period Between  
(November 2016 - October 2017)

1	ADEL KALEMCİLİK	10	PETKİM
2	ANADOLU EFES	11	TAT GIDA
3	ARÇELİK	12	TOFAŞ OTO. FAB.
4	BRISA	13	TÜPRAŞ
5	COCA COLA İÇECEK	14	TÜRK TRAKTÖR
6	EREĞLİ DEMİR CELİK	15	ÜLKER BİSKÜVİ
7	FORD OTOSAN	16	VESTEL
8	KORDSA GLOBAL	17	VESTEL BEYAZ EŞYA
9	OTOKAR		

The data of this study was taken from the 2015 sustainability reports and financial reports of firms. Measurement and reporting practices vary among firms. While some firms report only total and/or unit energy saved, the others report only total and/or unit energy used. The reported informations in sustainability reports lack standard format and units. When the data were not found, sometimes firms are eliminated, sometimes criteria are eliminated. The available data was recalculated and converted into standard units for comparison purposes. The sustainability of firms was assessed based on 5 financial, 4 social and 5 environmental criteria. These criteria are shown in Figure 1. These criteria are determined based on previous studies and GRI Sustainability Reporting Guidelines.



**Figure 1.** Selected Criteria For The Evaluation of Firms' Sustainability Performance

Each indicator in the environmental dimension is converted in the form of ratio for the comparison purposes. Total energy used quantities are converted in a unique measurement unit and expressed in terms of gigajule. Then all environmental criteria are divided to the EBITDA for a healthier comparison. All environmental criteria coded to be minimum. Rate of employee turnover and percentage of female employees are calculated based on the datas taken from the sustainability reports.

SC1 and SC4 coded maximum, SC2 and SC3 coded minimum. All economic criteria coded maximum. Weights for each indicator are assumed to be equal.

## FINDINGS

Sustainability performance of manufacturing firms in BIST Sustainability Index has been assessed by using GRA method. The results are shown in Table 2.

**Table 2.** Sustainability Performances of Manufacturing Firms

	<b>Economic Performance</b>	<b>Environmental Performance</b>	<b>Social Performance</b>	<b>Sustainability Performance</b>
<b>ÜLKER</b>	0,572328138	0,601219207	<b>0,722636024</b>	0,632061123
<b>ARÇELİK</b>	0,460528927	<b>0,947522029</b>	0,514074972	<b>0,640708642</b>
<b>FORD OTOSAN</b>	0,606532784	0,892866723	0,722065098	<b>0,740488202</b>
<b>TOFAŞ</b>	<b>0,841792914</b>	0,858468981	0,675932852	<b>0,792064916</b>
<b>CCI</b>	0,37710622	0,561822614	0,469134736	0,469354523
<b>OTOKAR</b>	0,575519365	0,779048812	0,454057041	0,602875073
<b>KORDS GLOBAL</b>	0,452408625	0,65975229	0,509022908	0,540394607
<b>ANADOLU EFES</b>	0,343497687	0,599357026	0,599735805	0,514196839

When we assess the firms' performances according to the determined economic criteria, Tofaş ranks first followed by Ford Otosan, Otokar, Ülker, Arçelik, Kords Global, CCI, Anadolu Efes respectively. Based on the environmental criteria firms performances are; Arçelik comes first and Ford Otosan, Tofaş, Otokar, Kords Global, Ülker, Anadolu Efes and CCI comes next respectively. According to the social criteria Ülker ranks first, Ford Otosan, Tofaş, Anadolu Efes, Arçelik, Kords Global, CCI and Otokar comes respectively. When we assess the firms sustainability performance by taking into three dimensions altogether, firms performances are; Tofaş ranks first, followed by Ford Otosan, Arçelik, Ülker, Otokar, Kords Global, Anadolu Efes and CCI.

## CONCLUSIONS

Because sustainability is a new concept and lacking of mandatory and regulatory frameworks, measurement and reporting practices vary among firms. The reported informations lack of a unique form and firms are not always provide concrete comparable data. This constitutes the limitations of this study. When the data are not found sometimes firms are eliminated, sometimes criteria are eliminated.

When we assess the firms sustainability performance by taking into three dimensions altogether, Tofaş ranks first in sustainability performance and followed by Ford Otosan and Arçelik.

Although sustainability reporting is a new trend in Türkiye and few firms issue sustainability report, there must be a standard form and unique measurement for the informations reported in sustainability

reports. As a future work, if the data is obtained new indicators could be added under environmental and social dimensions. Other MCDM methods could also be implemented then results compared with each other.

## REFERENCES

- Acar, Eda- Kılıç, Merve-Güner, Mücella (2015), “Çok Kriterli Karar Verme Metodu Kullanılarak Tekstil Endüstrisinde Sürdürülebilirlik Performansı Ölçümü”, *Tekstil ve Konfeksiyon*, Volume 25, Issue 1, pp. 3-9.
- Akkoç, Soner - Vatansever, Kemal (2013), “Fuzzy Performance Evaluation with AHP and TOPSIS Methods: Evidence from Turkish Banking Sector After the Global Financial Crisis”, *Eurasian Journal of Business and Economics*, Volume 6, Issue 11, pp. 53-74.
- Alp, İhsan-Öznel, Ahmet-Köse, Mehmet Said (2015), “Entropi Tabanlı Maut Yöntemi İle Kurumsal Sürdürülebilirlik Performansı Ölçümü: Bir Vaka Çalışması”, *Ekonomik ve Sosyal Araştırmalar Dergisi*, Volume 11, Issue 2, pp 65-81.
- Aracı, Hakan-Yüksel, Filiz (2016), “Sürdürülebilirlik Performansının Ölçülmesi: Bist Sürdürülebilirlik Endeksindeki İşletmelerin Sürdürülebilir Katma Değerinin Hesaplanması”, *Uluslararası Yönetim İktisat Ve İşletme Dergisi*, ICAFR 16 Özel Sayısı, pp. 786-801.
- Aydın, Sevgi (2016), “Kurumsal Sosyal ve Çevresel Raporlama Performansının Ölçülmesi İçin Bir Modelleme Yaklaşımı”, *Muhasebe ve Denetime Bakış*, Issue 49, pp. 103-112.
- Chang, Dong-Shang – Kuo, Li-Chin Regina - Chen, Yi-Tui (2013), “Industrial Changes In Corporate Sustainability Performance –An empirical Overview Using Data Envelopment Analysis”, *Journal Of Cleaner Production*, Issue 56, pp. 147-155.
- Deng, Julang (1982), “Control Problems of Grey Systems”, *Systems and Control Letters*, Volume 1, Issue 5, pp. 288-294.
- Doğan, Mesut (2013), “Measuring Bank Performance With Gray Relational Analysis: The Case Of Turkey”, *Ege Akademik Bakış*, Volume 13, Issue 2, pp. 215-225.
- Ergüden, Engin-Çatlıoğlu, Esra (2016), “Sustainability Reporting Practiceses In Energy Companies With Topsis Method”, *Muhasebe ve Finansman Dergisi*, Temmuz, pp. 201-222.
- Erol, İsmail- Turgay, Safiye – Ozmen, Aslı (2008) , *Etmten Tabanlı Sürdürülebilirlik Performans Ölçüm Sistemi*, VIII. Ulusal Üretim Araştırmaları Sempozyumu.
- Tanç, Ahmet-Gümrah, Abdurrahman (2015), “Sürdürülebilirlik Raporlaması ve Çevresel Performans: Borsa İstanbul’da Bir Uygulama”, *İşletme Araştırmaları Dergisi*, Volume 7, Issue 2, pp. 258-273.
- Harika, Ramy- Hachem, Wissam El- Medic, Khaled-Bernard, Alain (2015), “Towards A Holistic Sustainability index For Measuring Sustainability Of Manufacturing Companies”, *International Journal Of Production Research*, Volume 53, Issue 13, pp. 4117–4139.
- Kung, Chaang-Yung - Wen, Kun-Li (2007), “Applying Grey Relational Analysis and Grey Decision-Making to Evaluate the Relationship Between Company Attributes and its Financial Performance—A Case Study of Venture Capital Enterprises in Taiwan”, *Decision Support Systems*, Volume 43, pp. 842-852.

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
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OHRID-MACEDONIA/3-5 JULY 2017**

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- Lee, Ki-Hoon-Saen, Reza Farzipoor (2012), "Measuring Corporate Sustainability Management: A Data Envelopment Analysis Approach", *Int. J. Production Economics*, Issue 140, pp. 219–226.
- Li Yuanfang-Zhang Xiaoping (2014), "Application of grey relational analysis based on entropy-weight in the assessment of urban sustainable development", *Journal of University of Chinese Academy of Sciences*, Volume 31, Issue 5, pp. 662-670.
- Medel, Frank – González, Valério-Salomon, Antonio Pamplona – García, Lourdes - Hernández, Ávila Cecilia, (2014), "Multicriteria Sustainability Performance Measurement: Anp Cuban Application", *The International Symposium Of The Analytic Hierarchy Process*, Washington D.C., U.S.A.
- Özçelik, Funda – Avcı, Öztürk Burcu (2014), "Evaluation Of Banks' Sustainability Performance In Turkey With Grey Relational Analysis", *Muhasebe ve Finansman Dergisi*, Temmuz, pp. 189-209.
- Tayyar, Nezih.- Akcanlı, Fatma.- Genç, Erhan.- Erem, Işıl (2014), "Bist'e Kayıtlı Bilişim Ve Teknoloji Alanında Faaliyet Gösteren İşletmelerin Finansal Performanslarının Analitik Hiyerarşi Prosesi (Ahp) ve Gri İlişkisel Analiz (GIA) Yöntemiyle Değerlendirilmesi". *Muhasebe ve Finansman Dergisi*, Ocak, pp. 19-40.
- Wu, Hsin-Hung (2002), "A Comparative Study Of Using Grey Relational Analysis In Multiple Attribute Decision Making Problems", *Quality Engineering*, Volume 15, Issue 2, pp. 209-217.
- Zhai, Lian-Yin.- Khoo, Li-Pheng.- Zhong, Zhao-Wei (2009), "Design Concept Evaluation In Product Development Using Rough Sets And Grey Relation Analysis", *Expert Systems With Applications*, Issue 36, pp. 7072-7079.

# THE RELATIONSHIP BETWEEN AGGREGATE INVESTMENT, INVESTOR SENTIMENT AND STOCK RETURNS: THE CASE OF BIST INDUSTRIAL INDEX STOCKS

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**Abstract:** *In this work, by using the financial statement information of the companies listed in BIST Industrials Index, we explore the relationship between firm-level investment, investor sentiment and the stock returns for the period of 2004-2014. Three sentiment measures are used. First one is the composite investor sentiment index achieved by using the principal component analysis with seven sentiment measures. These investor sentiment proxies are weighted discount index based on closed-end funds, the changes in the value-weighted discount index, the share of repo holdings in the portfolios of mutual funds, the share of equity issues in aggregate issues, the monthly turnover ratio of BIST, odd-lot sales-to-purchases, net stock purchases of foreign investors-to-BIST market value. Second one is the net inflow of investor capital into listed stocks. Third one is the TUIK Consumer Confidence Index. The measure of firm-level investment is based on the change in net operating assets. Fixed effect panel data analysis is used. The results are as follows: (i) There is a positive and significant relation between investment and the stock returns. Investment is a better predictor of stock returns than the lagged value of investment. (ii) There is a significant and positive relation between investment and the sentiment index and also between TUIK Consumer and Confidence Index. There is not a significant relation between investment and the net inflow of investor capital into BIST Industrial Index stocks. The results indicate that investment increases during the periods in which investors are more optimistic.*

**Keywords:** *Investor Sentiment, Investor Sentiment Index, Aggregate Investment, Consumer Confidence Index, Net Capital Inflow.*

## INTRODUCTION

Investor sentiment is optimism or pessimism that is not justified by the facts at hand (Arif, 2011:4). Investor sentiment can also be defined as ‘a belief about future cash flows and investment risks that is not justified by the facts at hand’ (Baker and Wurgler, 2007). According to Baker and Wurgler (2006, 2007), periods of high investor sentiment line up well with historical accounts of speculative bubbles, when expectations are buoyant and managers have easy access to investor capital.

This study tries to examine whether firm-level investment is associated with investor sentiment in Turkey for the period of 2004-2014. In the previous studies, firm-level investment has not been used as an investor sentiment proxy for Turkey. Firm-level investment has been examined for US and several developed countries as an investor sentiment proxy and it is found to be a better predictor of investor sentiment for those countries. For Turkey, we draw on three measures of investor sentiment. The first is the Baker and Wurgler (2006) composite investor sentiment index. Following Baker and



Wurgler (2006), we orthogonalize our investor sentiment measures with respect to a set of macroeconomic indicators to remove major macroeconomic influences. The second measure is the TUIK Consumer Confidence Index. This measure has the advantage of directly surveying a large number of households regarding their beliefs. However, the drawback of this survey-based measure is that it does not directly measure investors' actual behavior. Thus, the third measure of investor sentiment we use is the net inflow of investor capital into BIST Industrials Index listed stocks, based on Dichev (2007).

We find that the level of aggregate investment is positively related to all three measures of investor sentiment. There is a significant and positive relation between investment and the sentiment index and also between TUIK Consumer and Confidence Index. There is not a significant relation between investment and the net inflow of investor capital into BIST Industrial Index stocks. The evidence indicates that aggregate investment is higher when investors are more optimistic, regardless of whether investor sentiment is gauged through surveys of beliefs or inferred from investors' capital market activity. This evidence is consistent with the notion, dating back to at least Keynes (1936), that investor sentiment plays a role in corporate investment decisions.

## **RELATED LITERATURE**

Since 1991, several investor sentiment proxies are used in the literature to examine the relation between investor sentiment and stock returns. Some of them are the proxies like closed-end fund discounts, the number of initial public offerings, the share of equity issues, odd-lot sales-to-purchases whereas others are survey based measures like consumer confidence indices. Lee et al. (1991) investigate the relation between closed-end fund discounts and stock returns, finding the discount index to be correlated with small stock returns. Leonard and Shull (1996) examine the investor sentiment effect on New York Stock Exchange (NYSE) stocks by using the discounts of thirty-eight closed-end funds as a proxy for investor sentiment. The findings suggest that investor sentiment is priced for the entire sample period. However, when the analysis is repeated for subperiods, investor sentiment loses its explanatory power in the second subperiod. Doukas and Milonas (2004) use discounts of sixteen Greek closed-end funds as an investor sentiment index and compare the explanatory power of investor sentiment with that of sector indices. Sector indices are found to be more important than closed-end fund discounts in explaining stock returns.

Neal and Wheatley (1998) regress portfolio returns against three investor sentiment proxies. Although closed-end fund discounts and mutual fund redemptions seem to forecast small stock returns, the odd-lot sales-to-purchases ratio is not found to affect stock returns. Fisher and Statman (2000), investigate the relation between stock returns and the sentiment of three stock investor types: large, medium-sized, and small investors. The sentiments of three investor groups seem to forecast future stock returns. Brown et al. (2002) investigate the presence of investor sentiment in the United States and Japan by using an investor sentiment index based on daily mutual fund flow data. This index is found to be significant for both markets. Brown and Cliff (2004) use various measures of investor sentiment and find that investor sentiment measures affect both small and big stock returns. Lemmon and Portniaguina (2006), use the consumer confidence index as a proxy for the investor sentiment index. They find that consumer confidence has forecasting ability for the returns on small stocks. Canbas and Kandir (2006) investigate the forecasting ability of investor sentiment measures for ISE sector indices. The sample period spans from July 1997 to June 2006. Closed-end fund discounts, mutual fund flows, and net foreign purchases to ISE capitalization are used as proxies for investor sentiment. Two models are estimated. In the first model, ISE sector indices are regressed against investor sentiment measures. In the second model, economic variables are added to the first model to control for economic innovations. The findings imply that investor sentiment affects Turkish stock returns, even when economic variables are controlled for.

Baker and Wurgler (2006), study how investor sentiment affects the cross-section of stock returns. construct an investor sentiment index based on six investor sentiment proxies. They predict that a

wave of investor sentiment has larger effects on securities whose valuations are highly subjective and difficult to arbitrage. Consistent with this prediction, they find that when beginning-of-period proxies for sentiment are low, subsequent returns are relatively high for small stocks, young stocks, high volatility stocks, unprofitable stocks, non-dividend-paying stocks, extreme growth stocks and distressed stocks. When sentiment is high, on the other hand, these categories of stock earn relatively low subsequent returns.

Kandır (2006), investigates the effect of investor sentiment over stock returns and evaluate the investor sentiment's ability of forecasting stock returns. Regression models are employed to examine the effect of investor sentiment over stock returns. Sample period extends from July of 1997 to June of 2005. In the regression models, stock portfolio returns are used as dependent variables and investor sentiment proxies are used as independent variables. The results suggest that investor sentiment can forecast stock returns. In other words, stock prices of ISE companies have noise component. However, investor sentiment proxies do not have the same forecast power. Closed-end fund discounts, average fund flow of mutual funds and the ratio of net stock purchases of foreign investors to ISE market capitalization can forecast stock returns significantly. Other investor sentiment proxies cannot forecast stock returns

Canbas and Kandır (2009), investigate the relation between investor sentiment and stock returns on the Istanbul Stock Exchange, employing vector autoregressive (VAR) analysis and Granger causality tests. The sample period extends from July 1997 to June 2005. In the VAR models, stock portfolio returns and investor sentiment proxies are used as endogenous variables. Two dummy variables accounting for natural and economic crises are used as exogenous variables. The results suggest that, excepting shares of equity issues in aggregate issues, stock portfolio returns seem to affect all investor sentiment proxies, namely closed-end fund discount, mutual fund flows, odd-lot sales-to-purchases ratio, and repo holdings of mutual funds. Investor sentiment does not appear to forecast future stock returns; only the turnover ratio of the stock market seems to have forecasting potential.

## METHODOLOGY

The research question of this study is if there is a relation between investor sentiment and firm-level investment in Turkey. The data to be used spans from 2004 to 2014. The stocks listed in BIST Industrial Index which have continuous data for the period of 2004-2014, are used.

Using the 'top down' approach introduced by Baker and Wurgler (2006), an investor sentiment index, which can be modelled as follows, is constructed:

$$DUYENDEKS_t = \beta_1 DAIE_t + \beta_2 OFA_t + \beta_3 LOTALTI_t + \beta_4 HISSE_t + \beta_5 REPO_t + \beta_6 IGO_t + \beta_7 YABANCI_t + \varepsilon_t$$

The first principal component explains 62.99% of the sample variance, so we conclude that one factor captures much of the common variation.

The measure of firm-level investment ( $KURYATIRIM_{it}$ ) we use is based on the change in net operating assets. The change in net operating assets captures net investment in the tangible operating assets of the firm. However, firms also make other investments that are not recognized in financial statements, such as investments in intangible assets arising from research and development (R&D) activities. To obtain a more comprehensive measure of firm investment, we extend our measure of investment to include investment in R&D.

Firm-level investment is computed as follows:

$$KURYATIRIM_{it} = (\Delta NOV_{it} + AR\&GE_{it} / 0,5 * (TV_{it-1} + AR\&GE_{it-1} + TV_{it} + AR\&GE_{it}))$$

$\Delta NOV_{it}$ , is the change in net operating assets, defined as in Dechow, Richardson, and Sloan (2008) as the change in noncash assets less the change in nondebt liabilities. Noncash assets is calculated as total assets less cash and short term investments. Nondebt liabilities is calculated as total liabilities less debt. TV is total assets, Ar&ge is research and development expenditure.

To examine what factors are associated with investment, using Arellano (1987), Froot (1989), Rogers (1993) fixed effect panel data analysis, we estimate equations of the general form:

$$KURYATIRIM_{it} = \beta_0 + \beta_1 DUYARLILIK_{it} + \beta_2 Q_{it} + \beta_3 AKKAR_{it} + \beta_4 GETİRİ_{it} + \beta_5 VADE_{it} + \beta_6 HAZBON_{it} + \beta_7 TAHAK_{it} + \varepsilon_t \quad [3.8]$$

where  $DUYARLILIK_{it}$  is one of three measures of investor sentiment in year t. The first one is the Baker and Wurgler (2006) composite investor sentiment index. Following Baker and Wurgler (2006), we orthogonalize our investor sentiment measures with respect to a set of macroeconomic indicators to remove major macroeconomic influences. The second measure is the TUIK Consumer Confidence Index. This measure has the advantage of directly surveying a large number of households regarding their beliefs. However, the drawback of this survey-based measure is that it does not directly measure investors' actual behavior. Thus, the third measure of investor sentiment we use is the net inflow of investor capital into BIST Industrials Index listed stocks, computed following Dichev (2007), scaled by average total assets in year t. We also include several variables which reflect discount rates and business conditions. Specifically, we include Tobin's Q at the beginning of year t ( $Q_{it}$ ), aggregate profitability in year t ( $AKKAR_{it}$ ), stock market returns in calendar year t ( $GETİRİ_{it}$ ). We also include three variables that reflect interest rates and credit conditions: the term structure of interest rates ( $VADE_{it}$ ), measured as the yield spread between ten-year and one-year T-bonds at the beginning of year t), the 30-day T-bill rate at the beginning of year t ( $HAZBON_{it}$ ) and operating accruals at year t.

## EMPIRICAL RESULTS

Table 1 examines the factors associated with investment. The dependent variable is  $KURYATIRIM_{it}$ . Three measures of investor sentiment are positively related to investment. Sentiment index and TUIK Consumer Confidence Index are statistically significant. In model 2, AKKAR and TAHAK are the other statistically significant independent variables. In model 3 and 4, HAZBON, AKKAR, TAHAK are the other statistically significant independent variables. R<sup>2</sup> value for model 1 is 23.73%, for model 2 is 23.30% and for model 3 is 22.88%.

**Table 1. Factors Associated with Firm-level Investment**

Dependent variable:	Model 2	Model 3	Model 4
<b>KURYATIRIM</b>			
C	0.0941431	-0.025459	0.0491139
	0.0122923	0.044814	0.014119
	<b>7.66</b>	<b>-0.57</b>	<b>3.48</b>
	<b>(0.000)***</b>	<b>(0.571)</b>	<b>(0.001)***</b>
DUYENDEKS	0.0058955		
	0.0015045		

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		3.92	
		<b>(0.000)***</b>	
TÜKGÜVENDEKS		0.1060975	
		0.0537978	
		<b>1.97</b>	
		<b>(0.051)*</b>	
NETSERMAKIŞ			0.0000462
			0.0001077
			<b>0.43</b>
			<b>(0.669)</b>
Q	-0.0029965	-0.0017927	-0.0026607
	0.0059791	0.0063009	0.0061507
	<b>-0.50</b>	<b>-0.28</b>	<b>-0.43</b>
	<b>(0.617)</b>	<b>(0.777)</b>	<b>(0.666)</b>
VADE	-0.3319729	0.483684	0.2254835
	0.6423419	0.7391655	0.6886989
	<b>-0.52</b>	<b>0.65</b>	<b>0.33</b>
	<b>(0.606)</b>	<b>(0.514)</b>	<b>(0.744)</b>
HAZBON	0.0302195	0.2064997	0.27067
	0.0914742	0.0908664	0.0896369
	<b>0.33</b>	<b>2.27</b>	<b>3.02</b>
	<b>(0.742)</b>	<b>(0.025)**</b>	<b>(0.003)***</b>
AKKAR	0.001591	0.0014767	0.0015443
	0.0007019	0.0007013	0.0006988
	<b>2.27</b>	<b>2.11</b>	<b>2.21</b>

	(0.025)**	(0.037)**	(0.029)**
GETIRI	0.0016145	0.0009705	0.0019029
	0.0026472	0.0020792	0.0025415
	<b>0.61</b>	<b>0.47</b>	<b>0.75</b>
	<b>(0.543)</b>	<b>(0.642)</b>	<b>(0.456)</b>
TAHAK	0.5641812	0.5875534	0.5887809
	0.1020202	0.1021107	0.1028021
	<b>5.53</b>	<b>5.75</b>	<b>5.73</b>
	<b>(0.000)***</b>	<b>(0.000)***</b>	<b>(0.000)***</b>
<b>R<sup>2</sup></b>	<b>0.2373</b>	<b>0.2320</b>	<b>0.2288</b>

\*\*\*%1, \*\*%5 ve %10 düzeyinde anlamlılığı göstermektedir.

## CONCLUSIONS

In this study, we find that investment is positively associated with investor sentiment, even after controlling for factors that may be associated with rational investing. This indicates that behavioral factors play a role in firm-level investment. This relation holds regardless of whether investor sentiment is gauged through surveys of beliefs or inferred from investors' capital market activity. This suggests that behavioral factors play a role in aggregate investment.

Collectively, the evidence is consistent with the ideas of Tugan Baranovsky (1894), Mises (1912), Hayek (1929), Kindleberger (1978), Minsky (1992) and others. According to these studies, periods of aggregate overinvestment are a feature of the business cycle. Such periods are likely to be marked by the easy availability of investor capital, buoyant investor expectations, optimism about future aggregate profitability and growth prospects, and relatively cheap credit. The aggregate stock market, and growth stocks in particular, are overvalued during these periods. Ex-post, the consequences of aggregate overinvestment for fundamentals and asset prices play out. Firms announce disappointing earnings and economy-wide growth falters. In the long run, aggregate profitability declines. Aggregate returns drop, sometimes to the point of falling below the risk-free rate. Growth stocks perform particularly poorly, leading to a widening of the value premium. In short, the inefficient investment results in a macroeconomic bust. Put together, our results line up strikingly well with this explanation.

A number of interesting avenues for future research remain. First, which firms or industries are most prone to overinvestment? For example, firms with worse corporate governance may make particularly poor investment decisions. Second, investigating the relation between insider trading and aggregate investment would shed light on whether managers anticipate the negative implications of aggregate investment. Third, it is possible that firms who overinvested the most during periods of aggregate overinvestment may engage in corporate fraud or earnings manipulation to hide their mistakes. Besides, for Turkey the relation between firm-level investment and investor sentiment may be

analysed considering the structural breaks. Investigating these issues represent opportunities for future research.

## REFERENCES

- Arellano, L. (1987). Computing Robust Standard Errors for Within-Groups Estimators, *Oxford Bulletin of Economics and Statistics*, Volume 49, Issue 4, pp. 431-434.
- Arif, S. (2011). *Aggregate Investment and Its Consequences*. Doctoral Dissertation, Stanford University, The Graduate School of Business, Stanford, pp.1-60.
- Baker M.-Wurgler J. (2006). Investor sentiment and the cross-section of stock returns. *The Journal of Finance*, Volume 61, Issue 4, pp. 1645-1680.
- Baker M.- Wurgler J. (2007). Investor sentiment in the stock returns. *Journal of Economic Perspectives*, Volume 21, Issue 2, pp. 129-152.
- Brown, S.J.- Goetzmann W.N.-Hiraki T.- Shirashi N. - Watanabe M. (2002). Investor sentiment in Japanese and US. daily mutual fund flows. Yale ICF Working Paper No. 02-09; Afa 2003 Washington DC Meetings, <http://ssrn.com/abstract=302829>.
- Brown, G.W.-Cliff M.T. (2004). Investor sentiment and the near-term stock market. *Journal of Empirical Finance*, Issue 11, pp. 1-27.
- Canbas, S.- Kandır, S. Y. (2006). Hisse Senedi Getirilerinde Yatirimci Psikolojisinin Etkisinin Yatirim Ortakliklari Iskontosu Ile Incelemesi. *Muhasebe ve Finansman Dergisi*, Issue 29.
- Canbaş S.- Kandır S.Y. (2009). Investor Sentiment and Stock Returns: Evidence from Turkey. *Emerging Markets Finance & Trade*, Volume 45, Issue 4, pp.36–52.
- Dechow, P. M.- Richardson, S. A.- Sloan, R. G. (2008). The persistence and pricing of the cash component of earnings. *Journal of Accounting Research*, Volume 46, Issue 3, pp.537-566.
- Dichev, I. (2007). What are stock investors' actual historical returns? Evidence from dollar-weighted returns. *American Economic Review*, Volume 97, Issue 1, pp. 386-401.
- Doukas, J.A.- Milonas N.T. (2004). Investor sentiment and the closed-end fund puzzle: out-of-sample evidence. *European Financial Management*, Volume 10, Issue 2, pp. 235–266.
- Fisher, K.L.- Statman M. (2000). Investor sentiment and stock returns. *Financial Analysts Journal*, Volume 56, Issue 2, pp.16-23.
- Froot, K. A. (1989). Consistent Covariance Matrix Estimation with Cross-Sectional Dependence and Heteroskedasticity in Financial Data. *Journal of Financial and Quantitative Analysis*, Issue 24, pp.333-355.
- Hayek, F. (1929). *Geldtheorie und Konjunkturtheorie 'Monetary Theory and the Trade Cycle'*, Salzburg.
- Kandır, S. Y. (2006a). *Türkiye’de Yatırımcı Duyarlılığının Hisse Senedi Getirileri Üzerindeki Etkisi*. Doctoral Dissertation, Çukurova Üniversitesi Sosyal Bilimler Enstitüsü, Adana.
- Lee, C.M.C.- Shleifer A. - Thaler R.H. (1991). Investor sentiment and the closed-end fund puzzle. *Journal of Finance*, Volume 46, Issue 1, pp. 75-109.

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MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
OHRID-MACEDONIA/3-5 JULY 2017**

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- Lemmon, M- Portniaguina E. (2006). Consumer confidence and asset prices: Some empirical evidence. *Review of Financial Studies*, Volume 19, Issue 4, pp. 1499-1529.
- Leonard, D.C.- Shull D.M. (1996). Investor sentiment and the closed-end fund evidence: impact of the January effect. *The Quarterly Review of Economics and Finance*, Volume 36, Issue 1, pp. 117-26.
- Minsky, H. P. (1982). *Can it happen again? Essay on instability and finance*. New York: ME Sharpe.
- Mises, L. von (1912). *The Theory of Money and Credit*, Duncker und Humblot: Leipzig.
- Neal, R.- Wheatley S.M. (1998). Do measures of investor sentiment predict returns. *Journal of Financial and Quantitative Analysis*, Volume 33, Issue 4, pp. 523-547.
- Rogers, W. H. (1993). Regression Standart Errors in Clustered Samples. In *Stata Technical Bulletin Reprints*, Issue 3, pp. 88-94, College Station, Tx: Stata Press 295.
- Tugan-Baranovsky, M. (1894). *Industrial crises in contemporary England, their causes and immediate consequences on national life*. I. Schorochodov

# EVALUATING THE FINANCIAL SOLVENCY OF TURKISH LISTED COMMERCIAL BANKS: AN APPLICATION OF BANKOMETER

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**Abstract:** *This study examines solvency of listed Turkish commercial banks in the period of 2009-2015. A new and efficient model Bankometer is used to evaluate solvency scores of banks. This model considers capital adequacy, capital to asset, equity to total asset, non-performing loans to loans, cost to income and loans to asset ratios. 11 Turkish commercial banks listed in the Istanbul Stock Exchange are considered. According to the results all banks are super sound banks. The most solvent bank is ICBC bank with the mean of 7 years' scores. The findings of the study also reveals that public sector banks are the two of last three banks according to the ranking. Besides, the difference of solvency scores between public sector banks and private sector banks are not significant.*

**Key Words:** *Bankometer, solvency, Capital Adequacy Ratio, Listed Commercial Banks, Financial Soundness*

## INTRODUCTION

Banking sector plays a vital role in an economy by intermediating the fund transfers from lenders to borrowers. The credit mechanism of banks provides investors and individuals who are in need of consumer loan with fund surplus of households and businesses. However, the real sector feeds on capital accumulations transferred by banks. Sustainability of this mechanism depends on readiness to return the deposits to depositors whenever they asked for. Because of this, banks are required to hold certain amount of capital. Commercial banks want to attract depositors who are willing to gain money by placing various amounts of money in a bank. So banks advertises a deposit rate. After expected money is on deposit, banks advertises loan rate which is specified by considering the risk of that money in economic conjuncture. If the loan repayments can't be received and bank's security portfolio value declines banks capital comes into prominence to get rid of stress originating from losses. The investors and depositors would withdraw their funds in case of capital inadequacy. Banks become insolvent and be a potential candidate for bankruptcy. The financial sector would lose its soundness by successive bankruptcies of banks. An interruption in the effectiveness of financial sector concludes deterioration of economic growth and stability.

For sustaining the main intermediary role in financial sector, banks have to consider solvency. Having more equity and less debt (Jaworski, Liberadzki, Liberadzki, 2017: 162), having a positive net present value (Vuilleme, 2014: 32), having the capacity to cover a manageable long term debt (Yeo, 2016: 235) are the requirements of being a solvent bank. While liquidity injection is adequate to resolve liquidity crisis of a solvent bank, major changes and radical restructuring of bank operations are required for insolvency case (Yeo, 2016: 236). Therefore, solvency regulations that require the banker to hold at least a certain amount of riskless assets has to be discussed in the first place (Vuilleme,



2014: 32). As Momota and Maeda (2004) asserts it is aimed to reduce the probability of bank insolvency and protect depositors by regulations.

Turkish economy welcomed the financial liberalizations, privatization, deregulation of capital flow and exchange by year 1980. The banking sector suffered from two crises in 2000, 2001; 2008 global financial crisis also affected it adversely. Lots of new regulations came into operation. Basel criteria also guides Turkish banking sector for increasing their quality and quantity of capital. Today, Turkish banking sector constitutes 65,7 % of financial system. This sector's ratio of total assets to GDP is 101% by year 2016. As a member of Basel Committee on Banking Supervision (BCBS) and Financial Stability Board (FSB) Turkish banking sector operates in accordance with international standards. There are currently 34 commercial banks operating in Turkey.

In this study, it is aimed to evaluate financial solvency of commercial banks in Turkey and to compare listed public sector and listed private sector banks on the basis of financial solvency.

## **LITERATURE REVIEW**

Several studies have been conducted to investigate banks' solvency. Among different models, CAMEL, CLSA- stress test, Bankometer and Z-Score are most common used models. Bankometer model was developed by Shah and Jamali (2010) to gauge the bank solvency. This model's ratios were derived from both CAMELS and CLSA stress test analysis, however there were slight changes in their limits and percentages. They applied their model on banks in Pakistan for the period of 1999-2002 to confirm the accuracy of the model. It was expected that by applying the parameters of this model capital adequacy, non-performing loans, human capital efficiency etc. were examined in detail. They also compared bankometer model's results with CAMEL and CLSA stress test results. Stress test authenticated the bankometer results.

Anita and Shveta (2012) also investigated the solvency of commercial banks in India. They used bankometer model for the sample of 37 commercial banks covering the period of 2006-2010. They asserted that the private sector banks were more sound than the public sector banks. They also ranked the top and worst five financially sound banks. Similarly, Makkar and Singh (2012) evaluated the solvency of 37 Indian commercial banks covering the period of 2006-07 to 2010-11. According to the results of the study, in which bankometer model was used, all the Indian banks were confirmed as financially solvent. Additionally, private sector banks were financially more sound than public sector banks.

Nimalathan, Balaputhiran and Priya (2012) investigated the financial soundness of commercial banks in Sri Lanka for the period of 5 years between 2006 and 2010. According to the bankometer model results, the state banks were more sound than private banks. As a conclusion it was asserted that bankometer would help the banks internal management to avoid insolvency issues with a proper control over the periods. Kattel (2014) expressed the aim of his study to evaluate the financial soundness of joint venture banks and private sector banks in India. The study that used bankometer model as the indicator of solvency covered the period of 2007-2012. Among the sample of 6 joint venture banks and 22 private sector banks, none of them had solvency score below 70%. Top financial sound banks in India was ranked by their study. Yameen and Ali (2016) aimed to evaluate the financial soundness of 13 commercial banks in Jordan for the period of 2002-2011. They expressed the reason why they used Bankometer model as this model provides rates that helps them in choosing the best bank according to their financial needs and transactions. The findings showed that all the commercial banks are super sound banks and there are differences in the solvency of Jordanian commercial banks. They emphasized that Bankometer is effective method for Jordanian commercial banks for the internal management of solvency. Ashraf and Tariq (2016) evaluated the financial soundness of Pakistani listed banks in order to determine which banks' soundness is super stable and which ones' is close to insolvency. 21 banks that were listed on Pakistan Stock Exchange for the period of 2006- 2014 sampled in their study. They used bankometer model since it is computationally

less expensive than other models like CAMELS and CLSA- stress test. They also used Z-Score model for comparing the results of bankometer. Their results indicated that all banks' financial soundness is good. Additionally, they suggested that Islamic banks were more stable than conventional banks; public sector banks are more stable than private sector banks and foreign banks are more stable than local banks. Although some results were slightly different, bankometer and Z- score models reported same results. In the study of Fayed (2013), who aimed to analyze and compare the performance of Islamic and conventional banking in Egypt, Bankometer model was used as the indicator of solvency of banks. The results showed that both Islamic banks and conventional banks were insolvent. However, islamic banks had a slightly higher value. Erari and et. al. (2013) aimed to analyze the conformity and exactness of financial ratio analysis in assessing the financial performance development of Bank Papua. They used CAEL, Z-score and Bankometer models within the period from 2003 to 2011. The results of both CAEL and Bankometer showed that Bank Papua was highly liquid, had strong capital and good profitability, good welfare, good at managing debt well but still lack in efficiency. On the other hand, Z-score model put Bank Papua in grey area by asserting that the bank's liquidity and capital were weak. As a conclusion, the authors suggested that Z-score model presents an early warning assessment of financial performance of banks and is appropriate to be used in banking analysis.

## **DATA AND METHOD**

This study's data is made up of all listed commercial banks in Turkey between 2009 and 2015. There are 11 banks listing in Istanbul Stock Exchange. Two of them Vakıfbank and Halkbank are public sector banks, the remained; Akbank, Denizbank, Finansbank, ICBC bank, Sekerbank, TEB, Garanti, Isbank and Yapi Kredi Bank are private sector banks. The data was obtained from Public Disclosure Platform, annual reports that published in banks' websites and The Banks Association of Turkey's "Banks in Turkey" reports. The secondary data is composed of balance sheet and income statement elements. Turkish Banking Regulation and Supervision Agency's "Regulation About Banks' Capital" guides especially for determining Tier 1 capital that is the numerator of capital to asset ratio. Bankometer that is developed by Shar, Shah and Jamali (2010) considering the IMF (2000) recommendations is used to evaluate banks' solvency. This model presents a scale of solvency by considering banks' ratios that are derived from CAMEL and CLSA - stress test parameters with modifications. Bankometer has the quality of minimum number of parameters with maximum accurate results. Bankometer parameters are;

- Capital Adequacy Ratio:  $40\% \leq CAR \leq 8\%$
- Capital to Assets Ratio :  $Capital / Asset \geq 4\%$
- Equity to Total Assets :  $Equity / Asset \geq 2\%$
- NPLs to Loans :  $NPLs / Loans \leq 15\%$
- Cost to Income Ratio :  $Cost / Income \leq 40\%$
- Loans to Assets :  $Loan / Asset \leq 65\%$

The bank that has capital adequacy ratio between 8% and 40%, capital to asset ratio more than 4%, equity to total asset ratio more than 2%, non-performing loans to loan ratio lower than 15%, cost to income ratio lower than 40%, loan to asset ratio lower than 65% may be categorized as solvent based upon the bankometer (Shar, Shah and Jamali, 2010). For calculating the solvency value the formula below is used;

$$S = 1.5*CA + 1.2*EA + 3.5*CAR + 0.6*NPL + 0.3*CI + 0.4*LA$$

Whereas:

- S** : Solvency
- CA** : Capital asset ratio
- EA** : Equity to assets
- CAR** : Capital adequacy ratio

**NPL** : Non-performing loans to loans  
**CI** : Cost to income  
**LA** : Loans to assets

If a bank has solvency value greater than 70, it means that the bank is solvent and qualified as super sound bank; if solvency value is below 50, it means that the bank is insolvent and the area between 50 and 70 is defined as grey area because of susceptibility to error classification.

## ANALYSIS AND RESULTS

The financial solvency of all Turkish listed commercial banks for the period of 2006-2015 is presented in Table 1 below.

**Table 1.**Bankometer S Values of All Listed Turkish Commercial Banks  
(2009-2015)

No	Bank	2009	2010	2011	2012	2013	2014	2015
1	Akbank	150	145	133	140	123	126	123
2	Denizbank	140	127	124	122	108	120	130
3	Finansbank	137	137	139	146	134	135	127
4	ICBC Bank	179	165	144	146	140	159	111
5	Sekerbank	132	124	118	128	122	127	122
6	Teb	133	117	121	125	120	118	102
7	Garanti	141	138	128	137	120	126	124
8	Halkbank	119	122	116	125	114	119	120
9	Isbank	128	129	118	130	109	128	125
10	Vakıfbank	124	124	119	129	115	119	122
11	Yapı-Kredi	139	129	125	133	130	125	120

According to the results, all listed Turkish commercial banks are solvent for the period from 2009 to 2015. Besides, the solvency scores are quite higher than acceptance score 70. This means that listed Turkish commercial banks are super sound banks. If it is considered which banks have the highest solvency score by years, the results are respectively 2015 Denizbank, 2014 ICBC Bank, 2013 ICBC Bank, 2012 Finansbank and ICBC Bank, 2011 ICBC Bank, 2010 ICBC Bank and 2009 ICBC Bank. In addition, the solvency scores indicate that there are differences in solvency of listed Turkish commercial banks.

Table 2 states the mean values of variables and solvency scores. In the bankometer model the most weighted factor affecting solvency is capital adequacy ratio (CAR). Because it is widely accepted that one of the main measures of a bank's ability to cope with a financial loss is CAR (Posner, 2014). All banks' CAR is over 10,5% that Basel III recommendations. Akbank is the peak and Sekerbank is the bottom according to CAR values. Capital to asset ratio (CA) is the ratio of banks' core capital to assets. According to the IMF guidelines, banks should have CA ratio more than 4% All the banks had CA ratio over than 4%. As well as all CA ratio values so closed to each other ICBC bank has the highest value. Equity to asset (EA) is one of the indicators of financial leverage. The higher EA ratio means the more financial health in the long term. All banks have EA ratio higher then 2%. ICBC Bank has the highest EA value and Halkbank has the lowest EA value. Non-performing loans to loans ratio (NPL/L) should be below 15%. All banks NPL/L ratios are not even 1%. This can be interpreted as the loans of Turkish banks' are majorly performing. Cost to income (CI) ratio expresses the ratio of operating expenses to operating income. The ratios below 40% are desired. But according to the results, all listed Turkish commercial banks have CI ratio above 40% except Teb Bank. Loan to asset (LA) ratio is one of the indicator of banks potential profitability. The more loans they give, the more profit they gain. But loans bring risk of default with it. Because of this, LA ratio below 65% is desired. ICBC Bank has the the highest ratio with 78%.

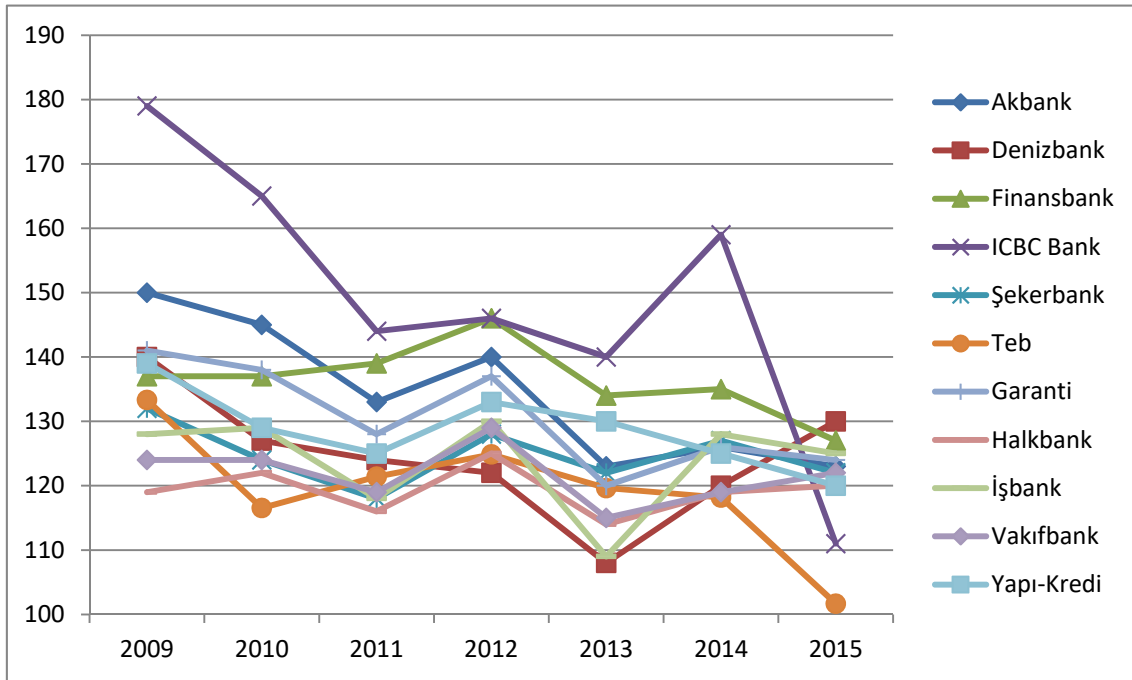
When the solvency scores are considered from the point view of rankings, it is revealed that ICBC Bank ranks first. Finansbank and Akbank follow it as the second and third of ranking list. Although Isbank and Denizbank have the same solvency scores, the bank that has higher CAR ranked higher. Likewise, Teb and Halkbank have the same solvency scores and their CAR value are the same, as well. The bank that has higher CA value ranks higher. Halkbank has the worst solvency score and it is at the bottom of the list. The last three banks are Vakıfbank, Teb and Halkbank. Public sector banks Vakıfbank and Halkbank are towards the end of ranking list.

**Table 2.** The Mean Values of Variables and Solvency Results

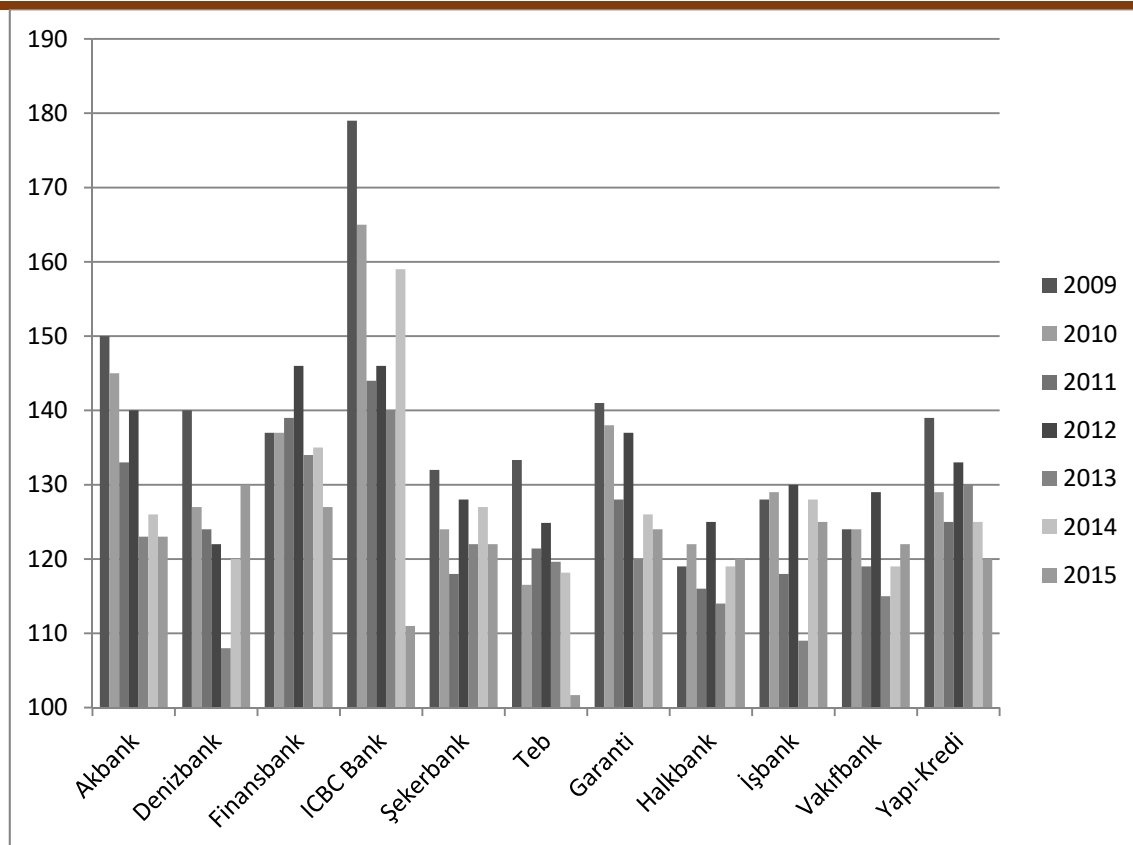
Bank Name	CAR	CA	EA	NPL/L	CI	LA	S	Ranking
Akbank	0,176	0,121	0,133	0,022	0,514	0,542	134	3
Denizbank	0,155	0,106	0,106	0,045	0,445	0,638	124	8
Finansbank	0,172	0,118	0,122	0,068	0,467	0,651	137	2
ICBC Bank	0,170	0,155	0,161	0,053	0,515	0,718	149	1
Sekerbank	0,143	0,108	0,117	0,059	0,510	0,648	125	6
Teb	0,148	0,096	0,107	0,029	0,367	0,691	119	10
Garanti	0,172	0,107	0,124	0,027	0,516	0,565	131	4
Halkbank	0,148	0,085	0,102	0,035	0,526	0,615	119	11
Isbank	0,160	0,084	0,120	0,027	0,538	0,576	124	7
Vakıfbank	0,145	0,095	0,104	0,044	0,545	0,630	122	9

Yapı-Kredi	0,157	0,108	0,120	0,040	0,509	0,634	129	5
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In the line chart of solvency values of banks by year (Figure 1), the highest solvency value belongs to ICBC Bank for the year 2009; the lowest solvency value belongs to TEB for the year 2015. The proximity of lines emphasizes that the solvency values of case banks' are so close to each other during the study period.



**Figure 1.** Bankometer Values of Listed Turkish Commercial Banks (2009-2015)



**Figure 2.** Overall Bankometer Solvency Values of Listed Turkish Commercial Banks

When we look at the overall financial solvency of all Turkish listed commercial banks, ICBC Bank's solvency value is explicitly higher than all other. (Figure 2).

In the solvency score ranking list, two public sector banks are the two of last three banks. Because of this, on the basis of solvency scores, it is also investigated whether the different scores of public sector banks and private sector banks are significant or not. According to the independent samples' T test results, p value (0,177) is higher than  $\alpha=0,05$ . Therefore null hypothesis is accepted. The difference between public sector and private sector banks' solvency score isn't significant. This means the difference stems from other factors instead of ownership structure.

## CONCLUSION

Turkish banking sector that suffered from two economic crises has taken precautions for constituting financially strong banks. One of the main indicators of financial strength is solvency. This study is conducted to evaluate financial solvency of listed commercial banks in Turkey for the period of 2009-2015. Bankometer model is executed to calculate solvency score. On the basis of bankometer results it is concluded that all 11 listed Turkish commercial banks are financially super sound banks. None of the banks' solvency scores are below 70. In other words, all banks are solvent. According to overall Bankometer solvency scores ICBC Bank is the most solvent bank. Consistent with the solvency score rankings, the listed commercial public sector banks are the two of the last three banks. And with reference to t-test the difference between public sector and private sector banks' solvency score isn't significant. To the best of our knowledge, this is the first study examining Turkish listed commercial banks' solvency by Bankometer model.

## **REFERENCES**

- Anita, M, Shevta S. (2012). Evaluating the Financial Soundness of Indian Commercial Banks: An Application of Bankometer, National Conference on Emerging Challenges for Sustainable Business, pp. 118-132.
- Ashaf A.- Tariq Y. (2016). Evaluating the Financial Soundness of Banks: An Application of - Bankometer on Pakistani Listed Banks. The IUP Journal of Financial Risk Management, Volume 13, Issue 3, pp. 47-63.
- Erari A.- Salim U.- Syafie Idrus M.- Djumahir (2013). Financial Performance Analysis of PT. Bank Papua: Application of Cael, Z-Score and Bankometer, IOSR Journal of Business and Management, Volume 7, Issue 5, pp. 8-16.
- Fayed M. E. (2013). Comparative Performance Study of Conventional and Islamic Banking in Egypt, Journal of Applied Finance & Banking, Volume 3, Issue 2, pp. 1-14.
- Jaworski P.- Liberatzki K.- Liberatzki M. (2017). How Does Issuing Contingent Convertible Bonds Improve Bank's Solvency? A Value-At-Risk And Expected Shortfall Approach, Economic Modelling, Issue 60, pp. 162-168.
- Kattel I. K. (2014). Evaluating the Financial Solvency of Selected Commercial Banks of Nepal: An Application of Bankometer, Journal of Advanced Economic Research Volume 1, Issue 1, pp. 88-95.
- Makkar A.- Singh S. (2012). Evaluating the Financial Soundness of Indian Commercial Banks: An Application of Bankometer, National Conference on Emerging Challenges for Sustainable Business, India, pp. 118-132.
- Momota A.- Maeda Y. (2004). The Effect of Solvency Regulation to A Bank, Japan and The World Economy, Issue 16, pp. 163-191.
- Nimalathan B.- Balaputhiran S.- Priya K. (2012). Evaluating the Financial Soundness of Selected Commercial Banks in Sri Lanka: An Application of Bankometer Model, International Journal of Research in Commerce & Management, Volume 3, Issue 11, pp. 12-15.
- Posner, Eric, (2014), How Do Bank Regulators Determine Capital Adequacy Requirements?, Coase-Sandor Institute For Law And Economics Working Paper No. 698.
- Shar A. H.-Shah A. M.- Jamali H. (2010). Performance Evaluation of Banking Sector in Pakistan: An Application of Bankometer, International Journal of Business and Management, Volume 5, Issue 8, pp. 113-118.
- Vuilleme G. (2014). Solvency Vs. Liquidity. A Decomposition Of European Banks' Credit Risk Over The Business Cycle, International Economics, Issue 137, pp. 32-51.
- Yameen, I. Y., Ali, M. S. (2016). Evaluating the Financial Soundness of the Jordanian Commercial Banks by Applying Bankometer's Model, Research Journal of Finance and Accounting, Volume 7, Issue 2, pp. 124-130.
- Yeo, H. (2016). Solvency and Liquidity in Shipping Companies, The Asian Journal of Shipping and Logistics, Volume 32, Issue 4, pp. 235-241.

# DIESELGATE AND ITS IMPACTS ON CONSUMERS, REGULATORS AND THE COMPANY

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**Abstract:** *The aim of this study is to discuss one of the world's biggest automobile manufacturing company's systematic emission test cheating and the impacts of this scandal—Dieselgate. The method comprises the assessment of American, British, and Turkish car forum comments. It is found out that; on the average, 43.5 percent of Volkswagen owners doesn't believe that there will be any negative change in the company's reputation in United Kingdom and Turkey. US data will be analyzed in the wider time span.*

**Keywords:** *Dieselgate, Consumers, Regulators, Social responsibility, Volkswagen*

## INTRODUCTION

The scope of the paper is the Volkswagen (VW) Scandal; which was unfolded in 2013 with researchers finding abnormalities between the nitrogen oxide (NOx) emitted by VW vehicles in lab tests and on the road, and the impacts of the scandal. NOx is a smog-forming pollutant linked to lung cancer up to 40 times higher than the federal limit. The Environmental Protection Agency (EPA) investigation followed in May 2014. VW admitted tricks in early September of 2015, and the deception went public in mid September. This paper questions whether this scandal will hurt the reputation of VW, and/or change the attitude of the consumers towards VW.

## LITERATURE

VW scandal is manifold. The case is a good example for poor crises management. Almost all stakeholders of VW are affected, and will be affected in the future, as well. The car dealers are impacted very badly; same for the insurance companies. The consumers are put under a heavy burden, and their losses seem to be unrecoverable. First, second-hand value of their cars diminished. Secondly, the relatively high price they paid will be no more backed up by the performance of the vehicle they own. Third, VW will call the vehicles in the future for technical adjustments. The alteration which will be made on the vehicle will shift the vehicle in a new emission segment, and this will cause the car owner to pay higher taxes. In Dieselgate the public and the governments in general are the stakeholders who had been systematically cheated. Hypothetically, Dieselgate is expected to harm the reputation of VW.

## METHODOLOGY

Whether Dieselgate will harm the reputation of VW or not is the research question of the study. This scandal may be a path-breaking one to business world. In case the scandal doesn't harm VW reputation, and the company doesn't record losses in the next few years, the socially responsible groups will be upset, and the case will be a discouraging one. Thus, the study will enlighten the ethics question for car makers for countries chosen. These are US, UK, and Turkey. In order to visualize the opinions of car owners, forums about cars had been searched. By googling forums about Volkswagen Scandal, a data set of 10.087 consumer comments in forum threads chosen randomly had been printed [US forum assessment will follow later on, for the time the extended summary is prepared, data from



UK and Turkey are examined], and each comment had been categorized as (1) the issue bothers them, (2) the issue doesn't bother them, (3) don't care, and (4) not really is an issue. Some additional comments aroused from Turkish forum, as well.

## **FINDINGS**

The preliminary results of UK forum show that around 40 percent of comments state "the issue doesn't bother". Roughly 15 percent doesn't even realize it as an issue, and almost 10 percent conclude that the issue doesn't bother them. The remaining comment givers state that the issue bothers them, but this depends on the country where the consumer lives. Turkish forum comments are distributed as such: 47 percent of comment owners doesn't think that there will be any damage to VW brand image; however 20 percent admits a severe damage to brand and are apparently aware of the ethical issue in the case. Comment owners, who view the issue as *one which matters* make up 4.76 percent; 6.67 percent view the case as a complot against VW.

Another point is that in Börse Frankfurt, Volkswagen shares' value had fallen sharply, in September 2015, but had been recovering since then.

## **CONCLUSIONS**

Comments of UK VW owners and VW owners in Turkey almost overlap; 43.5 percent on the average believe that the scandal will not hurt VW in their countries. Only 10 percent of UK VW owners consider the case as an important ethical problem, whereas 20 percent of comments givers of Turkish forums perceive the case as a significant and brand harming one.

Since regulations differ, VW vehicle models which are affected changes from country to country, and from year to year. The mostly affected ones are in US. German market is excluded from research in the study, because VW is a huge employer in Germany, and the pride of Germans. This may impair objectiveness of German car owners. Even though forums are very cozy settings for opinion holders, to express their feelings, it may also be a constriction of the study.

The results of the study may help academia to make alterations in ethics related courses' contents, the number of courses related to social responsibility, and it also points to importance of ethics courses existence not only in business administration related classes, but also engineering sciences and disciplines.

## **REFERENCES**

- Bomey, Nathan (08.02.2017). "Volkswagen attacks exchairman scandal accusations against for exCEO." USA Today. <http://www.usatoday.com/story/money/cars/2017/02/08/volkswagen-scandal-ferdinand-piech-martin-winterkorn/97650684/>, (24.02.2017).
- Börse Frankfurt. Stocks. Volkswagen. <http://en.boerse-frankfurt.de/stock/Volkswagen-share/ETR>, (26.02.2017).
- Holloway, Hilton (31.05.2016). "Volkswagen is in big trouble and the emissions scandal is yet to seriously impact." <http://www.autocar.co.uk/opinion/industry/volkswagen-big-trouble-and-emissions-scandal-yet-seriously-impact>, (24.02.2017).
- McGee, P. - Campbell, P. (April 22, 2016). "VW reports biggest annual loss in almost eight decades." Financial Times. <https://www.ft.com/content/d777afa0-0893-11e6-b6d3-746f8e9cdd33>, (26.02.2017).

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
OHRID-MACEDONIA/3-5 JULY 2017**

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Neslen, Arthur - Harmsen, Vincent. "European Commission Warned Car-Maker Suspected Cheating Five Years before VW Scandal." <https://www.theguardian.com/environment/2016/jun/20/european-commission-warned-car-maker-suspected-cheating-five-years-vw-scandal>, (24.02.2017).

Osegowitsch, Tom - Trenholm, Susan (08.10.2015). "Volkswagen fallout shows how not to manage a crisis." <http://theconversation.com/volkswagen-fallout-shows-how-not-to-manage-a-crisis-48590>, (24.02.2017).

Posky, Matt (10.01.2017). "Volkswagen Expected to Plead Guilty, Reach \$4,3 Billion Criminal Settlement." The Truth About Cars. <http://www.thetruthaboutcars.com/2017/01/vw-4-billion-settlement/#more-1488361>, (24.02.2017).

Schultz, E.J. (22.09.2015). "Volkswagen Brand Takes Image Hit as Emissions Scandal Grows: VW Brand Perception Scores Plummet." <http://adage.com/article/cmo-strategy/volkswagen-brand-takes-image-hit-emissions-scandal-grows/300486/>, (24.02.2017).

Trefis Team. Forbes. (28.09.2015). "The Domino Effect of Volkswagen's Emissions Scandal." <https://www.forbes.com/sites/greatspeculations/2015/09/28/the-domino-effect-of-volkswagens-emissions-scandal/print/>, (24.02.2017).

Useem, Jerry (Jan/Feb 2016). "What was Volkswagen Thinking." The Atlantic Magazine. <https://www.theatlantic.com/magazine/archive/2016/01/what-was-volkswagen-thinking/419127/>, (24.02.2017).

Wikipedia. [https://en.wikipedia.org/wiki/Volkswagen\\_emissions\\_scandal](https://en.wikipedia.org/wiki/Volkswagen_emissions_scandal), (24.02.2017).

# AUDITING OF FINANCIAL SUSTAINABILITY FOR LISTED AND NON-LISTED COMPANIES THAT SUBJECT TO INDEPENDENT AUDIT: A RESEARCH IN BURSA

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**Abstract:** According to the independent auditing standards in Turkey, the auditor has to carry out the auditing of the annual report from 2014 and in this regards the financial adequacy of the enterprises and determination of the debt payment power and the operating risks are determined. If there are events and circumstances that may raise serious doubts about the continuity of the business, the analysis of the risks is primarily the responsibility of the business management and, ultimately, the auditor. Although the financial statements are prepared on the basis of continuity of the entity, the auditor gives a negative opinion if it is not appropriate according to the auditor's judgment and there are significant discrepancies between the audited financial statements and the information in the annual reports. This process has a positive effect on the financial sustainability of the public sector, which is subject to independent examination since 2005 as it is subject to the Capital Market Law. Since independent auditing process is new for companies outside the capital market, it is possible that adequate measures have not been taken to protect financial continuity in these enterprises. Based on this assumption, in this study, in order to compare financial sustainability of listed and non-listed companies which are in Bursa and subjected to independent audit has been selected. After this selection, these companies' average ratios of 2014-2015 period was entered to the SPSS 24 statistical program. The evaluation has been made based on Mann Whitney U test which is a non-parametric statistical method. As a result of the analysis, it was determined that there is a significant difference between only the turnover ratios, the turnover rate of return on equity and the return on equity ratio among listed and non-listed companies in Bursa..

**Keywords:** Financial Sustainability, Independent Auditing

## INTRODUCTION

According to the Independent Standards on Auditing (ISA), the auditor audits the financial statements and the annual reports prepared on the assumption of continuity of the business. Annual reports include information about companies' financial sustainability. Within this scope, the financial adequacy of the enterprises, the debt payment power and business risks are determined.

Turkish Commercial Code (TCC) and Turkish Independent Auditing Standards which is parallel with International Auditing Standards has radically changed the accounting and auditing applications in Turkey. Companies that have a liability to account to the public and are subject to capital market legislation have been subject to independent auditing since 2005 and they prepare their financial statements in accordance with Turkish Accounting / Financial Reporting Standards (TAS / TFRS). However, the obligation of independent accounting auditing of companies outside the capital market

and not open to the public is left to the Decision of the Council of Ministers by the Turkish Commercial Code (TCC) dated 2011 and the number of enterprises covered by independent auditing is increased by decreasing the criteria for independent evaluation every year. As the annual report and continuity of operations should also be reviewed within the scope of the independent audit, a majority of the companies operating in Turkey that are not listed are not prepared or equipped for the requirements of the independent accounting audit. The aim of this study is to compare the financial sustainability of listed and non-listed companies in Bursa that subject to independent audit in accordance with TCC regulations and within the framework of Turkish Auditing Standards. For this comparison, the annual reports and financial statements of the companies from both groups and operating in Bursa province were examined.

Comparative financial statements cover the 2014-2015 periods due to the fact that year of publication of the ISA 700 on auditing of annual reports is 2014. Under this limitation, liquidity, financial structure, profitability and effective use of asset ratios was calculated of the firms that subject to independent audit according to 2014-2015 financial statement data. After this, a comparison and determination of financial continuity of listed and non-listed companies in Bursa was made. In accordance with this purpose, current ratio, acid-test ratio, cash ratio, leverage ratio, Ratio of short-term liabilities to total liabilities, ratio of equities to total liabilities, asset turnover ratio, equity turnover ratio, sales profitability ratio, equity profitability ratio and gross profitability ratios was calculated of the firms from both groups and subject to independent audit. For every ratio, companies' average numbers was entered to the Statistical Programming for Social Sciences (SPSS) 24 program and analyzed with Mann Whitney U test which is among non-parametrical tests. As a result of the analyze, only asset turnover ratio, equity turnover ratio and equity profitability ratio showed meaningful difference among listed and non-listed companies that subject to independent audit in Bursa.

## **BUSINESS CONTINUITY IN INDEPENDENT AUDITING STANDARDS**

According to the Turkish Auditing Standards which is a translation of International Standards on Auditing, translated by Public Oversight Institution and published on the Official Gazette known shortly as ISA, auditor should test and report whether financial statements are prepared in accordance with business continuity. According to the Draft text, which amended the standard of "ISA 570 Business Continuity", it is primarily the responsibility of the management of the company to ensure the continuity of the business and correcting a situation that adversely affects its continuity. Auditor's responsibility is collecting sufficient and appropriate evidence about adequacy of business continuity assumption on the preparation of financial statements and draw conclusion on whether there is a significant uncertainty about this assumption. If there are serious doubts and occasions exist about business continuity notion, the analysis of the risks remains to the management and the auditor. In this case, auditor applies risk evaluation process regarding ISA 315. Even if financial statements prepared on the basis of business continuity, auditor gives negative opinion if this does not match his/her judgement. According to TCC 398, the independent external auditor audits whether the board has established an internal control system capable of timely identification and risk management of the threats that now or may arise. According to ISA 720, if there are significant discrepancies between the audited financial statements and other information, the auditor also examines other information.

## **LITERATURE REVIEW**

A number of empirical studies have been conducted on the assessment of financial sustainability and financial performance through ratios. Some of them are as follows.

Altman (1968) made a study about evaluating ratio analysis quality as an analytical technique. He concluded that even though traditional ratio analysis is no longer an important technique in the

academic environment, if it analyzed multidimensional, companies' bankruptcy could be determined statistically by using series of ratios.

Alexander et al. (2003) analyzed the relationship between internet usage and financial performance among companies which gives importance to the Internet in the business activities in the transportation industry.

In a study by Acar (2003) on the measurement of financial performance in agricultural enterprises, it is stated that the data needed to measure financial sustainability are profitability, liquidity and debt solvency and productivity ratios.

In the research conducted by Lewellen (2004) to determine whether dividend yield ratios can be used for estimating total stock returns, the dividend ratio between 1946-2000 for the total market return, the market value book value ratio and the price-earnings ratio for the period 1963-2000 showed indicative character.

In Chiara's (2011) study importance of the relationship between family businesses' performance and family relations, control and company management was analyzed.

In a study conducted by Taylor and Tower (2011), financial ratios of 111 listed firms in Australia between 2002 and 2006 were analyzed.

Oberholzer (2012) used data envelopment analysis and found that in order for companies to transform scarce resource to outputs they firstly obtain technical productivity and secondly how this performance is reflected in a number of profitability and market-value ratios. According to this study, technical productivity and return of equity has the most important relationship which was followed by return of assets. Besides, market value ratios are used short-term speculative purposes for investors and these ratios do not reach a conclusion about the company's overall performance.

Savsar and Karaca (2012) investigate the relationship between firm value and financial ratios by using panel data analysis. They found that 'Financial ratios explain and influence firm value at a rate of %20.'

According to Pur et al. (2015) using financial indicators for performance evaluation is undoubtedly an application based on typical and strong foundations. However, they often proved inadequate to monitor future changes because they do not cover qualitative aspects of the features and relationships within the institutional system.

The study by Epstein et al. (2015) explores how profitable, large, complex firms integrate social, environmental and economic performance in the course of providing decision-making and sustainability. Nike, Proctor & Gamble, The Home Depot and Nissan North America were examined how different levels of executives conduct social, environmental and economic performance simultaneously. They found that companies' informal systems strongly promote sustainability while formal systems strongly focus on financial performance.

Emie and Hafiza (2016) stated that the financial leverage, asset structure, profitability and return on capital ratios are important predictors of the fraudulent financial reporting in determining the fraudulent financial reporting. As a result of Pearson correlation analysis and regression on the data obtained from the audited annual activity reports of the companies it was found that ratio of total debts to total equity, total debts to total assets, net profit to income, current asset to total assets, receivables to income, stocks to total assets, working capital to total assets and income to total assets are important indicators for fraudulent reporting.

In the study conducted by Deron et al. (2016), the predictive performance obtained by combining seven group financial ratios and five groups of corporate governance indicators was evaluated. The research results based on the 1999-2009 data sets obtained from the Taiwan Economic Journal show that the ratios regarding the solvency and profitability and the corporate governance indicators are the most important figures in anticipation of bankruptcy.

Considering the studies conducted by Bursa companies, Lazol (2011) assessed the debt payment power, liquidity status, financial structure and profitability ratios of the 250 largest firms in Bursa and he reached the result that companies generally focused on debt financing and he trend from past years continues.

In another survey conducted by Bilgin (2011) on the top 250 companies in Bursa, evaluations were made on the profitability in terms of year and sector by using the data of these companies in 2011.

## **A RESEARCH IN BURSA ON THE COMPARASION OF FINANCIAL CONTINUITY**

According to the ISA, the auditor must give opinion in the audit report that company's financial sustainability is protected. In order for auditor to reach an opinion about this issue, auditor must make evaluations about financial continuity and if there are any conditions that may cause serious doubt about the financial continuity in the context of the analysis of the liquidity, financial structure and profitability of the entity, auditor must state this in the audit report, notify management and give negative opinion if necessary. This process has a positive effect on the financial sustainability of the listed companies that subject to independent audit since 2005 as it is subject to the Capital Market Law. However, since the independent auditing process is new for non-listed companies, it is possible that sufficient precautions have not been taken to protect financial continuity in these enterprises. Based on this assumption, the ratios used in the research can provide information about the debt solvency, financial structures, profitability and effective use of assets of the listed and non-listed companies in Bursa, which are subject to independent accounting auditing for the purpose of evaluating the financial sustainability. According to this, it was analyzed that whether there is a significant relationship between current ratio, acid-test ratio, cash ratio, leverage ratio, ratio of short-term debts to total liabilities, ratio of equities to total liabilities, asset turnover ratio, equity turnover ratio, sales profitability ratio, equity profitability ratio and gross profitability ratio. For each ratio null hypothesis is 'there is no significant relationship' and counter hypothesis is 'there is significant relationship'. Based on this research hypothesis are below.

H<sub>0</sub>: There is no significant relationship between current ratio, acid-test ratio, cash ratio, leverage ratio, ratio of short-term debts to total liabilities, ratio of equities to total liabilities, asset turnover ratio, equity turnover ratio, sales profitability ratio, equity profitability ratio and gross profitability between listed and non-listed companies that subject to independent audit in Bursa considering their 2014-2015 average data from annual reports.

H<sub>1</sub>: There is a significant relationship between current ratio, acid-test ratio, cash ratio, leverage ratio, ratio of short-term debts to total liabilities, ratio of equities to total liabilities, asset turnover ratio, equity turnover ratio, sales profitability ratio, equity profitability ratio and gross profitability between listed and non-listed companies that subject to independent audit in Bursa considering their 2014-2015 average data from annual reports.

## **METHODOLOGY AND THE SCOPE OF THE STUDY**

The universe of the study is listed and non-listed companies that subject to independent audit in Bursa. All of the annual balance sheets and income statements for the year 2014 and 2015 of the companies listed in Bursa (data universe) were reached from the web page of Public Disclosure Platform.

The universe of non-listed companies that subject to the independent audit in Bursa was determined as 102 from the first 250 large firms list published by Bursa Chamber of Commerce and Industry and annual balance sheets and income tables of 21 companies that were reached for 2014 and 2015 were analyzed. Even though all of the financial statements belongs to the listed companies in Bursa was obtained, the number of enterprises that was accessed to the financial statements from non-listed companies to total number was 20.5%. In the study total 35 data was used and 21 of them (%60) belongs to the listed companies while 14 of them (%40) belongs to the non-listed companies. Using the balance sheet and income tables of the companies, current ratio, acid-test ratio, cash ratio, leverage ratio, ratio of short-term debts to total liabilities, ratio of equities to total liabilities, asset turnover ratio, equity turnover ratio, sales profitability ratio, equity profitability ratio and gross profitability ratios was used. These ratios were selected because they give information about company's debt payment power, financial structure, profitability and the effective use of assets. These ratios are the data set of the study.

Liquidity ratios (current ratio, acid-test ratio and cash ratio) are used for the determination of company's short term debt payment ability. Financial structure ratios (ratio of short term to total liabilities, ratio of equity to total liabilities) explain the degree of using liabilities on financing. These ratios which shows the relationship between liabilities and equities, answer the question of whether the financial structure of the company and the lender's safety margin is sufficient. Operating ratios (asset turnover ratio, equity turnover ratio) analysis the efficiency ranking of using assets in the business activities. Profitability ratios (sales profitability, equity profitability and gross profitability) show the achievement resulting from the business activities (Gücenme Gençoğlu, 2014:93-104).

Balance sheet and income statements of the 2014 and 2015 period of the companies that were included in the study were used. These companies were subject to the independent audit in 2016. All of the listed companies were subject to the independent audit. In order for non-listed companies to subject independent audit, according to the Council of Minister's decision dated 19 March 2016 was released of the Official Gazette, total assets must be 40 million TL or more, net sales revenue must be 80 million TL or more and employee number must be 200 or more and two out of this three criteria must be reached two years in a row. For this reason, non-listed that was included in the study were meet the requirements of being subject to independent audit. These companies are therefore providing two out of the three criteria in the 2014 and 2015 financial statements.

Mann Whitney U test which is among non-parametric test was used for data analysis. Mann Whitney U test analysis how two independent samples' scores vary differently from each other. In other words, this test analysis whether two unrelated groups has similar distributions at the scene in terms of the significant variable. This test is usually used when working with few experimental subjects and distribution of normalization requirements is not met (Büyükoztürk, 2013; 165). Mann-Whitney-U test is divided into small samples and large samples. U test for large samples is used when one the samples are over 20 or both samples are over 10 (Kartal, 2014; 198). Sümbüloğlu and Sümbüloğlu (2005) states that if the both samples are less than 30 or even if sample size is adequate if distribution of normalization requirements are not met, the strongest test will be used is Mann Whitney U test. Due to the fact that Büyükoztürk's (2013), Kartal's (2015) and Sümbüloğlu and Sümbüloğlu's (2005) criteria were met, Mann Whitney U test was used in the study.

## **FINDINGS**

In Table 1, listed and non-listed companies' financial ratios Mann Whitney U test scores and their averages is found.

**Table 1.** Mann-Whitney U Analysis Results and Financial Ratio Averages

VARIABLES	FIRM TYPE	N	P	Averages
Current Ratio	Non-listed	21	0,516	1,93
	Listed	14		3,62
Acid Test Ratio	Non-listed	21	0,516	1,42
	Listed	14		3,00
Cash Ratio	Non-listed	21	0,606	0,30
	Listed	14		1,90
Leverage Ratio	Non-listed	21	0,325	0,64
	Listed	14		0,52
Ratio of short term liabilities to total liabilities	Non-listed	21	0,325	0,41
	Listed	14		0,32
Ratio of equity to total liabilities	Non-listed	21	0,434	0,38
	Listed	14		0,48
Sales profitability ratio	Non-listed	21	0,495	0,03
	Listed	14		0,09
Gross profitability	Non-listed	21	0,960	0,28
	Listed	14		0,26
Asset turnover ratio	Non-listed	21	0,000	2,19
	Listed	14		0,68
Equity turnover ratio	Non-listed	21	0,001	7,29
	Listed	14		1,90
Equity profitability ratio	Non-listed	21	0,001	-0,02
	Listed	14		0,45

In the above table, P column is the one that must be considered. According to the P value, it is determined which hypothesis will be accepted. If the p value is higher than 0.05 then  $H_0$  will be accepted. If the p value is lower than 0.05 then  $H_1$  will be accepted. The reason that using 0.05 values is that in our study we were working under %95 reliability. In other words, in the study there was %5 error margin.

In the light of the Mann Whitney U test result in table 1, due to the fact P value is higher than 0.05 on current ratio, acid test ratio, cash ratio, leverage ratio, ratio of short term liabilities to total liabilities, ratio of equity to total liabilities, sales profitability and gross profitability average numbers, it was found that  $H_1$  is rejected which argue that there is significant relationship and  $H_0$  is accepted which argue that there is no significant relationship between listed and non-listed companies that subject to independent audit in Bursa.

On the other hand, it was found that there is a significant relationship between asset turnover ratio, equity turnover ratio and equity profitability ratio between listed and non-listed companies in Bursa considering their 2014-2015 average data from annual reports ( $H_1$ ) because P value is lower than 0,05.

According to the results, there are differences between asset turnover, equity turnover and equity profitability ratios average on both groups. When considering 2014-2015 period, equity turnover ratio average is 7.29 for non-listed companies while it is 1.90 for listed companies. Equity turnover ratio which is calculated by dividing net sales to equity can be interpreted that equity is used efficiently insufficiently. Even though it has been found that there is no significant relationship between two groups considering the ratio of equity to total liabilities, this ratio is %48 for listed companies while it is %38 for non-listed companies. In another words, leverage ratio (debt ratio) is low for listed



companies while it is high on non-listed companies. In non-listed companies, the lower equity ratio is a reason for the higher equity turnover rate, but the higher ratio in these companies should be interpreted that in these groups equities is used effectively and they into sales. Also equity profitability was found 0.45 for non-listed companies while it -0.02 for listed. In this context, it can be interpreted that more profit management or cost of sales is higher for the public enterprises to avoid dividend distribution. Eventually, these results cannot be interpreted in favor of listed companies.

When considering 2014-2015 period, asset turnover ratio is 2.19 for non-listed companies while it is 0.68 for listed. These results indicate that assets are using effectively is non-listed companies.

Cash ratio is 1.90 for listed while it is 0.30 for non-listed companies as seen from Table 1. These results show that listed companies have high power of paying short-term liabilities with cash and cash equivalents. But, when considered with other data, it is not enough to verify 'listed companies have higher financial performance than non-listed companies' thesis. For this reason, general result is that there is no significant relationship between current ratios and financial performances between listed and non-listed companies in Bursa considering their 2014-2015 average data from annual reports.

## **RESULTS**

It can be said that although the independent auditing in capital market has been implemented in Turkey since 2005, when the start of independent auditing practices outside the capital market started in 2011, public opinion does not have enough information about independent auditing. There are difficulties in implementing the TAS / TFRS, which should be used as a comparison criterion in auditing, especially the accountants who produce financial statements in non-capital market enterprises have lack of knowledge and experience. Risks that they undertake to increase or decrease their profits have a negative impact on business performance, increase audit risk and reduce audit quality. In order to compare financial sustainability structure of listed and non-listed companies that subject to independent audit in Bursa were taken as a sample. Mann Whitney-U analysis was used to test the hypothesis that whether or not there is significance difference between the averages of these rates for each group by choosing the ratios that can give information about the debt repayment powers, financial structures, profitability and effective use of the assets. As a result of the study, it has been determined that there is no significant difference in the current rates and financial performances of the listed and non-listed companies that subject to independent audit in Bursa as of the year 2014-2015 average. Accordingly, the fact that businesses are open to the public does not make a difference in favor of these companies in terms of financial sustainability. Auditing of annual reports and financial continuity auditing has begun to be implemented since 2014, no precaution was taken by listed companies that prepare transparent and comparable financial statements that require disclosure.

Since the publication year of ISA 700 related to the independent audit of the activity reports in Turkey is 2014, the financial statements examined in this study are limited to the comparative financial statements of the year 2014-2015 and the scope of the research is based on listed and non-listed companies that subject to independent audit in Bursa. In addition, although the financial statements of all Bursa-based listed companies was accessed, the ratio of the number of companies that was accessed financial statements from non-listed companies to total number is 20.5%. The reason is for that non-listed companies are not willing to share their financial information. Overcoming these limitations in our study in the future researches can give detailed information about financial sustainability. Also, expanding the research to regions or making a research around Turkey, will be beneficial in order to determine financial sustainability's current situation in Turkey.

## **REFERENCES**

- Acar, Mustafa (2003), "Tarımsal İşletmelerde Finansal Performans Analizi", Erciyes University Journal Of Faculty Of Economics And Administrative Sciences, Issue 20, January-July, pp. 21-37,

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
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- Alexander E. Ellinger- Lynch, Daniel F. - D. Hansen, John (2003), "Firm Size, Web Site Content, And Financial Performance In The Transportation Industry", *Industrial Marketing Management*, Issue 32, Pp. 177– 185,
- Altman, Edward I. (1968), "Financial Ratios, Discriminant Analysis And The Prediction Of Corporate Bankruptcy", *The Journal Of Finance*, Volume 23, Issue 4, pp.589-609.
- Bilgin, Mehmet Hüseyin, (2011), "Bursa'daki En Büyük 250 Firma Araştırması, 2011 Yılı Sonuçları Üzerine Değerlendirme", *Bursa Economy Bursa Chamber Of Commerce And Industry Publishing*, pp. 74-77
- Büyükoztürk, Şener (2013), *Sosyal Bilimler İçin Veri Analizi El Kitabı*, Pegem Academy, Ankara, 18. Edition
- Chiara, Mazzi (2011), "Family Business And Financial Performance: Current State Of Knowledge And Future Research Challenges", *Journal Of Family Business Strategy*, Issue 2, pp. 166–181
- Deron, Liang Chia- Chi Lu, Chih, - Fong Tsai, Guan, - Shih, An (2016), "Financial Ratios And Corporate Governance Indicators In Bankruptcy Prediction: A Comprehensive Study" *European Journal Of Operational Research*, Issue 252, pp. 561–572,
- Emie, Famieza Zainudin- Hashim, Hafiza Aishah (2016), "Detecting Fraudulent Financial Reporting Using Financial Ratio ", *Journal Of Financial Reporting And Accounting*, Volume 14, Issue 2, pp. 266 – 278
- Epstein, Marc J. – Buhovac, Adriana R.- Yuthas, Kristi (2015), "Managing Social, Environmental And Financial Performance Simultaneously", *Long Range Planning*, Issue 48, pp. 35–45,
- Gücenme Gençoğlu, Ümit, (2014), *Finansal Tablolar Analizi, Aktüel, Bursa*
- Kartal, Mahmut, (2014), *Bilimsel Araştırmalarda Hipotez Testleri*, Nobel, Ankara
- Lazol, İbrahim, (2011), "Bursa'daki En Büyük 250 Firmanın Sektörel Açından Finansal Durum Analizi", *Bursa Economy Bursa Chamber Of Commerce And Industry Publishing*, pp. 49-61
- Lewellen, Jonathan (2004), "Predicting Returns With Financial Ratios", *Journal Of Financial Economics*, Volume 74, Issue 2, pp. 209-235.
- Oberholzer, Merwe (2012) "The Relative Importance Of Financial Ratios In Creating Shareholders' Wealth", *South African Journal Of Economic And Management Sciences*, Volume 15, Issue 4, pp.416-428.
- Pur, David- Jacova, Helena- Horak, Josef (2015), "An Evaluation Of Selected Assets And Their Impact On The Declarative Characteristic Of Ratio Indicators In Financial Analyses", *Economy And Management*, Issue 4, pp.132-149.
- Savsar, Arif- Karaca, Süleyman Serdar (2012), "The Effect Of Financial Ratios On The Firm Value: Evidence From Turkey." *Journal Of Applied Economic Sciences (Jaes)*, Volume 1, Issue 19, pp. 56-63.
- Sümbüloğlu, Kadir – Sümbüloğlu, Vildan (2005), *Biyoistatistik*, Hatiboğlu Publishing, Ankara
- Taylor, Grantle- Tower, Greg (2011), "Determinants Of Financial Ratio Disclosure Patterns Of Australian Listed Extractive Companies", *Australian Accounting Review*, Volume 21, Issue 3, pp.302-314.

# ANALYSIS OF THE RELATIONSHIP BETWEEN MUNICIPALITIES' FINANCIAL STATEMENTS AND POPULATION IN TURKEY FROM 1980 TO 2014

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**Abstract:** Public administration is carried out via centralized and local administrations in Turkey (T.R Constitution, 1982: A.126-127). According to the constitution, local administration in Turkey consists of municipality, special provincial administration and villages. When their financial magnitude is taken into consideration, municipalities come first among the local administrations which spend resource expenditure.

Financial statements which are prepared by the municipalities are helpful in terms of making decisions for source allocation and evaluation for widespread user groups. Financial statements which are formed with this purpose provide information about financial situation and performance of administration and cash flow. The following information could be gathered from financial statements about public administrations (Türkyener, 2011:52):

- Allocation and use of sources,
- How activities are financed and need for cash is subsidized,
- Ability of financing their activities and responsibilities as well as meeting the requirements,
- Changes in their financial situation,
- Their success, performance and efficiency in their activities,
- How they manage to use their budget in accordance with the budget provided for them in line with the law,
- Whether they are transparent and accountable or not.

Budget application results tables of municipalities are financial statements which show budget incomes acquired in certain reporting periods and their budget expenses as well providing detailed financial information about them. Budget application results tables are deduced from budget incomes and outcomes of accounting groups. Set of period transactions are added to the table designed in relation to the whole budget year. Tables are prepared in a way to include the last three years to make a comparison between the periods. (Local Administrations Budget and Accounting, 2016: A.423). Budget final account is the final version inferentially prepared budget at the end of the financial year.

In respect to this, matters involving income and outcome budgets of municipalities are included in the budget final account as well. (Sevimli, 1999:51).

Financial statements which are formed with this purpose provide information about financial situations and performance of administration and cash flows. The main purpose of this study is to investigate the relationship between municipalities' expenses and incomes defined as their budget balances in Turkey and population related rates and if it makes a contribution to this field. The first caution to take in case of economic problems is to reduce public expenses in Turkey. However, saving in public expenses policies involve superficial cautions in general. Whether they benefit from scale economies in public service provision or not will be a significant policy as it involves the whole public sector.

To determine the relationships between municipalities' financial statements and National Population Growth Rate, Municipal Population/Total Population and Harmonized Gross Domestic Product (as Percentage), we used all municipalities' consolidated financial statements which include revenues and expenses between 1980 and 2014. There are a total of 67 cities in 1980, and a total of 81 cities in 2014. All data from them are collected from the Republic of Turkey Ministry of Development, the Turkish Statistical Institute and the Republic of Turkey Ministry of Finance databases. We used fiscal tables related to municipalities during the period. The fiscal tables include two important parts like Revenues and Expenditures as consolidated in one year.

Revenues are classified as four main accounts. They are taxes, non-tax revenues, factor income and capital transfers. Revenues accounts are related to municipalities' incomes in the year. Expenditure are classified as five main accounts. They are current expenditures, investment expenditures, current transfers, expropriation and increase in fixed assets and capital transfers (net). These accounts are also related to the municipalities' expenditures in the year as a consolidated bases.

We used analyse of 3 different dependent variables which are Natural Population Growth Rate, Municipal Population/Total Population and Harmonized Gross Domestic Product (as Percentage). We also calculated growth ratio for each dependent variables. On the other hand, this growth ratio calculated as a percent of growth of each variables from first to next year during the period. Our aim is to determine the relationships between municipalities' financial statements and each rates in Turkey between 1980 and 2014.

We assumed that our main hypothesis is statistically significant pertaining to the relations between municipalities' financial statements and each dependent variables. Because of municipalities have to service the public, and they may have taxes and other related revenues from their services. They may also have expenditures related to services. All municipalities have to service all people and the public as well. Amount of people who live in the municipalities' service area are important. It means more services, more revenues and more expenditures. We analysed in this study that if there is any relations between each growth rate and revenues and expenditures.

We found the same relationships related to literature between municipalities' expenditures and municipal population/total population with highly coefficient of 5% a statistically significant level. Especially Investment Expenditures has increased according to rate of increasing of municipal population/total population during the period in Turkey. At the same time there are two important independent variables in revenues for the period is statistically significant. Taxes and Non-Tax Revenues have increased in the period of analyse related to increasing rate of the Municipal Population/Total Population.

In the relationships between Harmonized Gross Domestic Product and Municipalities' Financial statements, we found highly efficient variables in the analyse. Especially, changing rate of gross domestic product in the period was effected in the Revenues or vice versa in the first model. It is also related to Taxes in the second model. In the last model of relationships between Harmonized Gross Domestic Product and Municipalities' Financial statements, Current Expenditures variable is highly related to Harmonized Gross Domestic Product in the period. Our result is the same with the literature,

especially Koyuncu (2012) work. He determined an increase in local administrations' rate of shares acquired from centralized administrative tax incomes within their own budget incomes and in GPD in the last 2007 and 2011 periods.

**Keywords:** Municipalities, Financial Statements, Budget Balance, Municipal Population/Total Population

# IMPLEMENTATION OF HYBRID DATA MINING APPROACH IN FRAUD EXAMINATION: A RESEARCH ON MANUFACTURING FIRMS LISTED IN ISTANBUL STOCK EXCHANGE

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**Abstract:** The purpose of this study is to detect fraudulent or non-fraudulent financial statement reported firms listed in the Istanbul Stock Exchange (BIST) manufacturing sector with using data mining techniques. In this context, BIST manufacturing firms have been selected and various financial ratios used in the study. The study was conducted on year of 2015 financial statement of BIST manufacturing selected 50 firms. Therefore, data of financial statements and independent audit reports were obtained from Public Disclosure Platform database. The study was analyzed the fraudulent or non-fraudulent financial statements by the data mining classification techniques. Then five classification data mining techniques (decision tree, k-nearest neighbor, naïve bayes, neural networks and support vector machine) were performed in the study. Results of the model classification performance were showed that decision tree and k-nearest neighbor models outperform the other three techniques.

**Keywords:** Fraud Examination, Financial Statement, Istanbul Stock Exchange, Data Mining.

## INTRODUCTION

According to COSO defined fraudulent financial reporting as intentional or reckless conduct, whether act or omission that results in materially misleading financial statements. Fraudulent financial reporting can involve many factors and take many forms. It may entail gross and deliberate distortion of corporate records, such as inventory count tags, or falsified transactions, such as fictitious sales or orders. Recently, fraudulent financial reporting becomes very important topic for information users.

## LITERATURE REVIEW

The following is a summary of important literature on the use of data mining methods and the studies conducted for fraud detection purposes (Kotsiantis et al., 2006; Kirkos et al., 2007; Ata and Seyrek, 2009; Ravisankar et al., 2011; Kırlioğlu and Ceyhan, 2014; Terzi and Şen, 2015; Chen, 2016; Goo et al., 2016; Yeh et al., 2016).

<b>Author</b>	<b>Data Mining Techniques</b>	<b>Main Objective</b>
Kotsiantis et al. (2006)	neural networks, decision tree, bayesian belief network and k-nearest neighbor	to apply hybrid decision support system using to detect fraudulent financial statement.
Kirkos et al. (2007)	neural networks, decision tree and bayesian belief network	to explore the effectiveness of neural networks, decision tree, bayesian belief network in detection fraudulent financial statement.
Ata and Seyrek (2009)	neural networks and decision tree	to explore the successful of neural networks or decision tree in detection fraudulent financial statement
Ravisankar et al. (2011)	neural networks and support vector machine	to identify companies that have financial statement fraud
Kırlıoğlu and Ceyhan (2014)	k-nearest neighbor and naïve bayes	to provide auditor with preliminary analytical review to identify customer companies.
Terzi and Şen (2015)	artificial neural networks	to use artificial neural network model detecting frauds in forensic accounting.
Chen (2016)	bayesian belief network, support vector machine and artificial neural network	to construct a valid and rigorous fraudulent financial statement detection model.
Goo et al. (2016)	neural networks and support vector machine	to establish rigorous and reliable going concern doubt prediction models.
Yeh et al. (2016)	support vector machine and neural networks	to increase the accuracy of fraudulent financial statements detection by integrating approaches.

## **METHODOLOGY**

Proactive methods in fraud examination can be divided into two groups: inductive and deductive methods. Data mining is one of inductive methods. In order to use data mining techniques to detect the fraudulent or non-financial statements, five classification data mining techniques (decision trees, k-nearest neighbor, naïve bayes, neural networks and support vector machine) were used in the study.

## Data

In order to detect the fraudulent or non-financial statements, independent audit reports of 182 firms listed in Istanbul Stock Exchange for the year 2015 were examined in the study. When the independent audit reports of the selected firms were examined, significant misstatements were identified in the financial statements of the 25 firms. After the detection, firms that have the fraudulent financial statements have been matched with 25 firms operating in the same sector and that have positive audit opinion. The matched samples were based on (1) industry, (2) products and (3) firm size (Yeh et. al, 2016: 268). Thus total 50 firms listed in Istanbul Stock Exchange manufacturing sector were selected to use in the study. Firm size calculated by natural logarithm of total assets – Firm size=Ln(total assets), (t-test results  $p=0,336$ ;  $t:0,972$ ).

## Variables

For the analysis, twenty one financial ratios as variables selected prior studies on detection fraudulent financial statements (Kotsiantis et al.,2006; Kirkos et al., 2007; Ata and Seyrek, 2009; Ravisankar et al., 2011; Kırılıoğlu and Ceyhan, 2014; Terzi and Şen, 2015; Chen, 2016; Goo et al., 2016; Yeh et al., 2016). The financial ratios were calculated from the annual financial statements of the 50 firms for the year 2015. The selected variables are shown in Table 1.

**Table 1.** Research Variables

Variable No	Variable description/Definition or formula	Variable No	Variable description/Definition or formula
X <sub>1</sub>	Current assets / Total assets	X <sub>12</sub>	Net income / Total assets
X <sub>2</sub>	Non-current assets / Total assets	X <sub>13</sub>	Equity / Total assets
X <sub>3</sub>	Inventory / Current liabilities	X <sub>14</sub>	Inventory / Sales
X <sub>4</sub>	Inventory / Total assets	X <sub>15</sub>	Net income / Sales
X <sub>5</sub>	Debt ratio: Total liabilities / Total assets	X <sub>16</sub>	Operating income / Total assets
X <sub>6</sub>	Non-current liabilities / Total assets	X <sub>17</sub>	Pre-tax profit / Total assets
X <sub>7</sub>	Current liabilities / Total assets	X <sub>18</sub>	Current liabilities /Total liabilities
X <sub>8</sub>	Working capital / Total assets	X <sub>19</sub>	Operating income / Sales
X <sub>9</sub>	Sales / Total assets	X <sub>20</sub>	Operating cash flow / Total assets
X <sub>10</sub>	Gross margin / Total assets	X <sub>21</sub>	(Current year's sales – last year's sales) / last year's sales
X <sub>11</sub>	Account receivables / Total assets		



In order to determine statistical tests to be applied to variables, normality tests were performed firstly. The normality test was conducted with the Kolmogorov-Smirnov test. The test results obtained are shown in Table 2.

**Table 2.** Results of Normality Test

<b>Variables</b>	<b>Kolmogorov- Smirnov Z</b>	<b>Asymp. Sig. (2-tailed)</b>	<b>Variables</b>	<b>Kolmogorov- Smirnov Z</b>	<b>Asymp. Sig. (2-tailed)</b>
X <sub>1</sub>	,745	,635	X <sub>12</sub>	1,085	,190
X <sub>2</sub>	,745	,635	X <sub>13</sub>	,860	,450
X <sub>3</sub>	1,028	,242	X <sub>14</sub>	1,210	,107
X <sub>4</sub>	,830	,496	X <sub>15</sub>	,570	,902
X <sub>5</sub>	,860	,450	X <sub>16</sub>	1,111	,170
X <sub>6</sub>	1,093	,183	X <sub>17</sub>	,954	,323
X <sub>7</sub>	1,108	,172	X <sub>18</sub>	,750	,627
X <sub>8</sub>	,963	,312	X <sub>19</sub>	1,051	,220
X <sub>9</sub>	,761	,609	X <sub>20</sub>	,565	,907
X <sub>10</sub>	,599	,865	X <sub>21</sub>	,991	,280
X <sub>11</sub>	,959	,316			

After the normality test, t tests were performed on each variable for using fraudulent or non-fraudulent financial statement to detect differences between two groups. If it has non-significant differences, the variable is excluded and not used in the following analyses. The results of the t tests between two group and the selected variables to be used in data mining techniques are shown in Table 3.

**Table 3. Results of T-Test**

<b>Variables</b>	<b>t</b>	<b>Asymp. Sig. (2-tailed)</b>	<b>Variables</b>	<b>t</b>	<b>Asymp. Sig. (2-tailed)</b>
X <sub>1</sub>	,698	,489	X <sub>12</sub>	2,103	,041*
X <sub>2</sub>	-,698	,489	X <sub>13</sub>	1,199	,236
X <sub>3</sub>	1,726	,091**	X <sub>14</sub>	,208	,836
X <sub>4</sub>	2,414	,020*	X <sub>15</sub>	1,951	,062**
X <sub>5</sub>	-1,199	,238	X <sub>16</sub>	2,094	,042*
X <sub>6</sub>	,255	,800	X <sub>17</sub>	1,974	,054**
X <sub>7</sub>	-1,464	,150	X <sub>18</sub>	-1,437	,157
X <sub>8</sub>	1,660	,107	X <sub>19</sub>	2,200	,036*
X <sub>9</sub>	1,622	,111	X <sub>20</sub>	,871	,388
X <sub>10</sub>	2,226	,031*	X <sub>21</sub>	,735	,466
X <sub>11</sub>	1,238	,222			

\*Significant level  $p < 0,05$

\*\* Significant level  $p < 0,1$

## **FINDINGS**

The data set used in the data set is divided into two parts, namely training and test set. The training set is used for network training for learning appropriate to the weights of the data and the test set is used to measure the performance of the training implementation. In the study, a stratified 10-fold cross validation approach was performed. In 10-fold cross validation approach, the sample is divided in 10-folds (Kirkos et al., 2007: 1002). Then five classification data mining techniques (decision trees, k-NN, naïve bayes, neural networks and support vector machine) were performed in the study. The accuracy of the model is also compared in order to detect fraudulent or non-fraudulent financial statements. Classification performance results of data mining techniques (decision trees, k-NN, naïve bayes, neural networks and support vector machine) as follow.

**Table 4.** Classification Performance of Decision Tree

<b>Accuracy: 98.00%</b>	<i>true non-fraudulent</i>	<i>true fraudulent</i>	<i>class precision</i>
<i>pred. non-fraudulent</i>	25	1	96.15%
<i>pred. fraudulent</i>	0	24	100.00%
<i>class recall</i>	100.00%	96.00%	

When the results of the decision tree analysis were examined, the correct classification performance of the model was determined as 98.00%. In 1 observation fraudulent financial statements were classified as non-fraudulent financial statements.

**Table 5.** Classification Performance of k-NN

<b>Accuracy: 98.00%</b>	<i>true non-fraudulent</i>	<i>true fraudulent</i>	<i>class precision</i>
<i>pred. non-fraudulent</i>	24	0	100.00%
<i>pred. fraudulent</i>	1	25	96.15%
<i>class recall</i>	96.00%	100.00%	

When the results of the k-NN model analysis were examined, the correct classification performance of the model was determined as 98.00%. In 1 observation non-fraudulent financial statements were classified as fraudulent financial statements.

**Table 6.** Classification Performance of Naïve Bayes

<b>Accuracy: 82.00%</b>	<i>true non-fraudulent</i>	<i>true fraudulent</i>	<i>class precision</i>
<i>pred. non-fraudulent</i>	23	7	76.67%
<i>pred. fraudulent</i>	2	18	90.00%
<i>class recall</i>	92.00%	72.00%	

When the results of the naïve bayesian model analysis were examined, the correct classification performance of the model was determined as 82.00%. In 2 observations non-fraudulent financial statements were classified as fraudulent financial statements and in 7 observations fraudulent financial statements were classified as non-fraudulent financial statements.

**Table 7.** Classification Performance of Neural Networks

<b>Accuracy: 94.00%</b>	<i>true non-fraudulent</i>	<i>true fraudulent</i>	<i>class precision</i>
<i>pred. non-fraudulent</i>	22	0	100.00%
<i>pred. fraudulent</i>	3	25	89.29%
<i>class recall</i>	88.00%	100.00%	

When the results of the neural networks model analysis were examined, the correct classification performance of the model was determined as 94.00%. In 3 observations non-fraudulent financial statements were classified as fraudulent financial statements.

**Table 8.** Classification Performance of Support Vector Machine

<b>Accuracy: 94.00%</b>	<i>true non-fraudulent</i>	<i>true fraudulent</i>	<i>class precision</i>
<i>pred. non-fraudulent</i>	24	2	92.31%
<i>pred. fraudulent</i>	1	23	95.83%
<i>class recall</i>	96.00%	92.00%	

When the results of the support vector machine model analysis were examined, the correct classification performance of the model was determined as 94.00%. In 1 observation non-fraudulent financial statements were classified as fraudulent financial statements and in 2 observations fraudulent financial statements were classified as non-fraudulent financial statements.

## CONCLUSIONS

According to results of the t-test, total 8 variables which in order to detect to fraudulent or non-fraudulent financial statement used in the analysis selected. The selected variables are Inventory / Total assets, Gross margin / Total assets, Operating income / Sales, Net income / Total assets, Operating income / Total assets, Pre-tax profit / Total assets, Net income / Sales, Inventory / Current liabilities.

In terms of model performance, the decision tree and k-NN models achieved to correctly classify 98% of the validation sample in 10-fold cross validation approach, the accuracy rates of the neural network and support vector machine models were 94% and the accuracy rates of the naïve bayesian model were 82%. In a comparative assessment of the data mining models' performance, results of analysis showed that decision tree and k-NN models outperform the other three models and have more successful classification accuracy.

## REFERENCES

- Ata, H. Ali - Seyrek İbrahim H. (2009), "The Use of Data Mining Techniques in Detecting Fraudulent Financial Statements: An Application on Manufacturing Firms", Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Volume 14, Issue 2, pp.157-170.
- Chen, Suduan (2016), "Detection of Fraudulent Financial Statements Using The Hybrid Data Mining Approach" SpringerPlus, Volume 5, Issue 89, pp. 1-16.
- Goo, Yeung-Ja James – Chi, Der-Jang – Shen, Zong-De (2016), "Improving The Prediction of Going Concern Of Taiwanese Listed Companies Using A Hybrid Of LASSO With Data Mining Techniques" SpringerPlus, Volume 5, Issue 539, pp. 1-18.
- Kirkos, Efstathios.- Spathis, Charalambos - Manolopoulos, Yannis (2007), "Data Mining Techniques for the Detection of Fraudulent Financial Statements", Expert Systems with Applications, Volume 32, Issue 4, pp. 995-1003.
- Kırlioğlu, Hilmi – Ceyhan, İsmail Fatih (2014), "Mali Tablo Denetiminde Ön Analitik İnceleme Tekniği olarak Veri Madenciliğinin Kullanımı: Borsa İstanbul Uygulaması", Akademik Yaklaşımlar Dergisi, Volume 5, Issue 1, pp.13-36.
- Kotsiantis, S.- Koumanakos, E. - Tzelepis, E. - Tampakas, V. (2006), "Forecasting Fraudulent Financial Statements Using Data Mining", International Journal of Computational Intelligence, Issue 2, pp. 104-110.
- Ravisankar, P.- Ravi, V. – Rao, G.R. – Bose, I. (2011), "Detection of Financial Statement Fraud and Feature Selection Using Data Mining Techniques", Decision Support Systems, Volume 50, Issue 2, pp. 491-500.
- Terzi, Serkan - Şen, İlker Kıymet (2015), "Adli Muhasebede Hilelerin Tespitinde Yapay Sinir Ağı Modelinin Kullanımı", Uluslararası İktisadi ve İdari İncelemeler Dergisi, Issue 14, pp. 477-490.
- Yeh, Ching-Chiang - Chi, Der-Jang – Lin, Tzu-Yu – Chiu, Sheng-Hsiung (2016), "A Hybrid Detecting Fraudulent Financial Statements Model Using Rough Set Theory and Support Vector Machines" Cybernetics And Systems: An International Journal, Volume 47, Issue 4, pp. 261-276.

# ESTIMATION OF THE MINIMUM HEALTH EXPENSES OF 2015-2016 1<sup>ST</sup> LEAGUE TEAMS OF 2015-2016 TURKISH FOOTBALL FEDERATION

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**Abstract:** Among numerous sports organizations, football is undoubtedly is the most attractive for people, ensuring their participation actively or passively and the most popular type of sports forcing economic units to invest in it all around the world. In Turkey, professional football teams compete as Super League, Turkish Football Federation (TFF) 1st League, 2nd League and 3rd League. In the expenses of these teams, health expenses are not reflected.

This study was conducted in order to determine an estimation of minimum health expenses of 18 teams competed in the TFF 1st League in the football season of 2015-2016. The total health expenses of teams were calculated in terms of two main expenses items. The first one is expenses of health personnel. For this element, Turkish Football Federation Health Care Team Structure and Operation Instructions were considered as a basis in order to determine the operating principals and rights and obligations of health care personnel. These expenses comprise of monthly salaries of health care teams and their monthly SII (Social Insurance Institution) premiums. The second one is the total of expenses spent on medical equipment, surgical operation, treatments, athlete tests and monthly match premiums of health care personnel of teams which was in the 2015-2016 and played at least one match in this season. An estimate was attempted to be made based on these expenses. TFF requires a health care team of a club to include at least one performance coach/performance expert, 1 dietician, 1 psychological performance consultant, 1 masseur, 1 physiotherapist and 1 doctor, a total of 6 personnel. However, it was observed that the number of health personnel employed by the clubs is higher than this figure.

As the method of the study, interviews were conducted with the 18 football clubs that participated in the mentioned seasons of the TFF 1st league in order to determine the health expenses. Only 5 of these teams permitted the usage of their information without revealing the in names. In the mentioned season, health expenses (data) of the sports clubs in the TFF 1st league were determined based on expense records and a health expense index was created based on the market values of these teams. The health expenses of the other 13 teams were calculated using the health expense index, which was created based on the market value of each team.

The value of the squads of 18 teams in the 2015-2016 TFF 1st League is approximately 190.5 million Euros. The approximate health expense for each of the 5 teams, whose data was acquired, is 137.000 Euros (Considering 1 € = 3.5 TL). Because the values of sports clubs in Europe are indicated in Euros, the same currency was also adopted in this study. The total health expenses of 18 teams in the 2015-2016 TFF 1st League was calculated to be 3.39 million Euros. This figure is merely the 1.78% of the squad value of the teams.

It's notable that there are few studies about "athlete health" applications and expenses, which is one of the most significant elements of professional football, which expands with social and economic aspects every day and directly related to each athlete's health. The fact that the health expenses of athletes, who are transferred by spending millions of Euros, are a little figure is puzzling in terms of athlete health. In sports, it can easily be said

*that a professional approach and certain regulation provided by that approach is also necessary for athlete injuries. Sports lives of athletes cover a very short period. Thus, it is required to update the current legal regulations on the subject of athlete health and the inspection mechanisms should be made effective. An athlete's period of actively doing sports covers a pretty limited period. Although occasional changes in rules occur in order to protect athlete health, athlete injury is an inevitable reality. Along with direct expenses of athlete injuries, indirect expenses are believed to be rather high. Loss of football players, who make an agreement based on the count of matches played, in the event of an injury can be considered as an example for this.*

*It is possible to determine the vision of this study as prioritizing athlete health by investigating and therefore creating a special service field in the health industry and improving the existing industry.*

**Keywords:** Football, Turkey TFF 1<sup>st</sup> League, Health, Health Expenses

## STATUS OF THE TOURNAMENTS OF 1<sup>ST</sup> LEAGUE IN 2015-2016 SEASON

The 1<sup>st</sup> League is the league just below the most professional football league in Turkey.

The 1<sup>st</sup> League consists of 3 teams were relegated from the Spor Toto Super League to this league, 3 teams promoted from the Spor Toto 2<sup>nd</sup> League to this league and 12 teams remained in the PTT 1<sup>st</sup> League, a total of 18 teams in the 2014-2015 season.

Among the 18 teams of the 1<sup>st</sup> League, tournaments are conducted according to double-term league order. At the end of the double-term league tournaments, 16<sup>th</sup>, 17<sup>th</sup> and 18<sup>th</sup> ranked 3 teams in the 1<sup>st</sup> League are relegated to the Spor Toto 2<sup>nd</sup> League. At the end of the double-term league tournaments, 1<sup>st</sup> and 2<sup>nd</sup> ranked 2 teams in the 1<sup>st</sup> League are promoted to the Spor Toto Super League. At the end of the double-term league tournaments, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> ranked 4 teams compete in the Playoff tournaments in order to determine the 3<sup>rd</sup> team which will be promoted to the Spor Toto Super League.

## 1<sup>ST</sup> LEAGUE FOOTBALL PLAYER SUITABILITY

Clubs can sign and register agreements with professional football players as many as they want. Clubs are obliged to submit the list of the professional football players who will participate in the official tournaments within the framework of the rules. A Team List consists of 25 football players maximum. 15 players who will be placed in A Team List are obliged to possess the qualities to play in a Turkish National Football Team. (<http://www.tff.org/Resources/TFF/Documents>)

## THE EMPLOYEES OF HEALTH CARE TEAM

Doctors, performance experts (medical training and exercise expert), physiotherapists, masseurs, dieticians, psychological performance consultants and other professionals who are under the authority of the Medical Board of the Club and work as contracted employees in professional clubs are defined as **Health Care Team**.

**Team Doctor:** Team doctors are medical doctors who are allowed to practice by the laws of the Republic of Turkey, participated in the education programs conducted by the Turkish Football Federation and were granted the certificate of achievement.

**Performance Expert (medical training and exercise expert):** Performance experts are individuals who were graduated from sports academies, the School of Physical Education and Sports, the School of Physiotherapy and similar undergraduate programs both in Turkey and abroad or were graduated from master's degree programs in Exercise Physiology or Movement and Exercise Sciences,

participated in the education programs conducted by the Turkish Football Federation and were granted the certificate of achievement and are allowed to practice by the laws of the Republic of Turkey.

**Team Physiotherapist:** Team physiotherapists are individuals who are allowed to practice by the laws of the Republic of Turkey and participated in the education programs conducted by the Turkish Football Federation and were granted the certificate of achievement.

**Team Masseur:** Team masseurs are individuals who were graduated from the School of Physical Education and Sports or successfully completed the Football Masseur Basic Education Program conducted by the Turkish Football Federation, practice massage techniques under the care of the team doctor, participated in the education programs conducted by the Turkish Football Federation and were granted the certificate of achievement and are allowed to practice by the laws of the Republic of Turkey.

**Dietician:** Dieticians are individuals who are allowed to practice by the laws of the Republic of Turkey as dieticians or nutritionists or members of a different profession or possess a master's degree education in diabetics and participated in the education programs conducted by the Turkish Football Federation and were granted the certificate of achievement.

**Psychological Performance Consultant:** Psychological performance consultants are individuals who are equipped with capabilities to contribute to and guide juvenile and teenage football players and elite athletes, were graduated from one of the undergraduate programs of medicine, psychology, psychological counseling and guidance and sports sciences or have a master's degree in disciplines about psychology and participated in the education programs conducted by the Turkish Football Federation and were granted the certificate of achievement.

## **WAGES AND CONTRACTS OF HEALTH CARE TEAM EMPLOYEES**

The Turkish Football Federation regulated the wages of the employees of health care teams, registration of the type of the agreement between the club and health care team employee and field of terminating this agreement for both parties by Matter No 9, 10 and 11 of the Health Care Team Structure and Operation Directions.

**Table 1.** Health Care Personnel Obligated to Be Employed, According to Clubs of 1<sup>st</sup> League

Leagues	Doctor	Performance Expert	Physiotherapist	Masseur	Dietician	Psychological Performance Consultant
Super League	1	1	1	1	1	1
TFF 1 <sup>st</sup> League	1	1	1	1	1	1
TFF 2 <sup>nd</sup> League	1	-	-	1	-	-
TFF 3 <sup>rd</sup> League	1	-	-	1	-	-
Amateur League	-	-	-	-	-	-

Source: The Turkish Football Federation, Health Care Team Structure and Operation Directions, June 2009



## METHOD

In the determination of mandatory health and treatment expenses of the teams, market values were regarded as reference points. First, the team's acquired mandatory health expenses data were converted to Euros by taking that year's average rate (1€=3,5TL) and a coefficient was obtained by dividing this figure by the team's market value. This coefficient was multiplied by the market values of other teams and the mandatory health expenses of each team were calculated.

In the determination of treatment expenses, the team's acquired mandatory treatment expenses data were also converted to Euros by taking that year's average rate and a coefficient was obtained by dividing this figure by the team's market value. This coefficient was multiplied by the market values of other teams and the mandatory treatment expenses of each team were calculated.

## DISCUSSION AND CONCLUSION

While football constitutes a monetary magnitude of approximately 30 billion Euros all around the world as of 2014, it can be said that football shares the 270-300 billion Euros worth part of this with its interactions with other sectors (Deloitte Sports Business Group, 2014: 6).

The value of the squads of 18 teams in the 2015-2016 TFF 1<sup>st</sup> League is approximately 190.5 million Euros. The approximate health expense for each of the 5 teams, whose data was acquired, is 137.000 Euros (Considering 1 € = 3.5 TL). The total health expenses of 18 teams in the 2015-2016 TFF.

**Table 2.** Team Value and Health Expenditures of 1st League in 2015-2016 Season

Team Number	Number of Players	Team Value (€)	Health Expenditures (€)
1	27	9.800.000	240.000
2	31	16.150.000	287.102
3	25	13.900.000	247.103
4	29	13.050.000	231.992
5	28	8.300.000	128.160
6	25	11.300.000	200.882
7	29	9.500.000	168.883
8	33	11.800.000	209.771
9	27	9.000.000	159.995
10	28	9.050.000	160.884
11	32	7.900.000	120.057
12	36	11.100.000	197.327
13	28	13.800.000	245.325
14	27	11.650.000	207.104
15	27	5.750.000	120.400

**IV. INTERNATIONAL SYMPOSIUM ON ACCOUNTING AND FINANCE, Cohosted by  
MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
OHRID-MACEDONIA/3-5 JULY 2017**

16	28	9.850.000	175.105
17	33	6.700.000	74.915
18	33	11.850.000	210.660
<b>Total</b>	<b>526</b>	<b>190.450.000</b>	<b>3.385.605</b>

1<sup>st</sup> League was calculated to be 3.39 million Euros. This figure is merely the 1.78 % of the squad value of the teams.

In the examination of health expenses of football in other countries, it was determined that, according to Swiss National Accident Insurance company data, the total health expenses of a year spent on football injuries was 145 Swiss Francs (approximately 130 million USD) and 500.000 workdays were lost in 2003. In the English Football Leagues, during 1999-2000 season, expense of football injury was determined to be 118 million USD (Junge et al., 2011: 57-63). In a study conducted on football injury expenses in one season, it was determined that the football injuries caused expenses as high as 37,317,029.29 AUD \$ (Goutteborge et al., 2016).

Healthcare cost spent in Turkey is much lower than other countries.

## REFERENCES

- Aydın, Ali Dursun-Turgut, Murat-Bayırlı, Rıdvan (2007), "Spor kulüplerinin halka açılmasının Türkiye'de uygulanan modeller açısından incelenmesi", Ticaret Ve Turizm Eğitim Fakültesi Dergisi, Issue 1, pp. 59-70.
- Deloitte Sports Business Group (2016), "Annual Review of Football Finance," England, June, 2014, pp. 6., <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Audit/gx-deloitte-football-money-league-2014.pdf> ( 22.11. 2016)
- Devecioğlu, Sehattin- Çoban, Bilal (2003), "Türkiye'de Profesyonel Futbolun Finansı", Spor Araştırmaları Dergisi, Volume 7, Issue 3, pp. 1-8
- Goutteborge, V. - Schwab, B.A.H. - Vivian, A.- Kerkhoffs, G.M.M.J. (2016), "Injuries, matches missed and the influence of minimum medical standards in the A-league professional football: a 5-year prospective study", Asian journal of sportsmedicine, Volume 7, Issue 1.
- Hawkins, R.D. & Joanna, H.M.A. & Wilkinson, C. & Hodson, A. & Gibson, M. (2001), "The association football medical research programme: an audit of injuries in professional football", British Journal of Sports Medicine, Issue 35, pp. 43-47.
- Junge, A. & Lamprecht, M. & Stamm, H. & Hasler, H. & Bizzini, M. & Tschopp, M. & Harald, R. & Dipl, P. & Heinz, W. & Chris, C. & Dvorak, J. (2011). "Country wide campaign to prevent soccer injuries in Swiss amateur players". The American Journal of Sports Medicine, Volume 39, Issue 1, pp. 57-63.
- Kamuyu Aydınlatma Platformu, [Çevrim-içi: <http://www.kap.org.tr/>], (18.09.2014)
- TransferMarkt (2014), <http://www.transfermarkt.com.tr/vereinsstatistik/wertvollstemannschaften/marktwertetop>] (17.09.2014)
- Türkiye Futbol Federasyonu (2009), Sağlık Ekiplerinin Yapılanmaları ve İşleyişleri Talimatı, Haziran, Ankara.

Türkiye Futbol Federasyonu Sezonu (2014), Lig Müsabakaları Statüsü, 14 Temmuz 2014, Ankara.

Woods, C. & Hawkins, R. & Hulse, M. & Hodson, A. (2002) "The Football Association Medical Research Programme: An audit of injuries in professional football-analysis of preseason injuries", British Journal of Sports Medicine; Issue 36, pp. 436-41.

<https://www.kap.org.tr/tr/sirket-bilgileri/ozet/958-galatasaray-sportif-sinai-ve-ticari-yatirimlar-a-s>  
(18.09.2014)

<http://www.fotomac.1.lig> (16. 10. 2016)

[http://tr.eurosport.com/futbol/super-lig/2015-2016/galatasarayin-taraftarlari-da-sampiyon\\_sto4812938/story.shtml](http://tr.eurosport.com/futbol/super-lig/2015-2016/galatasarayin-taraftarlari-da-sampiyon_sto4812938/story.shtml) (25.11.2015)

<http://www.tff.org/default.aspx?pageID=285&ftxtID=20612> (17.05.2014)

<http://www.tff.org/default.aspx?pageID=285&ftxtID=21173> (08.04.2015)

[http://www.tcmb.gov.tr/kurlar/201406/Jun\\_tr.html](http://www.tcmb.gov.tr/kurlar/201406/Jun_tr.html) ( 08.10.2016)

<http://www.tff.org/Resources/TFF/Auto/c9dbcee91cc04122971eed20e100d35e.pdf> (08.10.2016)

<http://www.fotomac.com.tr/multimedya/galeri/futbol/iste-super-lig-takimlarinin-degeri-1437665070?tc=30&page=5> (16. 10. 2016)

<http://www.tff.org/Default.aspx?pageId=164> (19.08.2016)

<http://www.tff.org/Resources/TFF/Documents/00000016/Ligler/Statuler/2015-2016-Sezonu-PTT1Lig-Statusu.pdf> (16. 10. 2016)

# THE RELATIONSHIP BETWEEN LIQUIDITY RATIOS AND CASH PROVIDED FROM MAIN ACTIVITIES OF THE COMPANIES

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**Abstract:** Cash flow is extremely important in terms of the stakeholders in the business, and the stakeholders outside the business, in order to maintain the life and existence of the business. The cash flow table is a systematic financial statement to monitor the amount of cash inflows and outflows of an enterprise in a given period relative to previous periods. The purpose of this study is to determine cash flow profiles of the companies in the energy sector and determine whether there is a relationship between cash provided from business activities and liquidity adequacy. In recent years in Turkey, rapidly growing sectors such as construction, manufacturing, transportation and warehousing and their extreme dependence on the energy is the main reason of why the energy sector has been chosen in the study. In the first phase of the study, for each of the 15 companies, each section reported as a plus or a minus in the 2015 cash flow statements determined and which cash flow model would be appropriate for the companies. Besides, based on the 2015 balance sheet data, current ratio, liquidity ratio and cash ratio has been calculated. After that, the relationship between companies' average ratios and cash flow models has been analyzed for companies which belong to different cash flow model. It was found that there is a meaningful relationship between liquidity ratios and cash generated from operating activities.

**Keywords:** Liquidity Adequacy, Cash Flow Model, Financial Ratios, BIST Energy Sector

## INTRODUCTION

Cash flow is extremely important in terms of the stakeholders in the business, and the stakeholders outside the business, in order to maintain the life and existence of the business. The cash flow table is a systematic financial statement to monitor the amount of cash inflows and outflows of an enterprise in a given period relative to previous periods. For the presentation of the cash flow statement, there are some differences between International Accounting/Financial Reporting Standards and Unified Accounting System which has been applied since 1994.

## LITERATURE REVIEW

Cash flow statement provides rich information when used together with income statement and balance sheet (Burckel et al., 1991: 390). When cash flow statement is prepared, transactions from beginning of the period and end of the period are monitored and information on operations that generate cash movements is used (Finance & Accounting Desktop Guide: 84). The advantage of the cash flow statement is that when used in conjunction with other financial statements, the entity provides information to the user with seeing changes in the net assets of the enterprise, adapting to changing circumstances and opportunities, assessing the financial structure of the enterprise and affecting the amount and timing of cash flows (Megan et al., 2009:135).

Transactions that do not generate cash flow could be defined as transactions that do not cause cash inflows to the business or cause cash outflow and they must be detected and must not include to the cash flow statement.

Cash flow statement is important for companies to plan their future cash flows. Because companies with low or insufficient cash flow could face problems like inability to pay their debts and inability to continuously maintain its activities even if they make profits in very large amounts. The cash flow statement contributes to the evaluation of the financial user to determine the need for liquidity in order to increase the liquidity of the business (Patraşcu et al., 2004: 17).

The basic principles regarding the regulation of financial statements in Turkey have been included in the "Unified Accounting System-UAS", which has been compulsory since 1994.

In the cash flow statement in the UAS, there is one main title for cash inflows and cash outflows. On the other hand, according to the Turkish Accounting Standards (TAS) Number 7, cash inflows and outflows are written in three main sections under separate headings. These sections are: From business activities, from investment and from financing activities. Making this separation in TAS 7 contributes healthy decision making for related parties.

Cash inflows from sales in the cash flow statement in the Uniform Accounting System are under the heading of "Cash flows from business activities" according to the TAS 7. This section is prepared with gross method in the UAS but in TAS 7 gross or net method is preferred.

The first section, which is prepared according to the gross method, begins with "cash from sales" and has the advantage of being more parallel to the operator's current activity flow (<http://www.eds.a.ebscohost.com/>, 2016). Gross method provides more detailed information about predictions of cash flows. It is created with a detailed examination of all items with cash effect such as cost information of sales and sales, inventories and receivables from accounting records. According to the UAS, net method is used for the preparation of fund flow statement. According to this, expenses that do not generate cash outflow is added to the period's income, therefore income is corrected as much as the non-cash items that decrease net profit. In addition, revenues that do not have cash inflows are withdrawn and the profit is adjusted as much as the amounts that increase net profit.

Cash flows from business activities represent the cash inflows and outflows arising from that activity, whichever the entity was set up to perform its core business. Business activities constitute the most important income generating activity of the business so that the business continues profitable activities, fulfills its objectives and does not incur short term debt payment troubles. Cash flow in this section is related to main activities of the income statement (Broome, 2004: 16).

Cash flows from investing activities, which is the second part of TAS 7 cash flow statement, is defined as the acquisition and disposal of long-term assets and other investments not included in cash equivalents. Cash flows related to investments in infrastructure facilities and other long-term assets are cash flows related to the investment (Broome, 2004:16). The cash flows related to the financing activities reported in the third part of the table are presented separately to enable the owners of the business to determine the portion of the entity's future cash flows they will require (Statement Of Financial Accounting Standards No 95, 1988: 141).

When analyzing cash flows, it important to analyze which activities they derive from and where they are used. An overall assessment of the business can be made by interpreting the cash flow statement as a plus or a minus of each section result. In this evaluation, there are eight basic profiles in which cash flows are tracked in a cash flow table, according to the division provided by the cash flows. All these profiles can be assessed as a model (Gup et al., 1993: 73-79). Cash flow profiles are analyzed by considering the size of the cash flows provided by the activities and eight models are created depending on the each sections result's positive or negative. It has been analyzed considering some

activities provide positive cash flow and some provide negative. The classified model according to the activities is given in the table below (Orhan and Başar, 2015:111).

Cash Flow Profile	Cash Flows		
	BUSINESS ACTIVITIES	INVESTMENT ACTIVITIES	FINANCING ACTIVITIES
<b>MODEL 1</b>	+	+	+
<b>MODEL 2</b>	+	-	-
<b>MODEL 3</b>	+	+	-
<b>MODEL 4</b>	+	-	+
<b>MODEL 5</b>	-	+	+
<b>MODEL 6</b>	-	-	+
<b>MODEL 7</b>	-	+	-
<b>MODEL 8</b>	-	-	-

In the above mentioned models, it is formed from inputs and outputs of business activities, investment activities and financing activities, respectively, and the meaning of each model in terms of businesses is explained below (Aktaş and Kargin, 2011: 16).

**Model 1 (+,+,+):** Cash flow is provided from all of the three activities (+,+,+). It could be said that company is working for a high level of cash outflow in the future. It is thought that it is not a common occurrence.

**Model 2 (+,-,-)(Successful company):** It can be said that it is a common situation and it is said that the business owner has successful financial management, which does not suffer from failing to pay the debts and dividends.

**Model 3 (+,+,-)(Regressive or restructured company):** It has been seen that cash flows from business activities and investment activities are positive but financing activities are negative. It is possible that debt is covered by the cash from main activities and cash from asset sales (fixed asset) or it has been planned to renew the sold assets. This model is also rarely seen.

**Model 4 (+,-,+)(Growing company):** Gup et al. (1993) predicted that companies in this situation cash flows from business activities cannot meet their investments. It could be said that either the company export stocks or goes to new borrowing. Company must expand their income by investing fixed assets. Assuming that these investments are also supported by borrowing and equity, it can be stated in this scenario that investors and lenders have an optimistic belief in the future of the business.

**Model 5 (-,+,+)(Downsizing company):** Assuming that the negative cash flows from the operations are not temporary, it is considered that the investors' interest is reduced. Decreases in fixed assets may

indicate that growth opportunities are narrowing. However, the continuation of the interest of investors or lenders is accompanied by a question mark.

**Model 6 (-,-,+)(Fast growing young company):** Although it creates a negative cash flow from business activities and investments, it can be compensated by borrowing or equity. It can be assumed that this company is growing and the negative cash flows have signaled a temporary situation. It can be said that in order to keep up with the rapidly rising sales of the business, the business owner pays for short-term debts or head to receivables and stocks which are elements of business capital.

**Model 7 (-,+,-)(Liquidation model):** Cash flows from business activities and financing activities are negative. It may mean that the business has failed in its revenue enhancing elements. At the same time, debts and dividends are paid, while fixed assets are removed in order to reduce the effects of negative cash flow. It can be said that company goes to liquidation.

**Model 8 (-,-,-):** It, it may be the profile immediately after corrects a large negative cash flow by paying it. This is seen rarely like 1<sup>st</sup>, 5<sup>th</sup> and 7<sup>th</sup> model.

## **THE PURPOSE OF THE STUDY**

The purpose of this study is to determine cash flow profiles of the companies in the energy sector and determine whether there is a relationship between cash provided from business activities and liquidity adequacy. Energy sector is chosen because this sector is strategically important for Turkey. In recent years in Turkey, rapidly growing sectors such as construction, manufacturing, transportation and warehousing and their extreme dependence on the energy is the main reason of why the energy sector has been chosen in the study. In the study, cash flow profiles were determined for the enterprises in the energy sector, whether the cash flows were from operating activities or from investment or finance activities, and the average of the liquidity structure ratios of the businesses with cash flow of each model was calculated.

The adequacy of the cash flows from businesses' main activities is significant. If this is ensured, it is understood that the main activities of the business meet its own cash needs, and such a chart shows the ideal situation. For this reason, the increase in cash from business activities, which is the first part of the cash flow statement prepared in accordance with TAS / TFRS, means that the main activities meet their own cash needs. If the first part's result is minus, then it is understood that the cash required for the main activity cycle is provided by the investment activities other than the main activity, or that the cash needed by the company for the cash requirement is financed by the financing activities. For this reason, the focus of the study is the first section of the cash flow statement to demonstrate the relationship of liquidity adequacy and cash provided from the main activity area for the companies in the energy sector. Therefore, the following hypothesis and counter hypothesis have been tested.

Hypothesis 0: There is no meaningful relationship between liquidity ratios and cash generated from business activities.

Hypothesis 1: There is a meaningful relationship between liquidity ratios and cash generated from operating activities.

## **SCOPE AND METHOD OF RESEARCH**

In this study, Borsa Istanbul (İstanbul Stock Exchange (BIST)) companies operating in the energy field were assessed on the basis of the cash flow chart and balance sheet data for 2015 taken from the Public Disclosure Platform. The research is based on the financial data of the 15 companies operating

in the energy sector listed on the BIST. In order for better evaluation companies with total asset is over 3.000.000 TL is preferred.

In the first phase of the study, for each of the 15 companies, each section reported as a plus or a minus in the 2015 cash flow statements determined and which cash flow model would be appropriate for the companies. Besides, based on the 2015 balance sheet data, current ratio, liquidity ratio and cash ratio has been calculated. After that, the relationship between companies' average ratios and cash flow models has been analyzed for companies which belong to different cash flow model.

## FINDINGS

Table 1 shows the descriptive statistics of cash flow model distribution of the companies.

**Table 1.** Distribution of cash flow model of 15 companies

MODELS	01.01.2015-31.12.2015 PERIOD	
	PERCENTAGE	NUMBER
<b>MODEL 6 (-, -, +)</b>	0,26	4
<b>MODEL 4 (+, -, +)</b>	0,19	3
<b>MODEL 2 (+, -, -)</b>	0,13	2
<b>MODEL 3 (+, +, -)</b>	0,13	2
<b>MODEL 5 (-, +, +)</b>	0,13	2
<b>MODEL 1 (+, +, +)</b>	0,06	1
<b>MODEL 7 (-, +, -)</b>	0,06	1
<b>MODEL 8 (-, -, -)</b>	0	0

“Model 6 (-,-,+) fast growing young company” is the most observed cash flow model at a rate of % 26. “Model 4 (+,-,+) growing company” is the second most observed model at a rate of % 19. Since the Model 8 (-, -, -) cash flow profile is a rarely observed cash flow profile, no business is listed under this profile.



**Table 2.** Ratio averages for every model

<b>01.01.2015-31.12.2015 period</b>		<b>Current Ratio Average</b>	<b>Liquidity Ratio Average</b>	<b>Cash Ratio Average</b>
<b>MODEL 6</b> (-, -, +)	Number of Companies 4	<b>0,80</b>	<b>0,56</b>	<b>0,05</b>
<b>MODEL 4</b> (+, -, +)	Number of Companies 3	<b>0,57</b>	<b>0,55</b>	<b>0,23</b>
<b>MODEL 3</b> (+, +, -)	Number of Companies 2	<b>1,84</b>	<b>1,80</b>	<b>0,66</b>
<b>MODEL 2</b> (+, -, -)	Number of Companies 2	<b>1,77</b>	<b>1,65</b>	<b>1,11</b>
<b>MODEL 5</b> (-, +, +)	Number of Companies 2	<b>0,88</b>	<b>0,70</b>	<b>0,12</b>
<b>MODEL 7</b> ( -, +, -)	Number of Companies 1	<b>3,21</b>	<b>3,21</b>	<b>1,98</b>
<b>MODEL 1</b> (+, +, +)	Number of Companies 1	<b>2,96</b>	<b>2,82</b>	<b>0,77</b>

**Table 3.** Ranking of the models in which the enterprises are located according to the ratio averages

Ranking based on current ratio average		Ranking based on Liquidity ratio average		Ranking based on cash ratio average	
<b>MODEL 7</b> ( -, +, - )	<b>3,21</b>	<b>MODEL 7</b> ( -, +, - )	<b>3,21</b>	<b>MODEL 7</b> ( -, +, - )	<b>1,98</b>
<b>MODEL 1</b> (+, +, +)	<b>2,96</b>	<b>MODEL 1</b> (+, +, +)	<b>2,82</b>	<b>MODEL 1</b> (+, +, +)	<b>0,77</b>
<b>MODEL 3</b> (+, +, -)	<b>1,84</b>	<b>MODEL 3</b> (+, +, -)	<b>1,80</b>	<b>MODEL 3</b> (+, +, -)	<b>0,66</b>
<b>MODEL 2</b> (+, -, -)	<b>1,77</b>	<b>MODEL 2</b> (+, -, -)	<b>1,65</b>	<b>MODEL 4</b> (+, -, +)	<b>0,23</b>
<b>MODEL 5</b> (-, +, +)	<b>0,88</b>	<b>MODEL 5</b> (-, +, +)	<b>0,70</b>	<b>MODEL 5</b> (-, +, +)	<b>0,12</b>
<b>MODEL 6</b> (-, -, +)	<b>0,80</b>	<b>MODEL 6</b> (-, -, +)	<b>0,56</b>	<b>MODEL 2</b> (+, -, -)	<b>1,11</b>
<b>MODEL 4</b> (+, -, +)	<b>0,57</b>	<b>MODEL 4</b> (+, -, +)	<b>0,55</b>	<b>MODEL 6</b> (-, -, +)	<b>0,05</b>

As Table 3 shows that the cash flow from business activities in the second, third and fourth row models with averages of the five operators, with the highest current ratio, liquidity ratio and cash average averages, this data supports the  $H_1$  hypothesis.

Model 7, which is ranked first, has the highest liquidity ratios when cash generated from operating activities is minus. This situation does not match the  $H_0$  hypothesis, which is believed when cash flows from business activities are positive that leads to high liquidity ratio. However, a company follows this pattern and this may not be enough for a general judgment.

Liquidity ratio average is low due to the fact that cash provided from business activities is minus for Model 5 with 2 company data and model 6 with 4 company data. These data match  $H_1$  hypothesis. But in model 4, which reflects 3 operating averages, the lowest rate averages are shown, even though the cash obtained from operating activities is positive, and this data does not support the  $H_1$  hypothesis.

As a result, the average liquidity ratios of the 11 operators in the study support the  $H_1$  hypothesis, and the average liquidity ratios of the 4 operators do not support the  $H_1$  hypothesis. Depending on this, it is concluded to support  $H_1$ , which is there is a meaningful relationship between liquidity ratios and cash generated from operating activities.

## **CONCLUSIONS**

Knowing cash movements by business managers and forecasting whether cash will be provided from these areas in future will be important in determining cash needs.

In the study which was conducted on the companies operating in the field of energy sector, the cash flow tables and balances of the period of 01.01.2015-31.12.2015 belonging to 15 companies were examined and the current ratio, liquidity ratio and cash ratio calculated for each enterprise on the basis of 2015 balance sheet data were calculated and ranking was made by calculating the average of the ratios of the companies in the same cash flow model.

When examining the relationship between average rates of businesses in different cash flow models and cash flow models, it has been found that there is a meaningful relationship between liquidity ratios and cash generated from operating activities. Cash flow adequacy provided from core business activities is important for determining companies' liquidity structure and debt payment power. Achieving this means that companies main activities meet their cash needs and this is an ideal situation. If cash provided from main activities is minus, this means that companies main activities cannot meet their cash needs.

## **REFERENCES**

- Broome O. Whitfield (2004), "Statement of Cash Flows: Time for Change!", *Financial Analysts Journal*, Volume 60, Issue 2, March, pp.16-22
- Burckel Daryl - Watters Michael P. – Daughtrey Zoel W. (1991), "Analyzing an Agribusiness Statement of Cash Flows", *Agribusiness*, Volume 7, Issue 4, pp. 389-400
- Cash Flow Statements, Three Section One, Finance & Accounting Desktop Guide.
- Cash Rule, Statement of Cash Flow & Analysis of Ratios, Chapter Four, P. 56  
<http://www.eds.a.ebscohost.com/> (11.04.2016)
- Gup, B. E. - Samson W. D. - Dugan M. T., Kim M. J. - Jittrapanun, T. (1993), "An Analysis of Patterns from the Statement of Cash Flows", *Financial Practice and Education*, , pp.73-79
- Kargin Mahmut - Aktaş Rabia, "Türkiye Muhasebe Standartlarına Göre Raporlanmış Nakit Akış Tablosu ve Analizi", *Journal of Accounting and Finance*, October, 2011, pp.1-24
- Megan Ovidiu- Hategan Camelia -Caciuc Leonara -Cotlet Bogdan (2009), "The Cash-Flow Statement – Between True and Manipulation", *Annals of the University of Petroşani*", Economics, Volume 9(2)

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---

Orhan Abdullah – Başar A. Banu (2015), “İşletmelerde Nakit Akış Profilleri ve Analizi: BIST 100 İşletmeleri Üzerine Bir Uygulama”, Accounting and tax application journal, July, Ankara, pp.107-121

Patraşcu Lucian- Radu-Florin Bordeianu Gabriela Daniela- Paraschivescu Marius Dumitru (2014), “National and International Regulatory Norms Cash Flows”, Economy Transdisciplinarity Cognition, Volume 17, Issue 1

Statement of Financial Accounting Standards No 95-Statement of Cash Flow, Journal of Accountancy; Volume 165, Issue 2, February, 1988

# POSSIBILITIES FOR MANAGING FINANCIAL CRISES OF MACEDONIAN COMPANIES

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**Abstract:** Frequent economic crisis, led a large number of companies to cumulate losses. On these conditions are not immune Macedonian companies, also. Such businesses, if not undertake adequate measures, over time, become indebted and lose solvency, or are facing a serious problem - financial crises. Considering that the recovery from financial crisis is very difficult process, it is especially important companies to undertake certain actions that would prevent the occurrence and escalation of the crisis.

In that context, main objectives of this paper is to identify the main causes of financial crisis of companies, briefly to present current methods of managing financial crisis as strategies whose implementation will prevent the liquidation of companies and to explore the level of implementation of financial restructuring, merger and acquisition and turnaround concept in companies of Republic of Macedonia. For that purpose, different qualitative and quantitative methods are implemented. For collecting primary data from companies in the Republic of Macedonia, constructed questionnaire is used. The analysis will lead to achievement of main goal of the paper and will contribute to identify the frequently used opportunities for managing and overcoming financial crisis of companies in the Republic of Macedonia.

Findings will direct to the following: there is no unified way for managing financial crisis, that could be applied in any company and that common in application of current ways to overcome the financial crisis (turnaround concept, financial restructuring, merger and acquisition of companies) is that their adequate implementation contributes to improving efficiency and effectiveness in managing the financial crisis and subsequently have positive implications company performances.

**Keywords:** Financial crises, companies, financial restructuring, merger and acquisition, turnaround concept.

## INTRODUCTION

The dynamic environment implies the need for greater emphasis of companies on possibilities of a financial crisis outbreak in their performance. Lack of solution or inadequate solution to this problem can direct company to process of liquidation. The recovery process of companies in financial crisis is very complex one and needs a very deep analyses of the main causes for that situation. From that point of view, this paper particularly emphasized the importance of the establishment and operation of crisis management in companies that are facing crisis.

If it is pointed the fact that in Republic of Macedonia the number of liquidated companies is much larger than the number of companies that successfully manage to overcome the financial crisis and continue to work, then the presentation of the measures and strategies of crisis management are in order to improve the effectiveness of dealing with the crisis. So, it is stressed the importance of three

main ways for crisis management and overcoming it, as following: financial restructuring, merger and acquisition of companies and turnaround concept.

## **METHODOLOGY**

For the purpose of this paper different qualitative and quantitative methods are implemented. In the process of collecting and processing data, and in the process of drawing conclusions and recommendations in preparation of research mainly are used the following methods: inductive method, deductive method, method of comparative analysis, historical method, method of trend analysis etc.

The use of inductive and deductive method is in order to ensure that conclusions result from long line analytical basis. Applying of method of comparative analysis enables identifying the differences in social and economic factors and conditions in different countries that causes such crisis. Historical method is used in consideration of ways for managing financial crisis in our country. Also there are applied certain qualitative and quantitative techniques to collect data for research, such as case studies, scientific observation, collecting and processing of inquiry data.

During the preparation of paper were used multiple sources of data, information and theoretical knowledge, such as: relevant domestic and foreign literature for definition of financial crisis in companies and an indication of the main reason for such crisis, domestic and foreign literature on the organizing and activities of crisis management in companies, domestic and foreign literature on the types and application of statistical models to predict the financial crisis in companies, domestic and foreign literature in electronic form from relevant internet links to current strategies to overcome the financial crisis (with particular emphasis on financial restructuring, mergers and acquisitions, turnaround concept), laws and regulations, analysis of statistical data from the financial statements of companies etc.

## **FINDINGS**

From the conducted research main findings arise. First of all, the analyze of collected data from conducted questionnaire direct to the point that there is no unified way for managing financial crisis, that could be applied in any company and that common in application of current ways to overcome the financial crisis (turnaround concept, financial restructuring, merger and acquisition of companies) is that their adequate implementation contributes to improving efficiency and effectiveness in managing the financial crisis and subsequently have positive implications company performances.

Next one is that success in managing and overcoming of financial crisis in company is testing the abilities and capabilities of the company's management. The lack of objectivity in the assessment of their own situation, the lack of experience to quickly and effectively react in crisis situations, and lack of strategies and courage are the main obstacles to the management in dealing with the crisis.

Current approaches to overcome the crisis (financial restructuring, mergers and acquisitions, turnaround concept) in companies have special importance in recent decades when the number of subjects that fall into crisis is much greater.

Better information of management reduces making inappropriate business decisions and increases efficiency in managing crisis of company. Based on the analysis to be carried out prior to the selection of strategies to overcome the crisis and, above all, based on the financial analysis that provides high level of required information, crisis management shall determine the measures to overcome the crisis. It indicates that using of financial indicators analysis in process of managing financial crisis in companies improves its efficiency.

According to collected data from the conducted research, in the opinion of companies in the Republic of Macedonia some of the measures that should be applied by domestic companies in order to successfully deal with the financial crisis are defined as: measures for provision of additional liquidity, measures to reduce indebtedness, measures to reduce costs and increase income, measures to accelerate the inflow of funds from current operations and measures to penetrate new markets and increase market share.

## **CONCLUSIONS**

The crisis in companies first appears as a latent crisis and if measures for resolving are not taken on time, it can escalate to the point where only a sudden and rapid changes in utility operations, turnaround, can overcome the crisis and avoid unfavorable situation. Taking comprehensive changes in all segments of the companies' operations should lead to a turnaround in company performances.

To successfully overcome the crisis situation, crisis management should undertake a mix of activities to address the insolvency and over-indebtedness. It should be preferred activities that will lead to a definitive settlement of debt, as opposed to activities that only in short period of time will delay repayment of maturing obligations. Definitive resolution of debt and repayment of maturing obligations include provision of additional capital, but not as new borrowing (as is often the case in the Republic of Macedonia), but using its own liquidity reserves that will not further increase the debt of the company.

That's the reason why it is necessary in the periods in which the company operates with profit, to take appropriate measures and to protect themselves from escalating crisis periods when realized loss. Provisions for costs and risks for future periods and separation of financial reserve sources would allow the company to cover possible losses in future periods or minimize the consequences of possible financial crisis.

The research of the question of dealing with financial crisis in companies of theoretical and practical perspective, in this paper, attempts to create a base that would help companies to overcome this problem. The recommendations that are differentiated in the paper are the result of conclusions derived from conducted research in companies of the Republic of Macedonia.

## **REFERENCES**

- Block S., Hirt G, (2008), *Osnove finansiskog menadzmenta*, McGraw-Hill Irvin.
- Velimirovic M.,(2003), *Sadržaj i dejstvo stečajnog plana*, *Pravni život* N. 11.
- Janikijevic N. (2003), *Organizacione promene u razvoj*, Beograd.
- Kokotec – Novak Majda, (1997)*Racunovodski vidik sanacije podvjeta*, *Zbornik referatov 29 simpozija, osodobnih, metodah v racunovodstvu in poslovnih financah*, Portoroz: Zveza ekonomistov Slovenije in zveza racunovodi, financnikov in revizorjev Slovenije.
- Mićović M., (2004), *Reorganizacija ili redresman stečajnog dužnika*, *Pravo i privreda*, Volume: 5-8, Beograd.
- Miroslav M. Todorovik, (2005), *Finansijsko restrukturiranje korporacija*, Ekonomski fakultet, Beograd,
- O'Neill, H. M., (1986), *Turnaround and recovery: What strategy do you need?*, *Long Rang Creditor Rights in Insolvency Procedure*, Sydney, November 1999, [www.oecd.org](http://www.oecd.org)

Pajunen K., (2005), Stakeholder Influences in Organizational Survival, Journal of Management Studies.

Pittaluga Rodolfo Jr., (2000), U.S. Bankruptcy/Insolvency laws and foreign bankruptcy proceedings.

Richard A., Stjuard C., Frenklin A., (2011), Principi na korporativnite finansii, Ars Lamina, Skopje.

Stieve M, Karoline G., (2012), Pretpriemastvo i upravuvanje so mali biznisi, Ars Lamina, Skopje.

Smith, M. i C. Graves, (2005), Corporate turnaround and financial distress, Managerial Auditing Journal, Volume 20, Issue 3.

Stuart C. Gilson, (2006), Creating value through corporate restructuring, John Wiley & Sons, Boston.

UNCITRAL, (2004), Legislative Guide on Insolvency Law (June), [www.uncitral.org](http://www.uncitral.org).

Freshfields Bruckhaus Deringer, (2004), The EU regulation on insolvency proceedings (June), [www.freshfields.com](http://www.freshfields.com).

European Bank for Reconstruction and Development, (2006), Transition Report.

<http://www.coba.usf.edu/departments/management/>

<http://www.byrneassociates.co.uk/adrec.html>

<http://www.crm.com.mk>

[www.pravoeu.jura.kg.ac.yu](http://www.pravoeu.jura.kg.ac.yu)

[www.oecd.org](http://www.oecd.org)

[www.economics.ag.utc](http://www.economics.ag.utc)

[www.worldbank.org](http://www.worldbank.org)

[www.uncitral.org](http://www.uncitral.org)

[www.economy.gov.mk](http://www.economy.gov.mk)



# EUROPEAN CENTRAL BANK - CONVENTIONAL AND/OR UNCONVENTIONAL INSTRUMENTS FOR MONETARY POLICY

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**Abstract:** For steering the monetary policy, the ECB utilize range of monetary policy instruments such as open market operations, provides standing facilities and requires credit institutions to hold minimum reserves. However, the 2008 Financial Crisis (FC) has put in question the efficiency of the conventional instruments for monetary policy for reviving and enhancing economic growth in uncertain times. The paper aims to critically analyze the policy instruments taken by the ECB after the hit of the crisis which have been identified as non-conventional and even contradicting with the basic rules of EMU. The main findings of the research indicate that while the monetary policy has managed to maintain price stability, it has failed in sustaining growth on the short and long run. The question arises whether the financial crisis is the only reason or such situation has been an inevitable outcome on the long-term due to saturated growth potential of the global economy. The results also confirm that the unconventional instruments for monetary regulation taken by the ECB after the crisis are unsustainable on the long-run. Thus, exit from these unconventional policy measures have emerged as the major challenge for the future of EMU.

**Keywords:** European Central Bank; Instruments for Monetary policy; Unconventional measures; Refinancing Operations; Financial Crisis.

## INTRODUCTION

The ECB instruments mainly consist of conventional instruments for monetary regulation such as bank refinancing facilities, mostly in the form of reverse transactions granted against eligible collateral. Up until the financial crisis, ECB monetary instruments comprised the short term (Main refinancing operations (MROs) one week) and the long term refinancing operations (LTROs, three months), fine tuning operations (non-standard duration, also including collection of fixed-term deposits and foreign exchange swaps), issuance of ECB debt certificates (to drain liquidity), and standing facilities at the disposal of banks to draw or deposit funds overnight to smooth liquidity (the marginal lending and deposit facility). The MROs are the main monetary policy instrument, and the interest rate charged on these operations is the key official reference rate.

During the latest financial crisis, ECB's lowering of the interest rates send a signal to commercial banks to lower their rates as well aiming to spur the demand in what appeared to be a stagnant economy. However, this did not happen implying that the nature of the crisis may need more specific measures

rather than a broad low rates policy. Inflation rate has been held too low for too long by the ECB risking losing credibility as businesses and households lose faith in its policy moves. In order to ensure the maintenance of price stability over the medium term, ECB beside the standard instruments was compelled to introduce non-standard policy instruments.

## **METHODOLOGY**

The paper studies the (in)efficiency of the monetary policy to sustain price stability and growth in uncertain times through analyzing data for utilization of ECB monetary instruments prior and after the 2008 FC. The research analyses the change of dynamics in the open market operations, more precisely the main refinancing operations which have increased significantly during the recessive period. It also investigates the effect of the refinancing rate over banks' liquidity and minimum reserves. The analysis covers the EU member states for which data are available in the ECB data warehouse.

The paper at hand covers data from pre and post crisis levels comparing the two periods which provides better understanding of the deficiencies in the effectiveness of the monetary policy instruments for sustaining growth in uncertain times. It also provides a comparative analysis between the different instruments of the monetary policy during times of financial or debt crisis and gives an overview regarding the political decisions taken by certain members, in the time of Brexit.

## **FINDINGS**

The ECB maintains the liquidity of the European market through the main refinancing operation (MRO) and three-month liquidity referred to as the long term refinancing operations (LTRO). However, after the hit of the FC, the ECB extended the maturity period of LTRO to three years and also introduced targeted long term refinancing operations (TLTRO) (ECB, 2014a). While rates of marginal lending facility and deposit facility remained close to zero, LTROs reached unprecedented levels at the expense of MROs.

Many authors have criticized the adoption of unconventional measures. Firstly, the expansion of ECB balance sheet blurs the distinction between monetary and fiscal policy and puts the central bank's financial strength at risk. However, we have to admit that without the nonstandard measures of ECB, the market would have been in a liquidity trap. The question now is not whether the ECB should have engaged in unconventional policy measures, but whether it should go back to the traditional ways of functioning and if yes, HOW and WHEN? Weber (2010) warns that there is a huge risk of both exiting too early and in exiting too late with the second one being more likely as inflationary expectations have not been reached yet.

The ECB can return to conventional monetary policy by either rising interest rates or reducing balance sheet's size. If interest rates go up lenders benefit, while borrowers lose with borrowers being far worse off than lenders benefit. This is even more severe when we turn to governments as borrowers. Namely, low nominal rates have reduced the funding cost of governments and exiting from unconventional policy measures rates would increase debt-to income ratio leading towards potential country's default for some governments. The heterogeneity of the member states makes the decision even more difficult. In contrast, keeping rates this low for a longer period of time may hurt the structure of the real economy by compromising the market mechanisms in efficiently allocating resources (De La Dehesa, 2013).

Reducing the size of balance sheets is another option for returning to standard monetary policy, although not without challenges. If the ECB decides to cut down reserves by lowering down the interest rate on deposits it risks initiating inflation. On the other side, if it keeps balance sheets same size for a longer period, banks will keep reserves at the central bank due to attractive interest rates on deposits decreasing

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the funds available for lending into the real economy and hampering growth (Sibert, 2013). Another aspect that must be taken into account when reducing reserves is again the heterogeneity of the countries in regard to their sovereign debts. This may imply that the exit strategy will have to follow a clear end of the sovereign crisis (Wyplosz, 2013).

Third stance vouches against going back to conventional policy measures arguing that conventional monetary policy did not ensure lasting financial and economic stability. Coeuré (2013: p.3) poses the question if maybe the ECB should maintain excess liquidity and operate the system through parallel adjustments to the deposit facility rate and the rate on the main refinancing operations

## **CONCLUSION**

The results will provide insight and direction for academics, researchers, quality assessors, policy makers, and practitioners in the area of shaping effective monetary policy instruments for monetary regulation on the long run. The experience of the last years (financial crisis, Greek debt crisis and Brexit) has changed the way in which central banks utilize monetary instruments to meet their macroeconomic stabilization objectives. Moreover, it revealed the weaknesses of the monetary policy and has called for rethinking, reshaping and developing new instruments for maintaining price stability and sustainable growth.

For that reason we need a more symmetrical monetary policy in terms of better risk assessment with regard to their implications for price stability on the long run. The paper at hand gave an overview of ECB's utilization of the conventional and the unconventional policy measures. Lowering of the interest rates and increase of balance sheet size has been crucial in avoidance of the market liquidity trap and prevention of collapsing financial market. The ECB, acting as lender of last resort, has taken a bigger role than focusing solely on price stability. The biggest challenge has been exit from unconventional policies with exiting too early and too late being equally likely. Interest rates have been kept too low for too long risking de-anchoring of inflation expectations, which is costly to reign in.

The views for future recommendations are distinctive. Arguments have been made in favour of the unconventional policy measures suggesting that maintaining excess liquidity and operating the system through parallel adjustments to the deposit facility rate and the rate on the MROs becomes a common practice of the ECB. The EMU needs more efficient risk management with the right incentives and better risk assessment of implicit risks stemming from lively money and credit growth, booming asset markets and decreasing risk premiums. Safeguarding central bank independence has also been pointed out as another crucial recommendation for, both, avoiding the moral hazard problem and successful exit from the unconventional policy measures.

## **REFERENCES**

- Cœuré, B. (2013, May). Where to exit to? Monetary policy implementation after the crisis. In speech at the 15th Geneva Conference on the World Economy: "Exit strategies: time to think about them", Geneva Volume 3.
- De La Dehesa, G. (2013). Tapering and exiting from present monetary policies. ECB, Monetary Dialogue, Directorate General for internal policies, policy department: Economic and scientific policy, Available at: <http://bookshop.europa.eu/en/exit-strategies-and-the-impact-on-the-euro-area-pbQA0214086/>, ( 26.11. 2016).

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MUFAD, Uludag University, St Cyril and Methodius University Skopje Institute of Economics,  
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- ECB (2014a, June). ECB announces monetary policy measures to enhance the functioning of the monetary policy transmission mechanism. Available at: [https://www.ecb.europa.eu/press/pr/date/2014/html/pr140605\\_2.en.html](https://www.ecb.europa.eu/press/pr/date/2014/html/pr140605_2.en.html), (26.11.2016).
- European Central Bank (2016). “Monetary policy in uncertain times – the ECB and the crisis”, Available at: [https://www.ecb.europa.eu/press/key/date/2016/html/sp160913\\_1.en.html](https://www.ecb.europa.eu/press/key/date/2016/html/sp160913_1.en.html), (28/09/2016).
- European Central Bank (2016). “Monetary policy lessons from the financial crisis: some remarks”, Available at: <https://www.ecb.europa.eu/press/key/date/2015/html/sp150924.en.html>, (28/09/2016).
- Gerlach, S. (2013). Monetary policy after the crisis. *The Manchester School*, Volume 81, Issue 1, pp. 16-34.
- Ingves, S. (2013). Central Bank Policies–The Way Forward after the Crisis. Speech on, 4.
- Ingves, S.-Molin, J. (2009). n The monetary policy landscape in a financial crisis. Published by SVERIGES RIKSBANK, 86.
- Koranyi, B.- Strupczewski, J. (2016). ECB could hit inflation target by late 2018, early 2019: Draghi. Available at: <http://www.channelnewsasia.com/news/business/ecb-could-hit-inflation-target-by-late-2018-early-2019-draghi/3191104.html>, ( 26.11.2016).
- Mishkin, F. S. (2011). Monetary policy strategy: lessons from the crisis (No. w16755). National Bureau of Economic Research.
- Poposka, K.- Mihajloska, E. (2015). SME Start-ups prior and after the Financial Crisis: Evidence for EU Countries. LAMBERT Publishing.
- Rajan, R. (2013, December). A step in the dark: unconventional monetary policy after the crisis. Andrew Crockett Memorial Lecture, BIS, Basel, 23.
- Sibert A. (2013). Central Bank Exit Strategies. ECB, Monetary Dialogue, Directorate General for internal policies, policy department: Economic and scientific policy, Available at: <http://bookshop.europa.eu/en/exit-strategies-and-the-impact-on-the-euro-area-pbQA0214086/>, (26.11.2016).
- Smets, F. (2013). Financial stability and monetary policy: How closely interlinked? *Sveriges Riksbank Economic Review*, Issue 3, pp. 121-160.
- Weber, A. (2010, October). Monetary policy after the crisis: A European perspective. In Speech given at the Shadow Open Market Committee (SOMC) symposium, New York City, Volume 12.
- Wyplosz, C. (2013). Exit Strategies. ECB, Monetary Dialogue, Directorate General for Internal policies, policy department: Economic and scientific policy, Available at: <http://bookshop.europa.eu/en/exit-strategies-and-the-impact-on-the-euro-area-pbQA0214086/>, (26.11.2016).

# DIGITAL ECONOMY AS A FACTOR FOR SUSTAINABLE DEVELOPMENT- COMPARISON OF PRACTICES IN THE SIX COUNTRIES OF SOUTHEAST EUROPE

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**Abstract:** Progress made in storage, processing and transmission of digital data allowed merger of the departments of computerization, telecommunications and audio-video transmission, transforming into a significant sector of the digital economy. Advances in digital economy has realized a significant increase, (OECD, 2013: 22) implementing as an inevitable aspect in many parts of the society as retail, transportation, education, health, social interactions, banking and other elements. The growth of the digital economy is also driven, supported and facilitated throughout wide access to computers and the World Wide Web (Internet). In the world today, information and communication technologies are an integral part of the personal lives of people, businesses and governments, leading to convergence of ICT and the economy and help promote sustainable growth. Therefore, the aim of this paper is to consider the development of digital economy as a mean for sustainable development of the economic growth in the six countries of Southeast Europe i.e. Republic of Macedonia, Slovenia, Serbia, Montenegro, Bosnia and Herzegovina and Croatia. According to this, a research has been conducted, in order to determine the prospects and possibilities for development of digital economy. The research was conducted using the comparison method, where the gathered NRI data (including four main categories and ten subcategories) for the six countries of the Southeast Europe where compared in order to determine the prospects for development of digital economy. The findings of this paper show that the six European countries taken into consideration trail behind the other world countries in the majority of indicators. However, they each excel in different fields for development of the digital economy sector, and with mutual collaboration they could enhance and further increase the development of digital economy and boost the prospects of sustainable development in their countries as well as the Southeast Europe region.

**Keywords:** Digital economy, Innovation, NRI index, economic growth, sustainable development

## INTRODUCTION

Digitization, which has been taking place for several decades, has affected almost every sector of the economy. The digital transformation started with the first computer revolution in the 60s, enabling task automation and process standardization (Hunt and Hunt, 1986: 3). Afterwards followed the second information and communication technology (ICT) revolution, which was all about companies using the Internet as a standard channel of communication and a way of doing business (Arul

Kamaraj, 2012). However, during the last two decades, the radical changes that were brought about by ICT, known as the third ICT revolution, have enhanced the full potential of digital revolution introducing the phenomenon of Digital Economy (Kleine and Unwin, 2009). It means basically 'Digitization of Everything' and it is based on the latest technological developments such as Cloud Computing, Mobile Computing, Big Data and Internet of Things.

Digital Economy is not all about the digital technology. It basically refers to how digital ICT technologies are used to promote the existing economy and create a sustainable development, in a direct way, through the emergence and development of new digital ICT industries, or in an indirect way, through development of new businesses and introducing efficiencies to traditional ones (Hamid and Khalid, 2016).

To maximize the potential of the digital economy as a driver for innovation, competitiveness and sustainable growth, several topics must be considered, such as infrastructures (technological and institutional); availability of applications and services based on digital technologies and new business models used by individuals, businesses and governments; trust in the reliability and security of online networks, services and applications; and the appropriate skills to make use of ICT and digital processes.

On the other hand, digital economy can contribute to close the sustainable development goals and bridge the gaps in three ways (Burns and Lohse) .

- Digital technologies enable new business models that enhance innovation and growth in a wide range of sectors.
- The Industrial Internet (which refers to the integration of complex physical machinery with networked sensors and software), is expected to transform many industries, producing groundbreaking benefits to the economy and the society on a global scale, mainly from productivity improvements to equipment maintenance, inventory optimization, energy savings and labor efficiencies.
- Internet of Things (IoT) infrastructures rely on remote data collection, analysis and management facilities, which are often situated in different jurisdictions.

There are three key dimensions of sustainable development: 1) Social, 2) Environmental, and 3) Economic, and a popular measurement approach to sustainable development is to select and enumerate a number of indicators for each of the three dimensions (Stevens, 2005: 1-2.)

In addition to international organisations as UN Commission on Sustainable Development (UNCSD), the European Commission (EC) and the OECD which have compiled a list of indicators for tracking sustainable development trends, many countries and groups have elaborated sets of indicators for monitoring sustainable development. A review of sustainable development indicators assembled by OECD countries, however, shows great diversity in the measures selected under each of the categories and themes proposed by the UNCSD (OECD, 2002) .

In order to help policy makers to evaluate the efficiency of their policies, strategies and actions related to the digital economy, they must introduce proper measurement methodologies, indicators and tools. One of the key indicators of how countries are doing in the digital world is the Network Readiness Index launched by the World Economic Forum in 2001, which evaluates the capacity of countries to leverage the ICT for competitiveness and wellbeing ( Baller et al., 2016: 33). The networked readiness framework rests on four principles: (1) a high-quality regulatory and business environment is critical in order to fully leverage ICTs and generate impact; (2) ICT readiness—as measured by ICT affordability, skills, and infrastructure—is a precondition to generating impact; (3) fully leveraging ICTs requires a society-wide effort: the government, the business sector, and the population at large each have a critical role to play; (4) ICT use should not be an end in itself. The impact that ICTs actually have on the economy and society is what ultimately matters.

The networked readiness framework translates into the NRI, a composite index made up of four main categories (subindexes), 10 subcategories (pillars), and 53 individual indicators distributed across the different pillars. Networked readiness rests on whether a country possesses the drivers necessary for digital technologies to unleash their potential, and on whether these technologies are actually impacting the economy and society.

The drivers are grouped within three subindexes as follows (( Baller et al., 2016:5):

**A. Environment subindex (2 pillars)**

1. Political and regulatory environment (9 indicators)
2. Business and innovation environment (9 indicators)

**B. Readiness subindex (3 pillars)**

3. Infrastructure (4 indicators)
4. Affordability (3 indicators)
5. Skills (4 indicators)

**C. Usage subindex (3 pillars)**

6. Individual usage (7 indicators)
7. Business usage (6 indicators)
8. Government usage (3 indicators)

Impact is measured as a separate subindex:

**D. Impact subindex (2 pillars)**

9. Economic impacts (4 indicators)
10. Social impacts (4 indicators)

NRI is calculated as an arithmetic average of the values of the four subindexes, which are calculated as an arithmetic average of the value of the indicators that belong to the respective subindex. Most of the indicators are measured on a scale of 1-7, where 1 is the worst possible choice (for example, not efficient at all, not developed at all and etc.), whereas 7 represents the best choice (for example, extremely efficient, extremely well-developed and so on). As for indicators whose values are expressed as continuous variables (such as the number of procedures to enforce a contract, number of days to settle a dispute, total tax rate, and etc.), a min-max transformation is performed that once again converts them to values on a scale of 1 to 7.

The Network Readiness Index, the 2016 Report covers 139 economies all around the world including all of the six Southeastern Europe economies ( Baller et al., 2016).

## **LITERATURE REVIEW**

Due to rapid and extensive widespread of the digital economy a need has occurred to collect the required data for monitoring and measuring the development of the digital economy, and its impact on the economy and sustainable development. The term Digital Economy was first coined by Don Tapscott (1995), in the context of the challenges and opportunities offered by technology and global connectivity for businesses. Thomas Mesenbourg turn, defines the digital economy as a concept made up of three main components, i.e. (Mesenbourg, 2001):

- supporting infrastructure (hardware, software, telecommunications, networks, etc.)
- e-business
- e-commerce

According to Mesenbourg, top priority in measuring the digital economy is e-commerce. As a second priority in measuring the digital economy according to Mesenbourg is determined by measurement of business processes. His focus is retained between the respective goods and services sold through e-commerce and total goods and services sold. In his research Mesenbourg represents the digital economy through the prism of e-commerce while neglecting digital infrastructure and other constituent parts of the digital economy.

The development of information technology is directly effecting the development of the digital economy, as stated by Bill Imlah in his "Concept of a Digital Economy" (Imlah, 2013). Rapid development of social media and the development of global network increase the level of importance of the digital economy, making its coverage broader, and more complex to define and monitor. Haltwanger and Jarmin in their work of measuring the digital economy, despite e-commerce present an additional part for measuring the digital economy. In particular they take into consideration the IT infrastructure, the demographic characteristics of employees in the IT sector, the structure of business the companies in the IT sector and the impact of the digital economy on the sustainable development. They define each sector to measure the digital economy and explain the reasons to increase the volume of data required to measure the digital economy (Haltiwanger and Jarmin, 2000) . Additional attempts to define and measure the digital economy were made by Barbet and Coutinet who divided the digital economy into four parts in order to facilitate the principle of measurement. The authors distinguish four different components of the digital economy in general that can quantify the impact and extent of digital economy. According to them the digital economy can be broken down into the following indicators (Barbet and Coutinet, 2001) :

- Digital and Internet infrastructure
- digital software and Internet applications
- Internet commerce
- Internet intermediation

Organization for Economic Cooperation and Development (OECD) defines the sector of the digital economy) as "a combination of manufacturing and service industries that allow the transmission and display of data and information by electronic means" (OECD, 2013). OECD study measuring the digital economy presupposes the existence of two indicators to measure more precisely: the infrastructure of the digital economy and the output of digital economy (e-commerce and the Internet economy). These indicators are divided into several sectors in order to obtain accurate and relevant information about the state of the digital economy in OECD countries. OECD methodology for measuring the digital economy contains the following sections of the two main indicators: investment in "smart" infrastructure, e-society, digital innovation, economic growth and sustainable development caused by the digital economy.

## **METHODOLOGY**

The research in this article is conducted using both quantitative and qualitative research methods. The quantitative methods are consisted of statistical and data analysis using the data provided by Network Readiness Index necessary for comparison of the development of the digital economy sector. The research is analyzing the correlation between digital economy and sustainable development of the six countries of Southeast Europe. Qualitative method that is used in the research for this article is comparative method. The comparative method is used to compare the development of digital economy in the six countries of Southeast Europe with the best digital economies in the world. Besides the quantitative methods, other qualitative methods are used in the process of research and conclusion findings, such as: analytical method, method of deduction and method of induction.

## **FINDINGS AND CONCLUSIONS**

Digital technology can contribute to higher growth and sustainable prosperity of countries; therefore the countries should increase their awareness of the need for the development of the digital economy. Through appropriate strategic development of the digital economy can come to address the key challenges such as unemployment and inequality and abolishing poverty. Sustainable economic growth and technology are inextricably linked. The development of the digital economy is preceded by the development of smart infrastructure and Internet technology itself. Through investments in technology, businesses are looking for new ways to reduce costs and encourage innovation in order to increase the opportunities for achieving sustained economic growth.



According to the findings based on the data of NRI index the six Southeastern European countries trail behind the economies with the highest NRI score such as Singapore and Finland. The largest gap in the comparison between the countries of the region and other world countries with the best results according to the NRI index can be seen in the Impact subindex. Countries in the region realize low results in the Number of applications for information and communication technology–related patents filed under the Patent Cooperation Treaty (PCT) per million populations and E-participation, which further leads to low impact of the ICT on society and sustainable development. Nevertheless, the six Southeastern European countries show the best score in the Readiness subindex according to the NRI data. This refers to the relatively good smart infrastructure and other factors that contribute to the process of digitalizing the economy and society. However, the countries of the region realize relatively low scores in the other two subindexes referring to Environment and Usage subindexes, mainly due to poor political and regulatory environment.

The comparison between the six Southeastern European countries shows that Slovenia has the best score in the overall Network readiness index. Republic of Macedonia trails Slovenia as the second best from the six Southeastern European countries, on the other side the lowest score is realized by Bosnia and Herzegovina. However, the research showed that different six Southeastern European countries realize high scores on different fields i.e. subindexes concerning the NRI. Considering the region this could mean that every country has its own competitive advantages when it comes to prospects of the digital economy. These differences between the six Southeastern European countries show different approaches in development of the digital economy sectors. Strategically managed and with mutual exchange of good practices concerning the development of digital economy, the six Southeastern European countries could improve their overall scores on the NRI index and could benefit in the process of sustainable economic and social development.

The research also shows that there is a strong correlation between Digital Economy and Sustainable Development.

## REFERENCES

- Arul Kamaraj, J.M., Digital Revolution in Rural India: Keys to the Digital India, IJBSF, Volume 2, Issue 1, 2012, pp. 19-30.
- Baller, S., Dutta, S., and Lanvin B., The Global Information Technology Report 2016: Innovating in the Digital Economy, World Economic Forum and INSEAD, 2016.
- Barbet, P., and Coutinet, N., (2001), Measuring the Digital Economy: State-of-the-Art Developments and Future Prospects, Communications & Strategies, Issue 42, 2nd quarter 2001, pp. 153-184.
- Burns T., and Lohse S., How Digital Industry Can Solve the Sustainable Development Goals, GE Africa, <http://allafrica.com/stories/201611031068.html> (02.02.2017).
- Hamid, N., and Khalid, F., Entrepreneurship and Innovation in the Digital Economy, The Lahore Journal of Economics, Issue 22, 2016, pp. 273-312.
- Haltiwanger, J., and Jarmin, R.S., Measuring the Digital Economy, in Understanding Digital Economy: Data, Tools and Research, Edited by Brunjolfsson E., and Kahin, B., The MIT Press, 2000.
- Hunt, H.A., and Hunt, T.L. Clerical Employment and Technological Change: A Review of Recent Trends and Projection, Report submitted to the National Commission for Employment Policy, W.E. Upjohn Institute, 1986.

Imlah, B., The Concept of a Digital Economy, 2013. Available at: <http://odec.org.uk/the-concept-of-a-digital-economy/> (02.02.2017).

Kleine, D., and Unwin, T., Technological Revolution, Evolution and New Dependencies: what's new about ICT4D?, Third World Quarterly, Volume 30, Issue 5, 2009, pp. 1045-1067.

Mesenbourg, T.L., Measuring the Digital economy, University of Maryland, 2001.

OECD, Overview of Sustainable Development Indicators Used by National and International Agencies, OECD, Paris, 2002.

OECD, Measuring the digital economy A New Perspective, OECD Publishing, 2013.

Stevens C., Measuring Sustainable Development, OECD Statistics Brief, September 2005, Issue 10, pp.1-2.

Tapscott, D., The Digital Economy: Promise and Peril in the Age of Networked Intelligence, New York: McGraw-Hill, 1995.

# OPERATING DRIVERS WHICH EXPLAIN BANK CREDIT MARGINS: THE CASE OF TURKEY\*

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**Abstract:** This paper makes an empirical investigation on documenting which operating drivers account for bank credit margins. Sampling the period from the first quarter of 2004 to the first quarter of 2008 for all the listed commercial banks operating in Turkey, we perform a panel regression analysis. Evidences show that such factors as: (a) interest expenses paid to the time deposits on a TL basis to total time deposits collected on a TL basis, (b) total equity to total assets, (c) the volume of currency issued, (d) interest incomes earned from the loans granted on a TL basis to total cash loans granted on a TL basis, and (e) net profit to total assets affect margin significantly. The first three factors are negatively and the last two factors are positively related to margin.

**Keywords:** Credit Margin; Interest Spread; Financial Reporting; Commercial Banks; Profitability.

## INTRODUCTION

The main (ordinary) course of operation for commercial banks (henceforth, referred to as banks) is to act as an intermediary between the economic agents. In rendering financial intermediation services, banks grant loans on the basis of the deposits they collect before. Once the inflows (interest revenues) that accrue from granting loans which are the main source of income exceed the outflows (interest expenses) to incur from collecting deposits that are the main source of cost, banks realize some positive net inflow. This net inflow is recorded as profits to their books. However, should this position be reversed, banks bear some negative net inflow, which translates into loss. Such profits or losses are the main operating profits or losses. This is because, as stated, those financial figures are sourced from banks' performing financial intermediation activity. The objective of this paper is to empirically document the particular operating drivers which explain the bank margin. Operating drivers are considered to be the key drivers that underlie banks' operating profit figures. Sampling the period from 2004 to 2008 for all the listed banks whose stocks are publicly traded on ISE, we perform panel regression analyses. We use both micro (firm-specific) and macro (country-specific) variables to proxy operating drivers.

Our study contributes to the banking profitability literature among the others. As stated above, our starting point was that the margin is closely linked to the operating profit component of banks. This research explores the linkage of margin with its drivers from this standpoint. We consider a large margin-determinant matrix that is composed of both micro and macro variables. Most variables

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**Disclaimer's Note:** The ideas presented in this study are only the personal opinions of the writers and may in no way be associated with the Turkish Airlines Co. nor with CCSU. Any errors and omissions may be acknowledged by the authors alone.

included in this matrix have never been used before in the literature. To closely capture the margin drivers, the variables were constructed to best conform to the prospects featuring not only theoretical considerations but professional facts holding for banks as well.

## **LITERATURE REVIEW**

In the literature, studies exploring the profitability determinants of the banking sector are numerous. Scholars have made examinations on the banking profitability from different angles, employing different profitability measures and building different measurement tools. Such studies generally investigate the constituents determining the profitability, how these determinants influence the profitability and the relationships among the factors affecting the profitability degree. One of the most commonly used profitability measures has been margin, return on asset and return on equity.

An early study by Ho and Saunders (1981) puts forward a model of margins where the bank is conceived as being a risk-averse dealer. Ho and Saunders suggest that a bank margin draws on four underlying factors, which are (i) the degree of managerial risk aversion, (ii) the size of transactions undertaken by the bank, (iii) bank market structure, and (iv) the variance of interest rates. Sampling U.S. commercial banks, the scholars documented that the margin was positively and significantly related to the variance in the bond rates.

Sampling 614 banks in the period from 1988 to 1995, Saunders and Schumacher (2000) investigate the margin determinants in six European countries as well as the U.S. Their findings indicate that the more (less) segmented or restricted the banking system, the larger (smaller) the mono- poly power of the existing banks and hence the higher (lower) their margins will be. They also report that, as macro interest-rate volatility significantly impacts the margin, macro policies geared towards reducing interest rate volatility have a positive influence in shrinking the bank margins.

Brock and Suarez (2000) study the behavior of bank margins in seven countries (ie. Latin America, Argentina, Bolivia, Chile, Colombia, Mexico, Peru and Uruguay) for the mid 90s. Their research suggests several points. First, harsh operating costs and non-performing loans widen the interest margin. Second, minimum reserve requirements lead banks to maintain a higher margin. Third, uncertainty results in rising interest spreads. Finally, bank capital requirements may prove to be influential in mitigating the excessive banking risk.

Abreu and Mendes (2001) explore the determinants underlying margin and profitability for a number of EU Member countries including Portugal, Spain, Germany and France. Sampling the period from 1986 to 1999, they use different measurement sets to predict the margin. These scholars report several findings. First, less (more) efficient banks with higher (lower) operating costs relative to the others set higher (lower) loan rates and lower (higher) deposit rates. Second, strongly capitalized banks tend to have higher margins as they confront lower expected bankruptcy costs and therefore lower funding or sourcing costs. Third, the loan-to-asset ratio positively affects margins and profitability. Finally, inflation rate significantly contributes to profitability.

Afanasieff *et al.* (2001) explore the determinants of margin in Brazil. They employ panel data technique to measure the relevance of the factors accounting for the margin. Their research indicates that it is not micro but macroeconomic variables that significantly affect the margin pattern in Brazil.

Kasman (2001) examines the relationship between profit and market concentration for the individual banking market in Turkey over the time span of 1988-1996. The findings are inconclusive; there is neither a positive nor a statistically robust relationship between market concentration and profitability of the banking sector. In other words, market concentration in the Turkish banking sector is found to play no role in explaining the profitability.

Kaya (2002) analyzes the determinants of profitability indicators using panel data during the period

1997-2000 for 44 banks in the Turkish banking sector. She reports that capital, liquidity, personnel expenditures (operating costs), deposits and market share as well as inflation and budget deficits significantly influence margins.

Factors explaining the margin in the banking sectors of the European Union is examined by Maudos and De Guevara in (2004). Using a panel of 16,185 observations, the scholars consider the banking sectors in Germany, France, the United Kingdom, Italy and Spain in the period from 1993 to 2000. Findings report that the fall of the margins in the European banking system conforms to the relaxation of the competitive conditions such as increase in market power and concentration. Reductions in interest rate risk, loan risk as well as in operating costs were all effective in this relationship.

Similar to Maudos and De Guevara (*ibid.*), sampling the banking sectors in Germany, Spain, France, the Netherlands, Italy, the United Kingdom and Sweden in the period spanning from 1994 to 2001, Valverde and Fernandez (2007) explore the margin determinants. They show that the connection between margin and market power significantly differs along bank specializations. They also show that market power rises when output becomes more diversified towards non- traditional activities.

The above-cited investigations have examined bank profitability from different perspectives. They have researched the determinants of the banking profitability issue from the standpoints of firm- or microeconomic-level indicators, regulatory indicators, financial sector indicators and eventually of macroeconomic-level indicators. However, none of these attempts to provide details on exactly which portions of the financial statements account for the margin. Is it the operating portion of the financial statements explaining the margin or is it the non-operating portion doing so? Literature in this does yet need to be addressed and contributed to. We believe that it is worth studying the role of operating profit drivers on the degree of the margin being the leading operating profit figure for banks. The next section presents the sample and the dataset.

## **METHODOLOGY**

Following Kaya (2002), we are using quarterly accounting data belonging to all the banks whose stocks are publicly traded and whose financial information is available in ISE. The sample consists of 13, being the entire number of the listed or the quoted banks. The data pertains to the financial information gathered from the banks' financial statements (i.e. their balance sheets and income statements) as well as their published independent audit reports.

The main legislation governing the operations of banks is Turkish banking act (Law No.5411) and its related communiqués. This legislation is entirely arranged and administered by BRSA. Furthermore, listed banks and other listed financial institutions such as insurance undertakings or investment (brokerage) houses are subject to the special arrangements stipulated by Capital Markets Board of Turkey (Sermaye Piyasası Kurulu-CMB). The main capital markets legislation governing the operations of the listed firms is Turkish capital markets act (coded as 2499) and its related communiqués. CMB is the body authorized to arrange and administer this legislation.<sup>5</sup>

The sampling period runs from the first quarter (January-March) of 2004 to the first quarter of 2008. We use solo financial statements where available. The legal bases for banks to prepare their solo financial statements were (a) the communiqué named serial XI/No:20 in 2004, (b) the communiqué named serial XI/No:25 in 2005-2007 and (c) the communiqué named serial XI/No:29 in 2008. These communiqués are compatible to each other. Financial statements before 2004 that draw on different reporting regimes (e.g. inflation-based reporting, historical cost-based reporting) are not considered so as to secure the integrity of this study.

We consider a large margin-determinant matrix that is composed of both micro and macro variables. In contrast to the literature, most variables included in this vector have not been used before. As for

testing these hypotheses; following the literature (e.g. Afanasieff *et al.*, 2001; Kaya, 2002; Jansen and de Haan, 2003 etc.), we use panel regression to estimate the margin.

## CONCLUSION

Margin is usually defined as the premium or the compensation banks receive in return for performing intermediation activities. This Premium, known as pure spread, draws on financial intermediation duty. Following the literature and the conventional wisdom, we considered margin as a pure spread which is the leading operating profit figure underlying banks' earnings.

Operating drivers influence the margin through either generating operating revenues for or incurring some operating costs for banks. In other words, they are key drivers composing banks' operating profit figures. The former effect is expected to widen and the latter effect is expected to lessen the margin. Devoting its focus to these key drivers, this paper investigated which operating drivers explain the bank margin.

Sampling the period from 2004 to 2008 for all the listed banks, we performed panel regression analyses. We used both micro and macro variables to capture operating drivers. We tested random and fixed effects panel regressions. Hausman test results indicated that random effects model better explains the margin-determinant relationship. Accordingly, micro and macro variables both influence the margin. In particular, the ratios of (a) interest expenses paid to the time deposits in TL *to* total time deposits collected on a TL basis, (b) total equity *to* total assets, (c) the volume of currency issued, (d) interest incomes earned from the loans granted on a TL basis *to* total cash loans granted on a TL basis, and (e) net profit *to* total assets significantly account for the changes in the level of the margin. The first three are negatively, the last two are positively related to the margin. The model overall is robustly significant, accounting for approximately 34% of changes in the margin.

## REFERENCES

- Abreu M.- Mendes, V. (2001). Commercial bank interest margins and profitability: Evidence for some EU countries. City University Economics Department, Preliminary Draft.
- Afanasieff, T.S.- Lhacer, P.M.- Nakane, M. (2001). The determinants of bank interest spread in Brazil. XXIX Encontro Nacional de Economia, Issue 11- 14/12/2001.
- Allen, L. (1988). The Determinants of Bank Interest Margins: A Note. The Journal of Financial and Quantitative Analysis. Issue 23, pp. 231-235.
- Angbazo, L. (1997). Commercial Bank Net Interest Margins, Default Risk, Interest-Rate Risk, and off-Balance Sheet Banking. Journal of Banking & Finance, Issue 21, pp. 55-87.
- Barajas, A.- Steiner, R.- Salazar, N. 1999. Interest Spreads in Banking in Colombia: 1974-96. IMF Staff Papers 46.
- Barth, J.R.- Nolle, D.E.- Rice, T.N. (1997). Commercial Banking Structure, Regulation, and Performance: An International Comparison. Comptroller of the Currency Economics WP 97-6.
- Bartholdy, J.- Boyle, G.W.- Stover, R.D. (1997). Deposit Insurance, Bank Regulation And Interest Rates: Some International Evidence. Mimeo, University of Otago, New Zealand.
- Brock, P.L.- Suarez, L.R. (2000). Understanding the Behavior of Bank Spreads in Latin America. Journal of Development Economics, Issue 63, pp. 113- 134.

Capital Markets Code of Turkey (2499)

Elsayed, M.O.- Hoque, Z. (2010). Perceived International Environmental Factors And Corporate Voluntary Disclosure Practices: An Empirical Study. *The British Accounting Review*, Issue 42, pp. 17-35.

Eroğlu, Z.A. 2001. Türk Bankacılık Sisteminde Kaynak Maliyeti [Funding Cost in Turkish Banking System]. BDDK MSPD Çalışma Raporları [BRSA Working Reports], No: 2001/5, July.

Ho, T.S.Y.- Saunders, A. (1981). The Determinants of Bank Interest Margins: Theory and Empirical Evidence. *The Journal of Financial and Quantitative Analysis*, Issue 16, pp. 581-600.

Jansen, D.- de Haan, J. (2003). Increasing Concentration In European Banking: A Macro-Level Analysis. WO Research Memoranda (discontinued) 743, Netherlands Central Bank, Research Department.

Kasman, A. (2001). The Profit-Structure Relationship in the Turkish Banking Industry Using Direct Measures of Efficiency. *Ege Akademik Bakış Dergisi [Ege Academic Review]*, Issue 1, pp. 141-164.

Kaya, Y.T.:

BDDK MSPD Çalışma Raporları BRSA Working Reports, 2001. Türk Bankacılık Sisteminde Net Faiz Marjının Modellenmesi, Modelling Net Interest Spread in Turkish Banking System. No: 2001/4, Haziran.

BDDK MSPD Çalışma Raporları BRSA Working Reports, 2002. Türk Bankacılık Sektöründe Karlılığın Belirleyicileri: 1997-2000 The Profitability Determinants in Turkish Banking Sector: 1997-2000. No: 2002/1, Haziran.

Kaymaz, Ö. (2009). Cost Advantage, Transfer Pricing and Operating Profits Under Imperfect Competition: Theory & Application. unpublished doctoral dissertation, Bocconi University.

Kaymaz, Ö.- Pehlivan, M.- Kaymaz, Ö. (2010). Size Does Matter: Empirical Evidence from ISE-Listed Banks. *JASSA: The Finsia Journal of Applied Finance*, Issue 3, 2010.

Kunt, A.D.- Huizinga, H. (1999). Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence. *The World Bank Economic Review*, Issue 13, pp. 379-408.

Maudos, J.- De Guevara, J. F. (2004). Factors Explaining The Interest Margin In The Banking Sectors Of The European Union. *Journal of Banking And Finance*, Issue 28, pp. 2259-2281.

McShane, R.W.- Sharpe, I. G. (1985). A time series cross-section analysis of the determinants of Australian trading bank loan/deposit interest margins: 1962–1981. *Journal of Banking And Finance*, Issue 9, pp. 115-136.

Montes, F.N.- Landa L. (1999). Interest Rate Spreads in Mexico during Liberalization. World Bank WP.

Saunders, A., and Schumacher, L. (2000). The Determinants Of Bank Interest Margins: An International Study. *Journal of International Money and Finance*, Issue 19, pp. 813-832.

Turkish Banking Act (coded as 5411)

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---

Valverde, S.C.- Fernandez, F. R. (2007). The Determinants Of Bank Margins In European Banking. Journal of Banking & Finance, Issue 31, pp. 2043-2063.

[www.bddk.org.tr](http://www.bddk.org.tr) (Bankacılık Düzenleme ve Denetleme Kurumu-Banking Regulation And Supervision Agency of Turkey (BRSA))

[www.imkb.gov.tr](http://www.imkb.gov.tr) (Istanbul Menkul Kıymetler Borsası [IMKB]-Istanbul Stock Exchange [ISE])

[www.spk.gov.tr](http://www.spk.gov.tr) (Sermaye Piyasası Kurulu [SPK]-Capital Markets Board of Turkey [CMB])

[www.tcmb.gov.tr](http://www.tcmb.gov.tr) (Türkiye Cumhuriyet Merkez Bankası [TCMB]-Central Bank of Republic of Turkey [CBRT])

[www.tuik.gov.tr](http://www.tuik.gov.tr) (Türkiye İstatistik Kurumu [TÜİK]-Turkish Statistical Institute [TSI])