

T.C.
MARMARA ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İŞLETME (İNGİLİZCE) ANA BİLİM DALI
MUHASEBE-FİNANSMAN (İNGİLİZCE) BİLİM DALI

**THE IMPACT OF CORPORATE GOVERNANCE
MECHANISMS AND OWNERSHIP STRUCTURE ON
AGENCY COSTS: EVIDENCE FROM TURKEY**

Doktora Tezi

ÖZLEM KUTLU FURTUNA

İstanbul, 2013

T.C.
MARMARA ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İŞLETME (İNGİLİZCE) ANA BİLİM DALI
MUHASEBE-FİNANSMAN (İNGİLİZCE) BİLİM DALI

**THE IMPACT OF CORPORATE GOVERNANCE
MECHANISMS AND OWNERSHIP STRUCTURE ON
AGENCY COSTS: EVIDENCE FROM TURKEY**

Doktora Tezi

ÖZLEM KUTLU FURTUNA

Danışman: PROF. DR. ALİ OSMAN GÜRBÜZ

İstanbul, 2013

MARMARA ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜ

TEZ ONAY BELGESİ

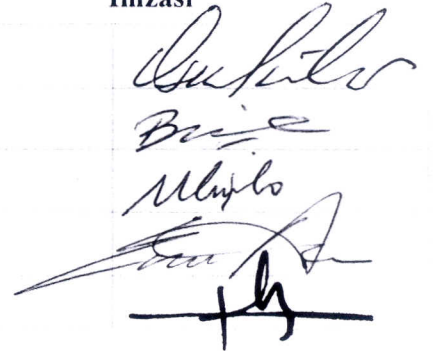
İŞLETME (İNGİLİZCE) Anabilim Dalı MUHASEBE FİNANSMAN (İNGİLİZCE) Bilim Dalı DOKTORA öğrencisi ÖZLEM KUTLU FURTUNA'nın THE IMPACT OF CORPORATE GOVERNANCE MECHANISMS AND OWNERSHIP STRUCTURE ON AGENCY COSTS: EVIDENCE FROM TURKEY adlı tez çalışması, Enstitümüz Yönetim Kurulunun 17.07.2013 tarih ve 2013-28/50 sayılı kararıyla oluşturulan jüri tarafından oy birliği / oy çokluğu ile Doktora Tezi olarak kabul edilmiştir.

Tez Savunma Tarihi 06.09.2013

Öğretim Üyesi Adı Soyadı

İmzası

1. Tez Danışmanı	Prof. Dr. ALİ OSMAN GÜRBÜZ
2. Jüri Üyesi	Doç. Dr. BERİL DURMUŞ
3. Jüri Üyesi	Doç. Dr. MURAT ÇİNKÖ
4. Jüri Üyesi	Doç. Dr. EMİN AVCI
5. Jüri Üyesi	Prof. Dr. ŞADUMAN OKUMUŞ



GENEL BİLGİLER

İsim ve Soyadı	: Özlem KUTLU FURTUNA
Anabilim Dalı	: İşletme (İngilizce)
Programı	: Muhasebe–Finansman (İngilizce)
Tez Danışmanı	: Prof. Dr. Ali Osman GÜRBÜZ
Tez Türü ve Tarihi	: Doktora – Temmuz 2013
Anahtar Kelimeler	: Vekalet Maliyetleri Kurumsal Yönetim Mekanizmaları Sahiplik Yapısı Panel Veri Analizi Gelişmekte Olan Piyasalar

ÖZET

KURUMSAL YÖNETİM MEKANİZMALARININ VE SAHİPLİK YAPISININ VEKALET MALİYETLERİ ÜZERİNE ETKİSİ: TÜRKİYE ÖRNEĞİ

Vekalet teorisi, asil-vekil ilişkisinden kaynaklanan çıkar çatışmasına dayanan ve Adam Smith (1776)'den bu yana üzerinde tartışılan bir konudur. Özellikle, ABD Subprime Mortgage probleminden doğan küresel finansal kriz sonrasında da oldukça dikkati çeken vekalet teorisi konusunda önemli çalışmalar yapılsa da, vekalet maliyetlerinin ölçümünü konu alan az sayıda çalışma mevcuttur.

Bu tezin temel amacı, vekalet maliyetlerini ölçümlemek, kurumsal yönetim mekanizmalarının ve sahiplik yapısının yanı sıra kurumsal yatırımcılar, temettü politikası ve borçlanma yapısı gibi vekalet maliyetini azaltıcı değişkenlerin, vekalet sorunundan ortaya çıkan vekalet maliyetleri üzerine etkisini ortaya koymaktır. Bu çalışma, vekalet maliyetini azaltan etkenleri ortaya çıkarmanın yanında, Türkiye’de uygulanan kurumsal yönetim mekanizmaları uygulamalarının ne derecede etkin olduğunu göstermeyi de amaçlamaktadır.

Bu çalışmada, 2005-2011 yılları arasında 7 yıllık zaman diliminde Borsa İstanbul’da (BIST) işlem gören 1.491 firma-yıl gözlemi kapsayan panel veri analizi kullanılmıştır. Her bir vekalet maliyeti değişkeni için, araştırma hipotezlerini test eden üç farklı model oluşturulmuştur. İlk model, kurumsal yönetim mekanizmalarının; ikinci model sahiplik yapısı ile birlikte diğer vekalet maliyetini azaltıcı değişkenlerin bu maliyetler üzerindeki

etkisini ortaya koymaktadır. Sonuncu model ise, kurumsal yönetim mekanizmalarının ve vekalet maliyetini azaltıcı değişkenlerin tümünün, maliyetler üzerindeki etkisini detaylı bir şekilde araştırmaktadır. Tüm modeller, sabit etkiler panel veri analizi yöntemi ile oluşturulmuştur. Son olarak, değişkenlerin sektör bazındaki etkilerini görebilmek için BIST Ulusal Sınai ve BIST Ulusal Hizmetler endeksinde yer alan firmaları kapsayan ek analizler yapılmıştır. Kurumsal yönetim mekanizmalarından biri olan üst yönetime sağlanan fayda ve hakların vekalet maliyetlerine etkisi de ayrıca analiz edilmiştir.

Çalışmanın sonucu, gelişmekte olan bir piyasada, kurumsal yönetim ve vekalet maliyetini azaltıcı değişkenlerin, yöneticiler ve hissedarlar arasındaki çıkar çatışmalarından kaynaklanan ve analize konu olan her bir vekalet maliyeti değişkenini farklı açılardan etkilediğini göstermektedir. Elde edilen bulgular, sahiplik yapısının yoğun olduğu Türkiye'deki işletmelerin vekalet sorunlarına daha çok maruz kaldığını ve bu durumun işletmelerde olması gerekenden fazla yapılan giderlerin kontrol edilememesine ve varlıkların iyi yönetilememesine yol açtığını göstermektedir.

GENERAL KNOWLEDGE

Name and Surname	: Özlem KUTLU FURTUNA
Field	: Business Administration
Programme	: Accounting and Finance
Supervisor	: Professor Ali Osman GÜRBÜZ
Degree Awarded and Date	: Ph.D. – July 2013
Keywords	: Agency Costs Corporate Governance Mechanisms Ownership Structure Panel Data Analysis Emerging Markets

ABSTRACT

THE IMPACT OF CORPORATE GOVERNANCE MECHANISMS AND OWNERSHIP STRUCTURE ON AGENCY COSTS: EVIDENCE FROM TURKEY

Agency theory, dealing with the conflict of interest between principles and agents has always been a concern since Adam Smith (1776). It gained much attention in recent years especially after the latest Subprime Mortgage Crisis which evidenced the devastating costs of that conflict. Despite much valuable insights provided by the agency theory, however, only very few studies directly tackle the measurement issue of agency costs.

The main purpose of this thesis is to investigate the empirical determinants of agency costs and focus on the impact of corporate governance mechanisms and agency control mechanisms in terms of ownership structure together with institutional investors, dividend policy and debt financing in mitigating the costs arises from agency problem. This study not only contributes in revealing such factors that help to reduce the agency cost but also have implications to validate corporate governance mechanisms in Turkey.

This study employs panel data analyses on a sample of 1.491 firm-year observations for nonfinancial firms listed in Borsa Istanbul (BIST) covering the time span of 7 years over the 2005-2011 periods. This study also includes three models to test the research hypotheses for each agency cost proxy. First model depicts the impact of governance mechanisms on agency cost proxies. The second model examines the impact of control mechanisms in terms of ownership structure together with institutional investors,

dividend policy and debt financing on agency cost proxies. And, the last model further examines how the governance variables and all control mechanisms relate to agency cost proxies. All of these models are estimated by panel data regressions with fixed effects. Finally, further analysis is also conducted on the BIST National Industrials and BIST National Services indices in order to see more clear effects of these variables on the all agency cost proxies. Furthermore, the effectiveness of managerial incentives on agency cost levels of the firms is also clearly stated.

This study provides evidences from an emerging market about the fact that governance variables and agency mitigating variables differently reduce the extent of conflicts of interest between managers and shareholders. The findings also indicate that the highly concentrated firms in Turkey are more engaging with the agency problems and they do not effectively control excessive perquisite consumption and facilitate asset utilization.

ACKNOWLEDGEMENTS

I would like to thank my supervisor, Prof. Dr. Ali Osman GÜRBÜZ for his help throughout the study.

My beloved teacher Prof. Dr. Güler ARAS has been the most influential person of my interest. I would like to thank her for all the support and help she gave me in the accomplishment of this study.

I would like to thank Prof. Dr. Nuri YILDIRIM for his invaluable contributions in constructing econometric analyses.

I would like to thank The Scientific and Technological Research Council of Turkey (TUBITAK) for providing the funding for my masters and Ph.D. degree.

Finally, I certainly present my gratitude for my beloved husband Serdar FURTUNA. I am grateful for all his love and support during these times.

İstanbul, 2013

Özlem KUTLU FURTUNA

TABLE OF CONTENTS

	Page No.
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABBREVIATIONS	x
1. INTRODUCTION	1
2. AGENCY THEORY LITERATURE	6
2.1. ORIGINS OF AGENCY THEORY	6
2.2. PROBLEMS WITH THE AGENCY RELATIONSHIP	10
2.2.1. Stockholders and Managers	13
2.2.2. Stockholders and Debtholders	15
2.3. COST OF THE AGENCY RELATIONSHIP	16
2.3.1. The Monitoring Costs	17
2.3.2. The Bonding Costs	19
2.3.3. Residual Loss	19
2.4. CONTROL MECHANISMS RELATED WITH AGENCY COSTS	21
2.4.1. Ownership Structure	21
2.4.2. Institutional Investors	23
2.4.3. Dividend Policy	24
2.4.4. Debt Financing	25
3. CORPORATE GOVERNANCE	29
3.1. THE EVOLUTIONARY THEORIES OF CORPORATE GOVERNANCE	30
3.1.1. Stewardship Theory	30
3.1.2. Resource Dependency Theory	32
3.1.3. Stakeholder Theory	33
3.2. CORPORATE GOVERNANCE MECHANISMS	33
3.2.1. Board Composition	34
3.2.2. CEO-Chairperson Duality	39
3.2.3. Audit Quality	40
3.2.4. Managerial Incentives	40
3.3. THE ROLE OF CORPORATE GOVERNANCE MECHANISMS IN REDUCING THE AGENCY PROBLEM	42
3.4. CORPORATE GOVERNANCE EVOLUTION IN TURKEY	44

4. EMPIRICAL RESEARCH ON THE IMPACT OF CORPORATE GOVERNANCE MECHANISMS AND OWNERSHIP STRUCTURE ON AGENCY COSTS.....	47
4.1. PRIOR EMPIRICAL LITERATURE.....	47
4.1.1. Prior Research Based on International Context.....	47
4.1.1.1. Agency Cost Measurement.....	47
4.1.1.2. Agency Costs and Ownership Structure.....	55
4.1.1.3. Agency Costs, Ownership Structure and Corporate Governance Mechanisms.....	57
4.1.1.4. Agency Costs and Institutional Ownership.....	63
4.1.1.5. Agency Costs and Dividend Policy.....	63
4.1.1.6. Agency Costs and Debt Financing.....	64
4.1.1.7. Agency Costs and Stock Return.....	65
4.1.1.8. Agency Costs and Financial Performance.....	66
4.1.2. Prior Research Based on Turkish Context.....	78
4.2. HYPOTHESIS DEVELOPMENT.....	80
4.3. SAMPLE SELECTION AND DATA DESCRIPTION.....	82
4.3.1. The Dependent Variables.....	82
4.3.2. The Explanatory Variables.....	87
4.3.3. The Control Variables.....	92
5. RESEARCH FINDINGS.....	94
5.1. DESCRIPTIVE STATISTICS.....	94
5.2. CORRELATION COEFFICIENTS.....	102
5.3. CROSS SECTIONAL REGRESSION ANALYSES.....	104
5.4. PANEL DATA REGRESSION ANALYSES.....	110
5.4.1. Operating Expense Ratio as a Proxy for Agency Cost.....	114
5.4.2. Selling, General and Administrative Expenditure Ratio as a Proxy for Agency Cost.....	118
5.4.3. General Administrative Expenditure Ratio as a Proxy for Agency Cost.....	122
5.4.4. Agency Cost in terms of Poor Asset Management.....	124
5.5. FURTHER ANALYSES.....	134
5.5.1. Results Related with the BIST National Industrials and BIST National Services.....	134
5.5.2. The Effectiveness of Managerial Incentives on Agency Cost.....	139
5.6. SUMMARY OF THE EMPIRICAL RESULTS.....	143
6. CONCLUSION.....	146
APPENDICES.....	152
BIBLIOGRAPHY.....	164

LIST OF TABLES

	Page No.
Table 2.1: An Overview of an Agency Theory.....	9
Table 4.1: Literature Review for Agency Cost Proxy Variables	54
Table 4.2: Summary of the Prior Studies.....	68
Table 4.3: Industry Classifications of the Firms	83
Table 4.4: Summary of Variables, Abbreviations and Definitions.....	87
Table 5.1: Descriptive Statistics for the Dependent and Independent Variables	97
Table 5.2: Pearson's Correlation Coefficients for the Independent Variables for the Overall Period	103
Table 5.3: Pearson's Correlation Coefficients for the Dependent Variables for the Overall Period ..	104
Table 5.4: Cross Sectional Regression Analysis for Operating Expense Ratio as Dependent Variable	107
Table 5.5: Cross Sectional Regression Analysis for Asset Turnover Ratio as Dependent Variable	109
Table 5.6: Fixed Effects Regression Model Result for Operating Expense Ratio.....	115
Table 5.6: Fixed Effects Regression Model Result for Operating Expense Ratio.....	115
Table 5.7: Fixed Effects Regression Model Result for SG&A Ratio	120
Table 5.8: Fixed Effects Regression Model Result for GA Ratio	123
Table 5.9: Fixed Effects Regression Model Result for Asset Turnover Ratio	126
Table 5.10: Summary of the Results for the all Agency Cost Proxies	131
Table 5.11: Fixed Effects Regression Model Result of all Agency Cost proxies in BIST National Industrials	135
Table 5.12: Fixed Effects Regression Model Result of all Agency Cost proxies in BIST National Services	138
Table 5.13: Fixed Effects Regression Model Result of all Agency Cost Proxies between 2008-2011	142

LIST OF FIGURES

	Page No.
Figure 2.1: The Essence of Agency Problem.....	11
Figure 4.1: Asset Utilization Ratio by Industrial Classification	85
Figure 4.2: Operating Expense Ratio by Industrial Classification	86

ABBREVIATIONS

BIST: Borsa Istanbul

CEO: Chief Executive Officer

CMB: Capital Markets Board of Turkey

CML: Capital Markets Law

IPO: Initial Public Offering

KAP: BIST Public Disclosure Platform.

MKK: Central Securities Depository Institution of Turkey

NYSE: New York Stock Exchange

OECD: Organization of Economic Co-operation and Development

STATA: The Data Analysis and Statistical Software Program

TAKASBANK: Clearing and Settlement Center of Istanbul Stock Exchange

TSPAKB: Association of Capital Market Intermediary Institutions of Turkey

TUSIAD: Turkish Industrialists' and Businessmen's Association

USA: United States of America

1. INTRODUCTION

Agency theory deals with the conflict of interest between principles and agents and whenever managers of the firms have incentives to pursue their own interests agency cost may arise. The problem of aligning the interests of owners and managers in a way to satisfy both sides interest became a crucial debate in finance and economic literature.

Several studies explore how to alleviate the agency problem and reduce agency costs, a number of literature discuss various mechanisms reducing agency costs and how they impact on this costs. The most influential work on agency theory is conveyed by Jensen and Meckling (1976), who initially modeled it into the framework of principal-agent relation. The separation of ownership and control leave shareholders- as owners and principal- in potential conflict with managers- as agents of the principals.

Despite much valuable insights provided by the agency theory, however, only very few studies directly tackle the measurement issue of agency costs. In literature, these agency costs may detract from the operating expenses, excessive perquisite consumptions and asset utilization performance of the firms.

In Turkey, a few studies attempt to directly measure agency costs. Thus, one of the motivations for this paper arises from the lack of measurement of the equity agency cost variable in Turkey within this broad context. Therefore, this paper undertakes one of the direct studies of agency costs in listed Turkish companies.

Agency costs can be in several forms, including excessive perquisite consumption, non-optimal investment decision, work shirking, self-serving behavior on the part of managers focused on status or in corporate fraud situation. The adverse effects of these forms can destruct the financial performance of the firm, the shareholder wealth and wider impacts on other corporate stakeholders. The realization of these adverse implications has stressed the effectiveness of corporate governance mechanisms and control mechanisms related with agency costs.

Corporate governance mechanisms serve to deal with the problems that arise from the separation of ownership and control. Furthermore, empirical evidence supports the effectiveness of corporate governance mechanisms in reducing the agency problem. Besides this, the corporate failures and scandals create an awareness of the importance of corporate governance mechanisms. Governance mechanisms in terms of board size, board composition, the separation of CEO and Chairperson, audit quality and managerial incentives is used to determine the governance mechanisms of the Turkish firms. The focus of corporate governance is turned to the evaluation of the efficiency and effectiveness of corporate governance mechanisms. Agency costs become the key factors to reflect the efficiency and effectiveness of corporate governance.

This study tries to find out the effectiveness of good governance structure in limiting or controlling the level of agency cost within these companies. In addition to identifying factors that are found significant to decrease agency costs, the empirical results of the study may also have implications for the corporate governance evaluation in Turkey.

The purpose of this thesis is to investigate the empirical determinants of agency costs and focus on the role of corporate governance and ownership structure in decreasing agency problems for the Turkish nonfinancial firms.

One of the main objectives of this study is to evaluate the effectiveness of corporate governance mechanisms and besides ownership structure, the other control mechanisms related with agency costs in terms of dividend policy and debt financing in mitigating the costs arises from agency problem. This study not only contributes in revealing the factors that help to reduce the agency cost but also have implications to improve the corporate governance mechanisms process in Turkey. The second objective is to present the empirical evidence of mechanisms to control agency problems among managers and shareholders and the other objective is to determine how governance mechanisms deal with the agency costs.

Turkey is a particularly interesting environment to examine this debate, as the high number of family owned firms, new corporate governance practices and lower

levels of local and foreign institutional investors mainly causes the weakness of monitoring agency cost. Hence, this study also has some recommendations on corporate governance mechanisms that Capital Markets Board (CMB) of Turkey has launched.

This study also extends the current empirical literature in several ways. First, it presents the results of panel data analysis applied with a largest data set which consists of final sample of 213 non-financial listed Turkish firms between the period 2005 and 2011 which accumulates to 1.491 firm-year observations. Second, this panel data set is utilized to respond the research questions and four agency cost proxies are applied as dependent variable to measure the impact of corporate governance mechanisms and agency mitigating variables on these costs.

This study includes three models to test the research hypotheses for each agency cost proxy. First model depicts the impact of governance mechanisms on agency cost proxies. The second model examines the impact of control mechanisms in terms of ownership structure together with institutional investors, dividend policy and debt financing on agency cost proxies. And, the last model further examines how the governance variables and all control mechanisms relate to agency cost proxies whereas all of these models are estimated by panel data regressions with fixed effects.

Finally, further analysis is conducted on the BIST National Industrials and BIST National Services indices in order to see more clear effects of these variables on the all agency cost proxies. The effectiveness of managerial incentives on agency cost levels of the firms is also clearly stated.

The thesis proceeds in the following manner. The second section, right after the introduction part, is dedicated to an extensive presentation of agency theory literature. Firstly the origins of agency theory with a theoretical manner are discussed and once the problems with the agency relationship and the costs of this relationship is established and illustrated, finally, control mechanism related with agency costs in terms of ownership structure, institutional investors, dividend policy and debt financing are also mentioned and explained within this section.

In the third section of the study firstly the evolutionary theories of corporate governance is discussed. Apart from the Agency Theory, Stewardship Theory, Resource Dependency Theory and Stakeholder Theory are stated. Corporate governance mechanisms related with the board composition, CEO-chairperson duality, audit quality and managerial incentives is explained and the role of these mechanisms in reducing the agency problem is discussed. Then, the corporate governance evolution in Turkey is also summarized briefly to highlight the impact of new regulations on corporate governance matter.

Fourth section outlines the empirical research on the impact of corporate governance mechanisms and ownership structure on agency costs. First, the prior empirical literature based on international and Turkish context is demonstrated, and then hypotheses underlying the research question are developed. In the following phase of the fourth section, measurements of agency cost proxies and the other related variables are illustrated. Finally, analytical procedures are presented and empirical design is justified.

The fifth part of this thesis is dedicated to the research findings. Descriptive statistics and correlation coefficients are followed by the presentation of the results of cross sectional regression analyses. In order to find more robust results, panel data regression analyses are applied utilizing with the four agency cost proxies, namely operating expense ratio, Selling, General and Administrative expenditure (SG&A) ratio, General Administrative expenditure (GA) ratio and agency cost in terms of poor asset management as dependent variables.

The results of the multivariate regression analysis relating agency cost proxies to governance mechanisms, ownership structure and the other control mechanisms related with agency costs, taking into account the controlled firm profitability, firm size and firm age is presented. Control variables are incorporated in order to test whether firm profitability, firm size and firm age impacts agency costs.

Further analysis is also conducted on the BIST National Industrials and BIST National Services indices in order to see more clear effects of these variables on the all agency cost proxies. Furthermore, the effectiveness of managerial incentives on agency cost levels of the firms is also clearly stated. This section is finalized with the summary of empirical results.

Finally, a conclusion is made to provide a short recap of the thesis. This section also gives several important findings about Turkish listed non-financial firms' inherent agency cost environment.

2. AGENCY THEORY LITERATURE

2.1. ORIGINS OF AGENCY THEORY

The antecedents of agency notion can be traced back to Adam Smith's seminal book "The Wealth of Nations" (1776) who firstly mentioned about the manager's problem in his pioneering study. Smith (1776) states that, it cannot be expected that the managers to watch other people's money than of their own with the same anxiety. Therefore, negligence and profusion must always be, more or less, in the management of a company. Almost 150 years later than Smith's concern, Berle and Means (1932) first initiated the notion of the separation; firm owners as principals and firm managers as agents. They point out some of the key problems inherent in the separation of ownership and control.

Eisenhardt (1989, p.58) states that the economists first explored the risk sharing among individuals or groups in the late 1960s and early 1970s. During these years, the academicians deal with the issue as a risk-sharing problem which may arise when cooperating parties have several and different attitudes towards risk sharing. In 1973, Ross broadens this risk sharing problem into the economic theory of agency. In his pioneering study, he argues that the agency relationship arises between two (or more) parties. From a social interaction point of view, he states that agency theory is a global, oldest and commonest codified code of decision problems. Furthermore, he gives examples from the daily life and argues that all contractual agreements, such as between employer and employee or the state and the governed, contain crucial elements of agency relationship.

In 1976, Jensen and Meckling's study, which is the classic work on the application of agency theory in finance, developed these concerns and ideas into a more formal context with explicit models on the behavior of the agents. They provide important insights into the impact of agency relations within the firm and form the agency relationship between the *principal*; owner of the firm and the *agent*; manager of

the firm. As both of the parts are utility maximizers, equity agency problems can arise. Additionally, Eisenhardt (1989, p.58) states that “the origins of agency theory is directed at the ubiquitous agency relationship, in which one party (the principal) delegates work to another (the agent), who performs that work.”

The classical papers by Spence and Zeckhauser (1971), Ross (1973), Jensen and Meckling (1976), Fama (1980) formulate the agency theory within economics and finance discipline, and in addition to that Jensen (1983) includes two theoretical framework to agency theory research, namely positive theory of agency and principal-agent theory. Both of those streams share a common unit of analysis; the contracting problem between principal and agent but differ in the methodology been used. While the positive theory of agency is generally non-mathematically and empirically based, the principal-agent theory is generally oriented with the mathematically and non-empirically studies.

Jensen and Meckling (1976, p.5) define agency relationship as a contract between principals and the agents in a narrow term. However, Schanze (1987) argues that this contract and agency may be viewed as separable patterns. In his article, he states that an agency relationship may be based on a contract, but this contract may also contain agency features like relational, expanded and idiosyncratic contracting.

According to Jensen (1983), positivist literature focuses on revealing situations in which the principal and agent are likely to have conflicting goals. Additionally, Eisenhardt (1989, p.59) argues that the governance mechanisms limit the agent’s self-serving behavior. And, this positivist literature has been widely used by the organizational scholars and been modeled in most of the empirical studies between managers and owners. Capital intensity, information costs, capital markets are some of the examples of factors in the contracting environment where the positive agency literature concentrates. Mainly investigated pattern is generally the relationship between boards of directors which are referred as principals and the Chief Executive Officer’s (CEO) as agents of large firms. On the other hand, the principle-agent literature involves careful specification of assumptions followed by mathematical proof and testable implications. At this point, Eisenhardt (1989, p.60) argues that the positive

literature identifies various contract alternatives whereas the principal-agent theory depicts which contractual contract is the most efficient under varying risk perceptions and uncertainty.

Fama's work (1980) also explores how to achieve or arrange effective monitoring in the agency relationship. Fama bases his research on some mathematical models, and explains the separation of security ownership and control as an efficient form of economic organization. He also emphasizes that the owners can take their capital elsewhere for a better return and the managers who maximizes that return in a good manner can be promoted. In 1983, Fama and Jensen (1983) establish a broader view of agency theory and underline the characteristics of residual claims as a very crucial factor both in distinguishing organizations from one another and on controlling the agency problem. For instance, in order to have a better control, the owners need to appoint a board of directors that monitor important decisions.

The focus of the principal-agent theory is on determining the optimal contract between the principal and the agent. Jensen (1983) discusses on three factors affecting the modeling of this optimal contract; the structure of the preferences of the parties to the contracts, the informational structure in the environment, and the presence of uncertainty. He underlines the importance of uncertainty in risk sharing during structuring the optimal contract between principal and agent, and mentions that the general theory of principal-agent relationship is applicable to employer-employee, lawyer-client, buyer-supplier and other agency relationships in general.

The focus of the agency theory in terms of human, organizational and information assumptions are given in Table 2.1 as an overview of agency theory.

Table 2.1.

An Overview of an Agency Theory

Key idea	Principal-agent relationships should reflect efficient organization of information and risk-bearing costs
Unit of analysis	Contract between principal and agent
Human assumptions	Self interest Bounded rationality Risk aversion
Organizational assumptions	Partial goal conflict among participants Efficiency as the effectiveness criterion Information asymmetry between principal and agent
Information assumption	Information as a purchasable commodity
Contracting problems	Agency (moral hazard and adverse selection)
Problem domain	Risk sharing Relationships in which the principal and agent have partly different goals and risk preferences
Eisenhardt (1989, p.59)	

As mentioned in the above; the key idea of the agency theory is to analyze the principal-agent relationships, which should reflect efficient organization of information and a risk-bearing cost. The unit of the analysis is the contract between principal and agent. Additionally, self-interest, bounded rationality and risk aversion are categorized as the human assumptions of the theory. This table also depicts that the contracting problem as the agency (moral hazard and adverse selection) and risk sharing. The problems related with the moral hazard and adverse selection is given in the following parts of the study.

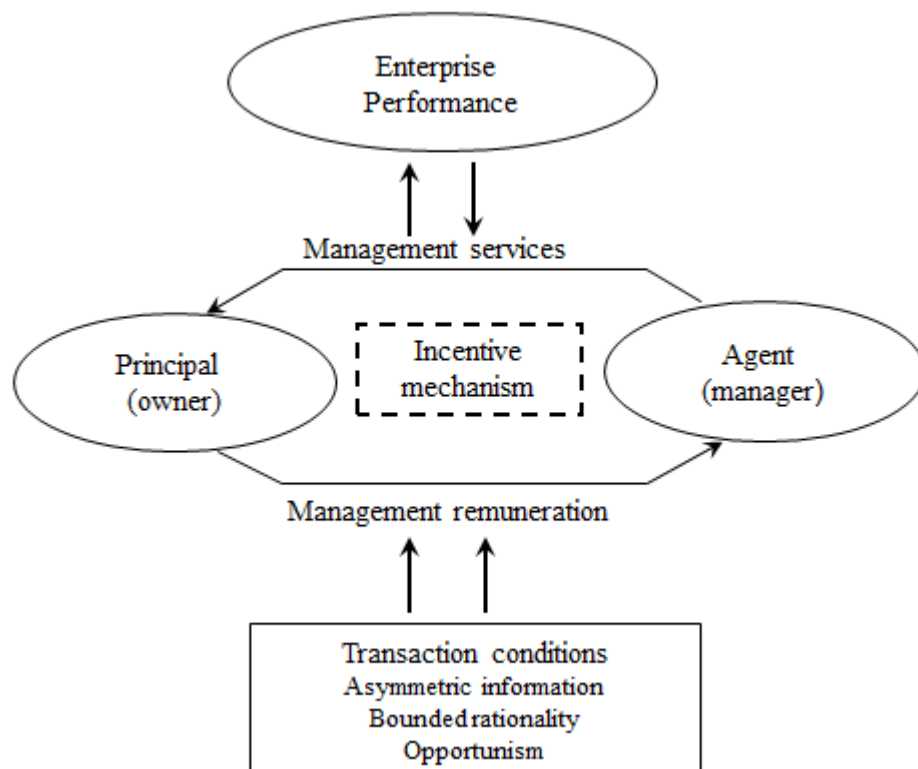
Agency theory has been widely used in several academic disciplines. The early articles are listed as in Economics (Spence and Zeckhauser, 1971); Accounting (Demski and Feltham, 1978); Marketing (Basu et al., 1985); Management (Eisenhardt, 1989) and Finance (Jensen and Meckling 1976, Fama 1980).

2.2. PROBLEMS WITH THE AGENCY RELATIONSHIP

Jensen and Meckling (1976) define agency relationship as a contract between the principal(s) and another person (the agent) to conduct some service on their behalf, and this service contract engages decision making authority to the agent. They also underline that as both parties (the principal(s) and the agent) are utility maximizers, a conflict will arise. Jensen (1986) adds that the cause of this conflict is the misalignment of the interests of the owners and corporate managers –the agents of shareholders- when the ownership and corporate control are separate. He also argues that if the whole-owner of the firm also manages the company, then the owners operating decisions maximizes only maximize his/her utility and no agency cost will emerge until the owner, also manager, sells the equity to the others.

Eisenhardt (1989) claims agency theory is concerned to resolve two problems. The first one arises when the desires/goal of the principal and agent differs and thus they may prefer different actions because of the difference attitudes towards risk. The other problem occurs when it is difficult or expensive for the principal to control and verify the behaviors and actions of the agent. Eisenhardt (1989, p.58) states that “*the origins of agency theory is directed at the ubiquitous agency relationship, in which one party (the principal) delegates work to another (the agent), who performs that work.*” At this point of view, it can be said that agency problems can be applied to most part of the daily life.

The primary focus of agency theory is to work on mechanisms to mitigate the conflicts between principals and the agents, namely agency problems.



Rozeik, H. (2008, p. 25)

Figure 2.1.
The Essence of Agency Problem

From the perspective of agency theory, principal (owner) has to undertake strong monitoring function whereas the agent (manager) is considered to be rational, self-interested and prone to opportunism.

There are three types of agency problems that prior literature has focused on;

- Agency cost of equity: The conflict of interests between shareholders and managers (Jensen and Meckling, 1976).

Jensen and Meckling (1976) state that, when the interest of a company's managers is not aligned with the company's shareholders; agency cost of equity may arise. That separation of ownership and control increases the equity agency costs. Self-motivated behaviors could be superfluous or perquisite expenditure, lower asset utilization, work shirking attitudes or expropriation of the funds by the manager. This

kind of behavior can be controlled through agency mitigating variables; like dividend policy and monitoring mechanisms like institutional investors.

- Agency cost of debt: The conflict of interests between shareholders and debtholders. According to Jensen and Meckling (1976), there are two types of agency cost of debt. First one is the underinvestment problems, the other one is the overinvestment problems.

- Agency cost of shareholders: The conflict of interests between controlling shareholders and outside minority shareholders.

Principal to principal agency theory is based on the conflict of interest between different shareholders (principals) of the firm, and more specifically, between majority and minority shareholders. Shleifer and Vishny (1997) argue that the essence of agency problems is the separation of management and finance.

In recent literature, agency problems have been revisited by Morck (2008) and he defines two types of agency problems as Type I and Type II. He states that Type I agency problem occur *“if an individual acts for herself when social welfare would be higher if she acted as agent.”* He links this classic agency problem from the Jensen and Meckling (1976) point of view. They argue that corporate managers have a duty as agents of shareholders, but they act for themselves.

Morck (2008) defines that the second Type of agency problem occurs *“if an individual acts as an agent when social welfare would be higher if she acted for herself.”* He also mentions about Milgram’s experimental study which is done in early 1960s on that kind of agency problem which are the individuals who ought to think and act for them instead serving as faithful agents.

An agency relationship arises whenever principal hires agent to perform some service. In finance literature, the primary agency relationship is between stockholders and managers; and between stockholders and debt holders.

2.2.1. Stockholders and Managers

A potential agency problem arises whenever a manager owns less than 100 % of the firm's stock and when the owner/manager incorporates the business and then sells some parts of the stocks to outsiders. In most public corporations agency conflicts arise when managers own only a small percentage of the stock.

There are several ways to encourage managers to act in stockholders best interest through a set of incentives, constraints and punishment. These mechanisms can include managerial compensation, direct intervention by shareholders, the threat of firing and the threat of takeover (Brigham and Houston, 2004; Brigham and Daves, 2009, p.11).

i) Managerial compensation plans

Managerial compensation plans are structured for aligning manager's actions with the interests of stockholders. The general structure of these plans can be formed in three parts; a specified annual salary, a cash or stock bonus paid at the end of the year and stock options which reward the executive for long term performance.

Nowadays, several firms use new metrics to measure the managerial performance like Economic Value Added (EVA). EVA is an estimate of a firm's economic profit. Therefore, the higher the corporation's EVA, the more wealth the firm is creating for its shareholders.

ii) Direct intervention by shareholders

The majority of the firm's stocks are owned by institutional investors like insurance companies, pension funds, mutual funds, private funds and hedge funds. They have considerable power on firm's management as well. Institutional investors would like to see a more independent board members rather than the inside directors.

iii) The threat of firing

One of the mechanism for motivating management is the threat of firing. As long as owners can fire managers, managers can be encouraged to act in line with the owners' interest.

iv) The threat of takeovers

Specifically hostile takeovers are likely to occur when a firm's stock is undervalued to its potential because of the management's weakness.

Shirking, underinvestment, asset substitution, value dilution and dividend payout problems are the agency problems arising from the managers (Sappideen, 1991). Shirking is the inadequate effort of the firm management. In this type of problem, managers can save information for them and tend not to share it with those of stockholders. Underinvestment is a form of shirking. Managers may be tempted to reject projects which have a positive net present value. Asset substitution problems occur where loans are obtained at fixed rates of interest since interest rates reflect the risk of default. Managers can prefer the low return and trustable projects for decreasing risk. Diluting creditor's claims involves taking further credit on terms where the new debt is in line with the original debt for the stock. Managers obtain additional debt finance with higher seniority and exposes debt holder to higher default risk. In the occurrence of the dividend payout problem, shareholders withdraw funds via dividend payouts. Lambert (2001, p.5) also argue that agency theory evaluates the impact of the conflict of the interest between principals and agents because of the shirking, private consumption, differential time horizon and differential risk aversion of the agent and the principal.

There are also have mechanisms designed to provide power to stockholder. These are the annual meetings and the board of directors (Damodaran, 2001, p.16). In the annual meetings of corporations, stockholders can learn the management activities and they can voice their displeasure in case they find the poor management activities or inappropriate behaviors. This mechanism can be diluted in some ways according to being a minority and majority shareholder. Another mechanism which may assure

power to stockholders is the board of directors. Board composition and board characteristics play an important role to ensure that managers are looking out for stockholder interests. Damadoran (2001, p.19) argue that the managers cannot maximize stockholder wealth in the absence of both of these two mechanisms especially when their interests conflict with those of stockholders.

2.2.2. Stockholders and Debtholders

In addition to conflicts between stockholders and managers, there can also be conflict between stockholders and debtholders / creditors. Debtholders have a claim on the firm's earnings management in the event of bankruptcy. Additionally, the stockholders have control through the managers of decisions that affect the firm's risk level. Creditors would like to lend funds at considerable rates based on the corporation's perceived risk. They would like to aware of the riskiness of the firm's existing assets, the capital structure of the firm and the future cash flow changes. As agents of both shareholders and debtholders, managers have to act in a balanced manner between the interests of the two stakeholders (Brigham and Houston, 2004, p.14).

The most direct way for bondholders to protect themselves is writing bond covenants. These covenants may include restricting the firm's investment policy, dividend policy and debt level. They can be effective in protecting debtholders against poor management activities (Damadoran, 2001, p.34).

There is also a three-way agency conflict between stockholders, managers and creditors when firms in bankruptcy conditions (Brigham and Daves, 2009, p. 869). When a firm is in a financial distress, the firm's managers, stockholders and debtholders try to solve the problems that endanger the firm's life.

Shapiro (2005) argues that agency relationships are all around us and agency problems exist in firm management, in unions, in cooperatives and in universities. The realization of this adverse implications flowing from the agency problems have led the academicians how to mitigate this problems.

Current agency cost theory initiated by Jensen and Meckling (1976) focuses primarily on agency relationship is between stockholders and managers and stockholders and debtholders; agency cost of stakeholders such as shareholders, managers, creditors, and employees is considerably a hard topic to study. As the interests of these stakeholders are not aligned with the interests of shareholders, agency problem can arise as well.

In the following, the agency costs related to agency relationships is given.

2.3. COST OF THE AGENCY RELATIONSHIP

Agency theory roots back to the economic theory and therefore agency costs are explained in terms of basic assumptions in literature accordingly. At this point, Eisenhardt (1979) argues that the agency problems arise when the principal and the agent have different goals; and when the principal cannot determine if the agent has behaved appropriately.

For the agency problem arising between a principal and an agent there need to be a conflict of interest and asymmetric information. In literature, asymmetric distribution of the information is highlighted as the most important problem between managers and owners which also lead to moral hazard and adverse selection problems.

The situation of asymmetric information may arise when the manager is better informed about the operation of the company than the shareholders and the board of directors.

The theory on the agency costs is first presented by Jensen and Meckling (1976). They argue that when the principal cannot acquire information on the agent's performance without a cost and these monitoring costs cannot fully contain adequate information according to moral hazard. Eisenhardt (1979, p.61) depicts this situation into a clearer manner. He states that moral hazard occurs when a research scientist works on a personal research project in office hours, but this project is too complicated that corporate management cannot detect what the research scientists is actually doing. Ramakrishnan and Thakor (1982, p. 503) argue that since the owners employ managers

to manage their assets productively, moral hazard can be expected to be pervasive. They develop a basic model with mathematical equations and explicating graphically for valuing assets in the presence of moral hazard. They estimate theoretical models for agency, and in the conclusion part of the study they give the proof of these theories.

The second assumption is the adverse selection problem, in the case when the principal is not able to evaluate the agent's abilities, and the agent might very well aware of his own abilities. Eisenhardt (1979, p.61) also depicts this situation by giving the same scientist's example. When this scientist claims to have experience in a scientific specialty and the employer cannot judge whether this is the case, adverse selection occurs.

The classic principal-agent problem related to the ownership of the company is the simple owner-manager problem. It deals with the problems of the different interests of managers and owners. These circumstances leave shareholders; as owners and principals in potential conflict with managers; as agents.

Under agency theory, the principles potentially have three problems. First; the principles can be removed from the decisions which are undertaken by the agents on behalf of them. Second; the knowledge of what is being done by the agents cannot be received without a cost. And the last one the view of risk dimensions of both parties can be different. These issues are the central problems of agency theory.

Jensen and Meckling (1976) define the costs caused by the divergence of interests between owners and managers as agency cost consisting of the monitoring expenditures by the principal, the bonding expenditures by the agent and the residual loss, which are the costs incurred after monitoring and bonding. And, they both acknowledge that it is too costly to try to align the interests of shareholders and management.

2.3.1. The Monitoring Costs

Monitoring costs are expenditures paid by shareholders to measure, observe and control management's behavior. Alchian and Demsetz (1972) make the first attempt

to underline the monitoring costs of agency relationship. They argue that for reducing risk, someone can be specialized as a monitor to check the performance of team members. They also emphasize this monitoring situation exists in team production. By its definition the aim is to measure, observe and control the agent's behavior and therefore to solve the moral hazard problems accordingly.

Jensen and Meckling (1976) argue that the problem of agency and monitoring costs not only exists with employees but also exists with the suppliers, creditors and the other conflict groups of interest in connection with the firms. For instance, creditor may incur monitoring costs to measure, observe and control operating efficiency in order to protect their investment in the firm. Therefore, the principal ought to establish appropriate monitoring of the agent. They argue that these costs are paid by shareholders, however Fama and Jensen (1983) state that these costs will ultimately be borne by management as managerial compensation to be adjusted to cover these costs.

Easterbrook (1984, p.653) argue that shareholders will be wealthier if there are some person who monitor managers on behalf of shareholders. They also state that new investors are very good monitors of managers. While the existing investors can influence the manager's behavior only by voting mechanism, new investors examine manager's behavior before investing the stock. At this point, they argue that the role of dividend mechanism aligns manager's interest with the other stakeholders and can be an effective monitoring mechanism. Additionally, Ang et al. (2000) argue that large blockholders of the firm generally fulfill a monitoring role due to their large influence and risk in the firm.

McColgan (2001) states that monitoring costs can be the costs of audits, writing manager compensation contracts and ultimately the cost of firing managers. These are the potential monitoring activities to reduce agency costs. Another example is the implicit cost incurred when shareholders limit the decision making power of the managers. By this way, the owners may miss more profitable investment opportunities and direct to non-useful investments and finally the foregone profit can be a monitoring costs (Fabozzi and Drake, 2009, p.298). Principal's monitoring cost arises from activities designed to limit the agents' on harmful actions.

Monitoring costs are costs by the principal to monitor or limit the actions of the agent. Fabozzi and Drake (2009, p.298) also argue that at least part of the cost of having directors on the board is a monitoring costs. The board of directors ensures that managerial decisions align with the best interests of the shareholders.

2.3.2. The Bonding Costs

These costs result from the agents' actions to assure the principals that they will act in the principal's best interest. In other words, bonding costs for the agent is the costs due to the efforts to establish good relations with the principal. Jensen and Meckling (1976) argue that the cost of establishing and adhering to these systems are known as bonding expenditures and add these costs include costs associated with providing assurance to outside owners. McColgan (2001) mentions that, these kinds of costs are borne by the agent but they may not be financial and they may include the cost of additional information disclosures to shareholders as well.

2.3.3. The Residual Loss

Despite the optimal monitoring costs and bonding expenditures, the interest of managers and shareholders are still unlikely to be totally aligned. Ultimately, there are still agency losses arising from conflicts of interest. The resulting costs are identified as residual loss. Jensen and Meckling (1976) define residual loss as the difference between the values to the firm if the managers act in the best interest of the firm. These costs are the implicit cost as two sides of interest cannot be perfectly aligned even when monitoring and bonding costs are incurred.

Therefore, in a theoretical framework, equity agency costs including monitoring costs borne by the principal, bonding costs for the agent and residual losses. The sum of the principal's monitoring expenses, the agent's bonding expenses and the remaining residual loss are covered the agency costs. Laiho (2011) argues that, the empirical literature mostly refer to the residual loss of the agency costs.

In this study, the starting point for investigating of agency costs is a firm, whose equity is wholly-owned. Agency costs arise in the firm when the manager sells

his/her equity to the others, and thus own less than 100% of the firm. As Jensen and Meckling (1976) argue that these agency costs are a natural consequence of the utility maximization by self-interested manager.

Ross et al. (2010) states agency costs can be indirect and direct. Making non-optimal investment decision which may lose a valuable opportunity for the stockholders can be an indirect agency costs. Direct agency costs can be in two forms. For instance, purchasing a luxury an unneeded corporate jet is a corporate expenditure that benefits management but costs the stockholders. The second direct agency cost is the expense that arises from the need of monitoring management actions. Auditing costs can also be an example of the direct agency costs.

Agency costs can be formed under these circumstances; including excessive perquisite consumption, superfluous expenditure, making non-optimal investment decision, work shirking, self-serving behavior on the part of managers focused on status or in corporate fraud situation. The adverse implications of these attributes can then cause negative effects of firm's financial performance, firm value destruction and wider effects on the overall stakeholders of the firms; like creditors, employees, suppliers and social environment. The proxies for these forms are highlighted in the related sections of the study.

Conflicts of interest between managers and shareholders, or outside investors, such as minority shareholders and majority shareholders are major priorities in the analysis of modern corporations. In order to mitigate these kinds of problems, a sound and effective corporate governance mechanism is required for corporations.

Several researches depict that agency costs are determinants of corporate finance decisions just like dividend policy (Crutchley and Hansen 1989; Jensen 1992), capital structure (Jensen 1992; Jensen and Meckling 1976; Ang et al. 2000) and other accounting policies. The effects of these corporate finance decisions on agency costs will be defined in the following part of this study.

2.4. CONTROL MECHANISMS RELATED WITH AGENCY COSTS

Agency costs can arise within a firm whenever managers have incentives to pursue their own interests. Several studies explore how to alleviate the agency problem and reduce agency costs. A number of literatures discuss various agency costs reducing mechanisms and their impact on these costs. An early research, including Jensen et al. 1992 depicts that internal equity, leverage and dividend payment can mitigate the agency costs. Agrawal and Knoeber, 1996; Crutchley et al. 1999 obtain similar results as well. They study the interdependence and simultaneity of these mechanisms in terms of ownership structure, institutional investors, debt financing and dividend yield. In the fourth section of this study, empirical evidences in relation with these mechanisms are provided in a broader sense.

There are also considerable body of literature indicates that managerial stock ownership helps in aligning managerial interests with those of the external stockholders. Monitoring devices such as institutional investors, debtholders and dividend payout are also considered to be important mechanisms for controlling managerial behavior and alleviating the agency problems in the firm. The mitigation mechanisms of agency costs in terms of ownership structure, institutional investors, debt financing and dividend yield will be discussed in the following part.

2.4.1. Ownership Structure

The corporations' ownership structures affect the nature of the agency problems between managers and outside shareholders, and among shareholders. Jensen and Meckling (1976) state that, with the prospect of agency theory; as the manager's ownership structure increases, a convergence of interests between shareholders and managers occurs. They state three hypotheses. First hypothesis is the agency costs will be lower the higher the managerial ownership. Second one is the agency costs will be higher at both low and high levels of managerial ownership, and the third one is the agency costs will be lower at higher levels of institutional ownership. As the firm's ownership structure changes and ownership is divided from management control, incentive alignment problems become more crucial. Jensen and Meckling (1976) also

argue that if a 100% owner-manager (wholly-owned) firm is managed by the owner, zero agency cost occurs. And, they state that, agency cost occurs when the owner-manager sells his/her equity on the firm and a divergence between the owner's interest and the other outside shareholders becomes identical. Thus, this conflict worsens as the percentage of the firm's stock owned by the manager decreases whereas the larger managerial ownership help to lower expected agency costs. However, in the real world, full ownership of listed firms is not feasible. Therefore, a negative relationship between the share of managerial ownership and the agency cost measures can be expected. Demsetz and Lehn (1985, p.1160) first argue that ownership concentration varies systematically in consistent with the firm value maximization and managerial ownership becomes a critical mechanism for aligning manager's incentives with those of shareholders.

Ownership structure is an important mechanism for reducing agency costs when it is served to align manager's interests with the firm's shareholders. Theoretically, shareholders could play an active role in monitoring managers. Their shares of the equity stakes can be prioritized the effectiveness of this monitoring mechanism. While the shareholder with low associates of ownership has little or no effect on monitoring, in general the greatest associates have more power on this monitoring mechanism (Shleifer and Vishny, 1986; Shleifer and Vishny, 1997). Higher equity ownership may provide managers with greater freedom to satisfy their needs. According to Denis and McConnell (2003), this situation evolves to a trade-off between the alignment and entrenchment effect. Theoretically, shareholders could take themselves an active role in monitoring firm management. A more concentrated ownership, generally in the form of large ownerships, can create more effective monitoring (Jensen and Meckling 1976; Shleifer and Vishny 1986; La Porta et al. 1998). La Porta et al. (1998) argue that in their pioneering article named "Law and Finance", that there are costs for concentrated ownership as well, which is the potential agency conflicts between large and minority shareholders. Laiho (2011) argues that large shareholders can be successful in these monitoring by two ways. First, as reaping enough benefits of the information until exceeding the cost of obtaining the minimal information and second as by having the larger share of the votes right. While large

shareholders have power to enhance this, small shareholders on the other hand have trouble in dealing with these problems. Gomes and Novaes (2001, p.1) also state that the presence of multiple controlling shareholders will lead to bargaining problems and thus minority shareholders will be protected. On the contrary, these bargaining problems can also prevent efficient decisions because large shareholders can generally either directly or indirectly involved in these decisions. For instance, Agrawal and Knoeber (1996) argue that monitoring by the firm's large shareholders may also create its own agency problem and ask a question who monitors the monitors. This can be resulted in an agency problem similar to the one between managers and owners as the large shareholders may also harm the firm by causing conflicts between large and minority shareholders. As a result, large shareholders may also harm the firm by causing conflicts between large and minority shareholders. In most countries, publicly listed firms generally have large controlling shareholders (La Porta et al. 1999). Gomes and Novaes (2001) also state that the presence of optimal ownership structure which protects the minority shareholders and makes the owners to make efficient decisions.

Jensen and Meckling (1976) argue that when ownership structure is diffused as been observed in the US and UK firms, agency problems stem from the conflicts of interests between the largest outsider shareholders and the managers who own a small stock ownership. However, in those countries like Turkey, where the ownership structure is concentrated, the agency problem shifts away from manager and shareholder conflict. At this point, Claessens and Yurtoglu (2012, p.9) argue that the principal-agent problems in several countries is less management versus owner and more minority shareholders versus controlling shareholders basis.

2.4.2. Institutional Investors

Institutional investors are becoming increasingly significant in global finance generally in terms of their contribution in deeper and better functioning capital markets. Institutional investors ensure an effective board monitoring and managerial decision making. External monitoring by institutional investors can be seen as an effective agency-mitigating mechanism. They also have an important function in providing incentives to managers and by this way the agency problems between managers and

shareholders are alleviated. The increased activism of institutional investors may help to reduce these conflicts. Shleifer and Vishny (1986) suggest that institutional investors serve as an alternative mechanism to control the overinvestment problem. Since they have greater expertise in gathering and interpreting information on firms, they can also function as an agency mitigating variable.

Bathala et al. (1994) argue that institutional investors have pressure for making the boards more independent and also suggest specific board members. They state that it is the institutional investors who are monitoring the agents.

Several academicians' display that this effective monitoring or actual activism may provide the alignment of shareholder and managerial interest and may result with the minimization of agency costs (La Porta et. al. 1998; Crutchley et al. 1999; Henry 2006; McKnight and Weir 2009). Chen et al. (2012) state that institutional shareholders are better and more active monitors of managerial behavior than individual investors.

In emerging markets, like Turkey, ownership by institutional investors especially domestic institutional investors' level is very low in general. They have little direct influence through voting accordingly. In Turkish capital markets, the magnitude of institutional investors is also very limited. Limited exposure of the institutional investors to equity and corporate debt markets are the main causes of the relatively underdeveloped nature of the Turkish capital markets.

2.4.3. Dividend Policy

The other agency reduction mechanisms that have been suggested in prior literature are dividend policy of the corporations. Dividend policy has been one of the main debates in the academic literature. The pioneering study is initiated on dividend policy in 1961 by Modigliani and Miller. They propose that dividend policy is irrelevant under some of the assumptions. These assumptions are including any personal or corporate taxes, any stock floatation or transaction costs, and besides, financial leverage has no effect on the cost of capital since there is asymmetric information between managers and investors. They argue that under these assumptions firm's capital budgeting policy is independent of its dividend policy. However, dividends are taxable

for investors. It is also noted that when firm management announce dividend policy, conflict of interest may arise.

As Jensen and Meckling (1976) argue that managers may be reluctant to pay dividends as they prefer to divert those dividends into activities that would be beneficial for them. At this point, dividends lower the level of available liquidity which causes the potential default risk of firms. Furthermore, dividends also help to reduce the free cash flow problem as well.

Firm's fund requirements for investment purposes are closely related with the dividend policy of the firms. The managers of the firms establish lower dividend payout ratios when they prefer to make investments instead of paying dividends. However, managers may allocate these funds to the unsuitable investments. At this point, a conflict arises between managers and shareholders.

Early studies belong to Rozeff (1982) and Easterbrook (1984) introduce the idea that dividends decrease agency costs by forcing management to focus into the equity. They argue that higher dividend payment reduces agency conflicts between managers and shareholders. As a result, dividend paying induces managers to act more in line with the shareholders' interests.

Dividends decrease agency costs by forcing management into the equity. Several academicians point out a negative relationship between dividend yield and agency costs (Easterbrook 1984; Crutchley and Hansen 1989; Jensen 1992; Moh'd 1995; La Porta et al. 1998; Ertuğrul 2005; Henry 2006).

2.4.4. Debt Financing

Agency theory becomes more complicated when the conflict between equity holders and debtholders reveal. The traditional theory of corporate finance acknowledges that firm's debt financing policy affects its' market value. Modigliani and Miller (1958) offer three propositions where the combination of debt and equity does not affect the value of the firm. First proposition is the value of firm is independent of its leverage, the second one is the cost of capital is a linear function of the firm's

leverage and the last one is the dividend policy of the firm has no bearing effect on the firm's value. Therefore it can be seen that agency costs causes the Modigliani-Miller theorem to break down as the restraining propositions. Debtholders are significant stakeholders who provide alternative monitoring of management. The use of debt relies on the monitoring of capital markets and improves performance by inducing monitoring by suppliers. Using more debt reduces total equity financing and also reduces the manager-shareholder conflict.

On the other hand, debt financing may enhance the conflict of interest between shareholders and creditors as well. Jensen (1986) states that owners increase debt to align the conflicts of interest between owners and managers. He argues that debt forces the firm to commit cash payments to service debt level regularly. Firm leverage is an another essential influence on agency costs according to Jensen (1992); Jensen and Meckling (1976); Ang et al. (2000); Ertuğrul (2005); Henry (2006); Truong (2006); Chen and Yur-Austin (2007); McKnight and Weir (2009). They state that equity agency costs can be limited by leverage.

In their early study of Jensen and Meckling (1976), they argue that higher debt level increases the moral hazard of the manager and therefore cost of taking extra risk increases the agency costs. Furthermore Jensen (1986) state that debt level also decreases the amount of free cash flow in managers' control, and the company becomes obliged to reenter the debt market to raise new capital. The total debt to total assets ratio is employed to characterize the leverage position of the corporation. This variable also serves as an external governance mechanism and reflects the extent of creditors' incentives. Firms with a higher debt lead managers to perform non-value maximizing activities.

Leverage is a potential substitute mechanism in decreasing agency costs which means the agency costs will be lower when the indebtedness of the firm gets bigger. Furthermore, greater financial leverage may affect managers' decisions and reduce agency costs (Harris and Raviv, 1991).

These agency mitigating mechanisms affect the agency costs of the corporations in different levels. The corporations may choose several control mechanisms to prevent the agency costs which may differ in terms of industries, size of the firm and age of the firm.

The main idea is that such mechanisms can form the shape of the corporate governance and agency costs in a given form. Although this section is not directly linked to the empirical model, it serves to point out the different aspects of agency problems.

As agency costs are hypothesized to be a function of leverage, dividends, managerial ownership and institutional ownership, variety of studies also been conducted to test whether the choice of these variables affect the agency problem. Several academicians investigate the simultaneity of this agency mitigating variables (Crutchley and Hansen 1989; Jensen et al. 1992; Crutchley et al. 1999) and find significant empirical results. In all of these studies, a model has been initiated that the insider ownership, institutional ownership, leverage and dividends to be determined simultaneously.

One of the early studies conducted by Crutchley and Hansen (1989) state that ownership, leverage and dividends are chosen simultaneously by managers to control agency costs and they utilize only industrial firms incorporating between the years 1981 to 1985. Jensen et al. (1992) test the leverage, dividends and insider ownership in a simultaneous system. They utilize the cross sectional firm data within a system of equations between 1982 and 1987 and they find that except insider ownership, leverage and dividends act as a mitigating mechanism to decrease agency cost. Furthermore, they state that high insider ownership firms choose lower levels of debt and dividends.

Crutchley and Hansen's (1989) study is extended by Crutchley et al. (1999) in an agency cost framework. They state that institutional ownership is determined simultaneously with leverage, dividend payout and insider ownership whereas the leverage, dividend payout, insider ownership and institutional ownership as dependent variables. They utilize the independent variables in terms of earnings volatility,

discretionary investment and firm floatation costs which reflect the costs and benefits of these four dependent variables. They utilize a three-stage least squares regression tests on the US industrial firms between 1987 and 1993.

Bathala et al. (1994) investigate the managerial ownership, debt policy and the institutional investors from an agency perspective. Like the other studies, they utilize a simultaneous system of equations estimation for the firms listed on NYSE in 1988. They find that institutional ownership of the firm is negatively related to the level of debt financing and management ownership. From this simultaneous equation, the result of this study reveals that the institutional investors help in reducing agency costs.

This part is dedicated to comment on a number of mechanisms that may limit the agency problems. None of these, or other, can stand alone, but are to be pooled and work as complementary tools to limit agency costs. In the related section of the study, which of these mechanisms can limit the agency problems will be discussed in an empirical manner.

3. CORPORATE GOVERNANCE

Corporate Governance first emerged in 1990s and has rapidly become a management philosophy accepted among business world and governments. The past thirty years have witnessed an ongoing research on corporate governance. After the corporate scandals such as Enron and Worldcom in USA, Parmalat in Italy, Ahold in Netherlands and the recent USA subprime mortgage crisis, there have seen significant changes in the regulations and the relationships between management, boards and stakeholders globally. One of the reasons behind these essential corporate scandals is the insufficiency of corporate governance policies of public and private sector, which strongly underlines the importance of corporate governance concept. Therefore, these corporate scandals drive attention to the good governance as a mechanism to increase transparency, fairness, accountability and responsibility of corporations.

The international principles on corporate governance emerged in 1999. Organization of Economic Co-operation and Development (OECD) issued the “OECD Principles of Corporate Governance” to evaluate and improve the legal and regulatory framework for countries (OECD, 1999). In the light of the new regulations and practices, OECD revised the scope of corporate governance in 2004.

Narrowly defined corporate governance mainly involves in the relationship between managers, board of directors and shareholders and also stakeholders and the business environment. More broadly defined, *“Corporate governance involves a set of relationships between a company’s management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined”* (OECD, 2004, p.11).

Shleifer and Vishny (1997, p. 737) state that *“Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment”*. From this point of view, it can be concluded that good governance is essential for good corporate performance. Some of the primary benefits of good governance are long-run viability, more efficient resource allocation, more or

higher credibility, new market enhancement and the awareness of the needs of all stakeholders (Aras and Crowther, 2008).

The concepts and principles of corporate governance originated mainly from developed countries and expanded to developing countries through the forces of globalization. After publication of these guidelines and standards, almost every country started to issue their own governance codes. The concept of corporate governance has become inevitable for today's financial markets, as being frequently referred to and discussed in both literature and practice.

Economic conditions of the country, development level of the capital markets and firm specific practices are the principal determiners of a corporate governance environment in a country. Financial position, banking system and the regulations on the rights are the main indicators for the economic conditions of the country. Furthermore, the level of the capital markets depends on the regulations, the liquidity potential of the market, the qualified investor level and the application of the international accounting standards. Finally, firm specific practices are the disclosures of the information, board of director's practices, the independence of boards, free float rates and the level of social responsibility. In the following part of this section, these practices and mechanisms will be discussed in detail.

3.1. THE EVOLUTIONARY THEORIES OF CORPORATE GOVERNANCE

Some of the theories which have been associated with or contributed to the development of corporate governance are explained below. Apart from the Agency Theory, these theories are Stewardship Theory, Resource Dependency Theory and Stakeholder Theory.

3.1.1. Stewardship Theory

Stewardship Theory is perceived as both alternative and a complementary theory to Agency Theory (Muth and Donaldson, 1998). Donaldson and Davis (1991) propose this theory which has its roots in physiology and sociology in order to critic the

agency theory origins. In contrast to agency theory, stewardship theory does not suggest any conflict of interest between managers and owners. The governance of the firm finds the mechanisms that utilize the most effective alignment between these two sides. While the basic units of analysis of both theories are agents and principals, the behavioral assumptions differ. In general, stewardship theory assumes that managers are not motivated by individual goals; but rather they are stewards whose motives are consistent with objectives of the principals.

Stewardship theorists also assume that the interests of owners and managers are aligned (Donaldson and Davis 1991; Muth and Donaldson, 1998; Davis et al. 1997). They argue that executives serve not only their own interests but also their shareholder's interests as well. Davis et al. (1997, p.22) define this theory as a "*governance model in which the motivations of the manager are based upon pro-organizational rather than self-interest behavior.*" Additionally, they argue that even if those interests of the steward and the principal are not aligned, the steward's behavior does not depart from the interests of the organization.

The academicians dealing with stewardship theory investigate the structure that motivates and empowers executives rather than monitoring and controlling. In the empirical literature agency costs can be observed in the firm management, however stewardship theory suffers from the empirical testing. Westphal (1999) argues that in contrary of monitoring function based on agency theory perspective, directors of the firms are selected to the board for their expertise and experience. From this point of view, stewardship theorists state that presence of high insider directors on the board are selected for their expertise and experience thus they are expected to contribute firm performance more than independent directors (Donaldson and Davis, 1991). Kiel and Nicholson (2003) support this view and they state that corporate performance is linked with the presence of majority percentage of inside directors. Inside directors ensure more effective decision making and finally maximize the shareholder's wealth.

Donaldson and Davis (1991, p.52) argue that CEO performance is best utilized when CEO chairs the board of directors. Therefore, as agency theorists view that shareholder interests require protection by separation of the roles of board chair and

CEO; stewardship theorists suggest that firms perform better when CEO chairs the board of directors. Additionally, CEO duality can enhance agency costs because of the inadequate monitoring from the agency theory perspective, however splitting the titles of CEO and chair of the board for the firm may not improve firm performance and consequently may not reduce agency costs from the stewardship theory perspective.

3.1.2. Resource Dependency Theory

Resource Dependency Theory has its roots in sociology and organizational theory. Elkin (2007, p.20) argue that the basis of this theory starts from the beginning of the resource demand of an organization such as financial and human capital to operate. Therefore, organizations are dependent on specific resources for survival. Finally, organizations are dependent on persons who control these resources. In this theory, boards can be used as a mechanism to form links with the external environment.

These theorists argue alternative implications for the board composition in addition to the agency and stewardship theories. Davis and Cobb (2009, p.5) state three core ideas of this theory. One of them is the social context matters. The other one organizations need to develop strategies to enhance their autonomy and the last one is power is important for the internal and external actions of the organizations. The theorists view outside directors as strategical tools for managing the organization's environmental relationships. While agency theorists support the majority of outside directors as an effective monitoring mechanism on the board, these theorists argues that the majority of outsider directors are important for bringing critical resources to the company. Therefore, they argue the similar claims on the optimal board composition like the agency theorists but for different needs.

Stearns and Mizruchi (1993) argue that the majority of outsider directors can provide access to valued resources. And they also view that the outsider directors of the financial institutions may borrow favorable lines of credit.

3.1.3. Stakeholder Theory

Stakeholder Theory is primarily used to understand and inform the management of an organization's stakeholders. Mitchell et al. (1997, p.855) argue that persons, groups, neighborhoods, organizations, institutions, societies, and even the natural environment are generally thought to qualify as actual or potential stakeholders. They state that stakeholder theory deals with the groups that have stakes in an organization and of those of groups which are addressed by this organization. Therefore, managing a firm is not only in the interests of its stockholders but also in the interests of all its stakeholders.

Parallel with the Resource Dependence Theory, but not only for outsiders, all stakeholder levels of power and legitimacy determine the organization's future. The theorists argue that all stakeholders provide essential inputs to be achieved. Elkin (2007, p.22) argue that organizations consist of different stakeholders competing for limited resources. Some of them may lack the managerial knowledge and long term experience to make strategic decisions. Therefore, the manager of these stakeholders is considerably important.

3.2. CORPORATE GOVERNANCE MECHANISMS

Corporate governance mechanisms have remarkably significant effects on solving the agency conflict. In reality, there are many internal and external factors that shape the corporate governance. These are called as the corporate governance mechanisms and they can first be categorized into two groups as external and internal mechanisms. Denis and McConnell (2003, p.4) argue that the primary external mechanisms are classified as the external market for corporate control, namely the takeover market and the legal/regulatory system. External mechanisms are market related whereas internal mechanisms are firm related. They state that as there are several listed companies on the stock exchange and the ownership is dispersed among several investors, then the market generally plays an active role as an external corporate governance mechanism. As the market for corporate control in the US has been very active in US, therefore the takeover market has become an important governance

mechanism in that country. On the other hand, as Turkish stock markets have more concentrated ownership structures with limited floatation ratios, corporate control does not adequately act as an external corporate governance mechanism in Turkish market.

La Porta et al. (1998) argue that the regulatory system is a fundamentally important corporate governance mechanism. They emphasize the importance of law and legal enforcement on the governance of the firms. They state that the investor rights protect level and the legal regulations are the most principle determinants of the corporate governance environment of the countries. Furthermore, they also claim that the commercial law comes from common law and civil law. Additionally, common law countries investors are better protected by the regulations than the civil law countries. Turkey's legal system is based on French civil-law.

Denis and McConnell (2003, p.4) argue that the primary internal mechanisms of corporate governance is the board of directors and the equity ownership structure of the firm. A company's board of directors functions as the highest important internal corporate governance mechanism (Jensen, 1993). The adoption of effective corporate governance practices is another agency mitigating variables that is suggested in literature (Henry 2006; Henry 2010).

Empirical evidence supports the effectiveness of corporate governance mechanisms in reducing the agency problem. And besides, the corporate failures and scandals create an awareness of the importance of corporate governance mechanisms. These mechanisms are the board composition, the duality of CEO and chairperson, audit quality and managerial incentives. In the following, this mechanism that is listed in literature to contribute to the limitation of agency costs is described. In this part of the study, these mechanisms are described in connection with the Turkish context.

3.2.1. Board Composition

Agency theorists argue that the board of directors is in place to monitor and interpret the decisions of top managers and to align these decisions on behalf of shareholders. As being one of the mechanisms of corporate governance, the

effectiveness of the board of directors depends on the number of directors, namely board size and composition on the board.

Board composition refers to the percentage of numbers of inside managers and independent directors serving on the board. Denis and McConnell (2003) argue that one of the primary internal corporate governance mechanisms is the board of directors. Board of directors is responsible to oversee the conduct of the firm's business and to act in the best interests of the company and shareholders. They are an important part of the corporate structure and a connection between owners and management and the other stakeholders.

According to the agency theory perspective, board of directors appointed by shareholders oversees top management to be sure they are not acting selfishly (McKnight and Weir, 2009). Additionally, regardless of the nature of the agency problem, the main duty of the board of directors is controlling.

Board of directors has various responsibilities and serves as an internal corporate governance function to ensure maximum shareholder wealth and to audit the management. The characteristics of the board ensure efficient and effective board deliberations. Board of directors also help to solve agency problems inherent in any organization (Hermalin and Weisbach 2000; Truong 2006; Henry 2006).

Fama and Jensen (1983, p.7) argue that for controlling the agency problem, the owners need to board of directors to monitor the organization's most important decisions. The composition of the board of directors is an important factor for establishing the effectiveness of the board. They have the power to hire, fire and set the compensation of crucial decision making. Jensen (1993, p.850) states that board of directors are the internal control devices of the firm.

The cornerstone of the corporate governance mechanisms is the board composition. Denis and McConnell (2003) argue that board composition characteristics of interest include the size and structure of the board in terms of the number of directors that comprise the board, the fraction of these directors that are outsiders, and whether the CEO and chairperson positions are held by the same individual.

Board composition refers to the percentages of directors in terms of female and male; local and foreign and independent directors. Board characteristics affect the effectiveness of the board of director's role in monitoring and guiding. Empirical research provides mixed evidence of the relation between board composition and agency costs. Some of them argue that firms with relatively smaller size are associated with higher agency costs than those of larger size (Lasfer 2002; Truong 2006; Henry 2006).

Academic literature argues that boards should consist of a balance of executive and non-executive directors. Corporate governance codes commonly recommend a high level of board independence (Bhagat and Black 2002; Henry 2006, Ararat et al. 2010). Fama (1980) argue that outside directors are thought to be vital in ensuring effective governance as they have more independence in nature.

Board independence has been dominated prior researches on the agency problem in corporate control. In addition to the board of director's monitoring role, independent directors are also expected to reduce managerial influence (Muth and Donaldson, 1998; Daily and Dalton, 1993; Westphal, 1999, Henry 2006; Bonazzi and Islam, 2007). Hijazi and Conover (2011, p.227) argue that board with a significant portion of independent directors can limit the exercise of managerial discretion by exploiting their monitoring ability.

Moreover, Gordon (2007, p.1477) investigate the rise of independent directors in the US between 1950 and 2005 and he classifies the mechanism of these directors into four categories. First category is the tightening the standards and rules of disqualifying relationships, the second one is the increasing negative and positive sanctions, the third one is the development of intra-board structures and the last one is the reducing CEO influence in director selection and retention.

The recent regulations in Turkey have paid an importance in effective election of the board of directors. It is suggested that board members to be divided into two categories as executive members; and non-executive members. Additionally, if the

board Chairman and CEO are the same person in the corporations, reasons for this matter should be disclosed.

Capital Markets Board of Turkey (CMB) has announced the last definition of the independent board member of the Corporate Governance Regulation in 2011. According to the CMB Communique Serial: IV, No. 56 on Corporate Governance Principles dated by the Official Gazette dated December 30th 2011, and numbered 28158, Part III, P. 58); independent directors shall bear the following qualifications:

i. The director and/or his up to third degree relatives shall not have a direct or indirect employment, shareholding or significant commercial relationship with the company, related parties of the company or entities related to the persons controlling directly or indirectly more than 5% of the company's share capital within the last five years,

ii. The director shall not have worked for firms, including audit, rating and consultancy firms, undertaking whole or a certain portion of the company's activities and organization, and also shall not have been appointed as board members to those firms within the last five years,,

iii. The director shall not have worked for or shall not have been a shareholder or a board member of a firm which is a significant supplier or service provider to the company within the last five years,,

iv. If the director is a shareholder due to its board membership, the percentage of his shareholding shall not exceed 1% of the company's share capital and the shares shall not be in the form of privileged shares,

v. The director shall have the necessary educational background, information and experience for fulfilling independent director duties,

vi. The director shall not be a full time worker in a governmental/public institution,

vii. The director shall be deemed as resident in Turkey as per the provisions of the Revenue Tax Law (The director shall either be domiciled in Turkey or shall stay in Turkey for more than six months in a calendar year),

viii. The director shall have the ethical standards, reputation and experience enabling him to contribute to company activities, protect his impartiality with regard to conflict of interest that may arise among shareholders, make independent decisions by taking into account the rights of stakeholders.

The CMB Principles in Turkey state that a majority of the board should be non-executive and for Borsa İstanbul (BIST) 30 corporations it is compulsory to have independent directors at least one-third of the board of directors. Additionally, in any case, the number of independent directors shall not be less than two (CMB Corporate Governance Principles in Turkey, 2011). This report also highlights the qualification of independent directors. Some of the significant qualifications listed on this report are; the director and/or his relatives up to third degree shall not have a direct or indirect beneficial relationship with the company and the director shall not have been appointed to the board of directors as a representative of a specific share group.

As a result, there have been significant increases in the proportion of independent directors on Turkish Boards. Ararat et al. (2010) state that independent directors have become significantly important for establishing corporate governance in emerging markets where the governance mechanism is considerably weaker. Independent directors reflect the shareholder representative voice, particularly the minority shareholders. Boards that are more independent are expected to have incentives better aligned with those of the shareholders.

Another regulation about the board composition is on female directors on the board. According to the Amendments of the CMB Communiqué Serial: IV, No. 57 amending the Communiqué Serial: IV, No.56 on Corporate Governance Principles dated by the Official Gazette dated December 11th 2012, and numbered 28201, the amendment state that listed companies may appoint at least one female to the Board of directors.

3.2.2. CEO-Chairperson Duality

The other governance mechanism is the separation of the posts of CEO and Chairperson in corporations. Jensen (1993) states duality is undesirable as it gives one person too much power over the decision making process. He regards that the board sets the rules of the game for the CEO. The main work of the board is to hire, fire and compensate the CEO.

Agency theorists state that a single officer who holds both these positions creates a conflict of interest that could negatively affect the interests of the shareholders. Additionally, where the CEO is chair of the board of directors, agency costs can arise.

There is a lot of controversy about the effects of CEO duality. While some of the studies support the assumption of agency theory which states the separation of the posts of CEO and chairperson should lead to lower agency costs (Truong 2006; Henry 2006; McKnight and Weir 2009; Lei et al. 2011); some of them support the assumptions of stewardship theory. They state that the executive manager is far from being an opportunistic shirker. This executive manager wants to be a good steward of the corporate assets (Donaldson and Davis, 1991, p.51).

Daily and Dalton (1994) argue that boards should have a majority of outside and independent directors and also they state that the CEO and chairman should be separate for a better corporate governance system of the firm.

Cadbury Report on Corporate Governance (1992) recommends the separation of chairperson and CEO; stating that the general manager and chairman of the firm should be two different jobs and be served by different person.

The recent regulations in Turkey also pay attention to an effective election of the board of directors. The regulations state that if the board Chairman and CEO are the same person reasons for this matter will be disclosed.

3.2.3. Audit Quality

In recent years, there has been growing recognition of the importance of corporate governance for ensuring sound financial reporting and deterring fraud. Auditing is an important function in managing corporations. Employing the professionalism of the auditors and following the recent auditing standards, creates trust among stakeholders. The quality of reporting and the level of disclosures are highly affected by the quality of Audit Company. According to Haat et al. 2006; Collin et al.2005; Lei et al.2011 the quality of an audit firm is higher if the company is being audited by any one of the Big 4 public accountants rather than the other companies. They argue that the presence of these firms is positively related with the performance of the

The auditing firms are categorized as Big-4, which are the four large and international auditing firms. Collin et al. (2005) argue that the presence of these firms is positively related with the performance of the corporation. It is proxied as if the firm is audited by the Big Four Accounting Firm; it is labeled as 1; else 0 (Lei et al. 2011).

3.2.4. Managerial Incentives

Managerial incentives, in a broad sense influence the performance through stimulating top managers to high efforts. The separation of ownership and management creates conflict of interest problem. To align the interest of top management with the interests of the owners of a company, managerial incentives are commonly used in corporations. These incentives could help alleviate conflicts of interest between managers and shareholders by encouraging management to act in shareholders' best interest. By this way, agency problems can also be minimized.

Equity based compensation is very common in listed companies in emerged markets. Fama and Jensen (1983) argue that incentive structures are important devices. They are used as a device to compensate in ways that align the manager's interests with those of their firm's shareholders.

As to Jensen and Smith (1985, p. 12) cite the Smith and Watts (1982 and 1983) articles, they state a detailed description of management compensation plans and argue that these plans can help to mitigate the conflicts arising between the managers and shareholders. These early articles classify the compensation plans into three broad categories.

i) The first category is grouped as the compensation that does not depend on firm performance such as salary, pensions and insurance. Salary is the direct payment of cash of a fixed amount per a certain period.

ii) The second category depends on market measures of firm performance such as restricted stocks, stock options and stock appreciation rights. Since the market value of the stock reflect the present value of the whole expected cash flows, these kind of compensation plans are needed to applicable to overcome controlling problems. Jensen and Smith (1985, p.13) argue that stock options help to control the manager's incentives to take too little risk. Stock options give the right to buy a specified number of shares of stock at a stated price. Furthermore, they state that stock options may help to mitigate the underleverage problem.

Since higher leverage increases the value of the options, it becomes more attractive to the manager. Restricted stocks are the grant of shares of stock to the employee at low or no cost. Stock appreciation right is another kind of a cash payment based on the amount by which the value of a specified number of shares has increased over a certain period of time.

iii) The third and last category depends on accounting measures of performance such as bonus, performance units and shares. Jensen and Smith (1985, p.13) argue that bonus plans tie managers' compensation to an accounting measure of the change in the firm value. This tie to performance can reduce the conflicts and problems. Bonus is a cash reward based on accounting measure performance. Performance shares are the shares of stock given the employees based on earnings per share.

In US, the changes in securities laws in response to the Sarbanes-Oxley Act of 2002 require more transparency in the reporting top management incentives. In Turkey, these incentives have started to report in the footnotes of the financial statements since 2008. These incentives are commonly used as cash rather than salary bonus or stock options in Turkey. In this study, managerial incentives are calculated as the natural logarithm of the sum of the total annual benefits paid to top management.

Agency theory deals with the issue that the higher management incentives act as a positive incentive mechanism and helps to reduce the agency costs (Haugen and Senbet 1981; Shleifer and Vishny 1997; Henry 2006). An early study of Haugen and Senbet (1981) argue that equity based managerial compensation can align the interests of the owner manager with outside equity holders.

According to the CMB Communique Serial: XI, No. 29 on Financial Reporting on Capital Markets dated by the Official Gazette dated December 9th 2008, and numbered 26842, p.2); top management incentives should be disclosed in interim and annual reports of the firms.

The following section of the study gives the findings of the existing empirical literature on these issues.

3.3. THE ROLE OF CORPORATE GOVERNANCE IN REDUCING THE AGENCY PROBLEM

Corporate governance literature provides some mechanisms about the capital markets, direct monitoring by boards, competition among managers and agency problem solution. Agency theory suggests how to govern a modern corporation with a large number of shareholders whose collective capital is controlled and directed by separate shareholders. Miozzo and Dewick (2002) state that corporate governance is an important device as a meaning of reducing agency costs imposed by managers who are acting in their own interest.

Jensen and Meckling (1976) model on agency costs and ownership structure holds a central role in the corporate governance literature. As the main problem is the

conflict between the principal and the agent, the focus of this theory is on determining the proxies of agency costs and the most efficient mechanisms governing the principal-agent relationship. For a better understanding, corporate governance mechanisms help to bring agents behavior into alignment with their principal's interest.

OECD Principles of Corporate Governance (2004, p.11) gives a broad definition of Corporate Governance, taking into account all parties involved into firm activities. In this report, corporate governance is defined as the system by which firms are directed and controlled. Also, corporate governance documents a set of relationship between a company's management, its board, its shareholders and other stakeholders.

The mechanisms of corporate governance define structures and rules forming the system. These mechanisms define the relationship among the key players in the corporation and external forces that govern the behavior and performance of the corporation.

A broad field of studies on agency theory concentrates on describing the different governance mechanisms to lessen the agency conflict.

Several approaches have been employed within the literature to shed light on the corporate governance and ownership attributes as mitigating agency cost occurrence. Potential governance related attributes that have been stated in this context include the board independence (Bhagat and Black 2002; Henry 2006; Brown and Caylor 2006); CEO and chairperson duality (Truong 2006; Henry 2006; McKnight and Weir 2009; Lei et al. 2011); the board size (Bhagat and Black 2002; Henry 2006); board characteristics (Bhagat and Black 2002; Brown and Caylor 2006); the level of remuneration of the top management (Haugen and Senbet 1981; Shleifer and Vishny 1997; Henry 2006) and audit quality (Collin et al. 2005; Lei et al. 2011); shareholder ownership (Jensen and Meckling 1976; Fama and Jensen 1983; Truong 2006; McKnight and Weir 2009; Mourier 2010) and the monitoring effects of institutional investors (Henry 2006; McKnight and Weir 2009; Chen et al. 2012).

3.4. CORPORATE GOVERNANCE EVOLUTION IN TURKEY

Parallel with the corporate governance practices in the world, the amendment of Capital Markets Law (CML) and establishment of the CMB in 1981 could be considered the foundations of corporate governance as a response to weak market conditions in Turkey.

The milestones of corporate governance regulations have started in 2002, with the TUSIAD's (Turkish Industrialists' and Businessmen's Association) first corporate governance code of best practice working, named "Corporate Governance Code of Best Practice: Composition and Functioning Board of Directors". This code is focused on the functions and responsibilities of the board. Additionally, in July 2003, CMB enlist its first "Principles of Corporate Governance" based on a "comply or explain non-compliance" rule for companies listed on Borsa İstanbul (BIST). These principles are partly influenced by the OECD guidelines for corporate governance. Although, complete compliance is not mandatory, firms have to state reasons for non-compliance. In 2004, CMB ruled listed companies to include Corporate Governance Conformance Report in their annual reports. One year later, CMB revised its principles following the amendment of OECD.

In 2005, BIST introduced the rules for CG Index. This index was launched by BIST in 2007. As of the end of 2012, 44 firms have been listed on this index. BIST Corporate Governance Index aims to measure the price and return performances of companies traded in stock market with a corporate governance rating of minimum 7 over 10. A composite corporate governance score is computed by giving one point to each corporate governance attribute where the firm satisfies minimum acceptable governance standard and 0 otherwise. The development of corporate governance index is driven by the need to compare corporate governance structures and practices between countries and companies. The rating of the implementation of corporate governance principles is based on varying degrees from 1 to 10, and the criteria are; stakeholders' interests; disclosure and transparency; shareholders' protection; and the board of directors. The corporate governance rating is determined by the rating institutions

incorporated by CMB. In 2010, TUSIAD revised the corporate governance code of best practices.

One of the other important developments in Turkey is the announcement of the mandatory application of certain corporate governance principles for BIST-30 companies (excluding banks). Therefore, BIST 30 firms are required to comply with certain corporate governance principles issued by the CMB on a compulsory basis (CMB Corporate Governance Principles Report, 2011). It can be stated that Turkish corporate governance culture moves away from “comply or explain” approach.

According to the regulations on corporate governance principles, significant initiations have been done in Turkey as well. Nationwide Initial Public Offering (IPO) campaign has been recently organized jointly by the CMB, the BIST, the Union of Chambers and Commodity Exchanges of Turkey, and the Association of Capital Market Intermediary Institutions of Turkey. As a consequence of these serious efforts, the number of listed firms has reached to 407 as of December, 2012.

As being the most principle determinants of the corporate governance environment of the countries, investor rights protection level and the legal regulation, the new Turkish Commercial Code been initiated in Turkey highlights a significant improvements in corporate governance environment in the country. The old commercial law (1956) was incapable to enhance the application of the good governance.

The new Turkish Commercial Law is accepted in 2011 and has been centered on the corporate governance principles. This new law adopts principles such as fairness, transparency, accountability and responsibility. Specifically, it gives emphasis to the transparency and purposes to achieve transparency through extensive disclosure. This law also brings new arrangements on the issues related to minority rights, auditing mechanism, responsibilities of the board of directors as well. The regulations enforce to use the International Financial Reporting Standards (IFRS) and International Auditing Standards (IAS) in auditing for not only public companies but also non-public companies.

The need of better creditor rights and shareholder rights are associated with deeper and more developed banking and capital markets. At this point, the new Turkish Capital Markets Law brings Turkish investment fund legislation closer to European standards. This new law has solely empowered CMB in determining the corporate governance rules for public companies. It also aims to achieve transparency through extensive disclosure.

The major barrier for enhancing the good corporate governance mechanisms is the concentration of ownership by the family firms. Turkish firms display highly concentrated and centralized ownership structures. Therefore, in Turkey as an emerging market, corporate governance plays an efficient role to solve or reduce conflict between large shareholders and minority interests.

4. EMPIRICAL RESEARCH ON THE IMPACT OF CORPORATE GOVERNANCE MECHANISMS AND OWNERSHIP STRUCTURE ON AGENCY COSTS

4.1. PRIOR EMPIRICAL LITERATURE

Since Jensen and Meckling (1976) focus on the effect of equity agency costs on financial decisions, governance mechanisms, ownership structure and firm value, the magnitude of agency costs was rarely discussed in literature. Empirical investigation requires identifying proxies of direct agency costs. This part is dedicated to give empirical literature base on the international and Turkish context.

4.1.1. Prior Empirical Literature Based on International Context

In the following part of the study, a broad prior literature base on international context is given in terms of the agency cost measurement, agency cost and ownership structure, agency costs, ownership structure and corporate governance mechanisms, agency costs and institutional investors, agency costs and dividend yield, agency costs and debt financing, agency costs and stock returns and finally agency costs and financial performance. The following part of the study investigates the prior literature which has set out to empirically probe the theories outlined by Jensen and Meckling (1976) and Fama (1980).

4.1.1.1. Agency Cost Measurement

The agency problems between managers and shareholders (equity related agency costs) and the problems between shareholders and bondholders (debt-related) agency costs forms the two types of agency problems that are argued by Jensen and Meckling (1976). The subject of the measurement of the agency costs magnitude has been widely discussed in the academic literature. Some of the measures have been frequently used in the finance literature to proxy for the level of agency costs present in corporations.

Jensen and Meckling (1976) argue that for measuring absolute agency costs, a zero agency-cost base case must be observed to serve as a reference point of comparison for all other cases of ownership and management styles. They define the zero agency-cost bases as the firm owned solely by a single owner-manager. As they argue that when management owns less than 100 % of the firm's equity, shareholders incur agency costs resulting from the excessive perquisite consumption and management's shirking.

Despite much valuable insights provided by the theoretical framework of agency theory, however, only very few studies directly tackle the measurement issue of the agency costs. Hijazi and Conover (2011, p.224) argue that direct agency costs of equity can be any financial variable that could account for excessive expenses of management incurred during a fiscal year and thus can be captured from the income statement of the firm.

Ang et al. (2000) first provide evidence that supports the theoretical work of Jensen and Meckling (1976) on agency costs. They investigate one of the first attempts to measure the magnitude of direct agency costs by two ratios from financial statements and argue that entirely owned management structure is more difficult to be seen in publicly traded firms because of the limitations and exchange regulations in today's world. They propose a new approach to estimate the magnitude of equity agency costs. First ratio that they use is a proxy for the direct agency costs and measured as operating expenses to net sales which states the level of superfluous or perquisite expenditure of the firm. Operating expenses to net sales is a measure of how the firm's management controls operating costs, including excessive perquisite consumption, and other direct agency costs. The second ratio points out how effectively a firm's management deploys its assets with an asset utilization ratio. In contrast to the operating expense ratio, asset utilization ratio is an inverse proxy for the direct equity agency costs. These costs arise when manager makes poor investment decisions, exerts insufficient effort resulting lower sales, purchase unnecessary assets such as excessively office space and office furniture. Therefore, this measure determines the management's shirking poor investment decisions and calculated by net sales to total assets.

Chen and Yur-Austin (2007) re-measure the agency costs in three terms. First one is the Selling, General and Administrative (SG&A) expenditure divided by annual net sales. SG&A ratio is used as a proxy for managerial extravagance. The second one is the asset turnover ratio as a proxy for asset management quality and the third one is the adjusted short-term debt ratio as a proxy for likelihood of involving in underinvestment.

Ertuğrul (2005) classifies principal agent proxy as equity related agency costs into four categories. These costs can be in the form of work shirking (asset management quality), excessive perquisite consumption (operating expense ratio), discretionary expenditure ratio (SG&A ratio) and overinvestment. Wellalage and Locke (2011) categorize the principal-agent proxy as operating expense ratio and asset utilization ratio.

This study is concerned primarily with equity agency costs. In the following part of the study, the term “agency costs” refers to equity agency costs and agency costs in terms of excessive perquisite consumption, discretionary expenditure ratio and poor asset management will be evaluated.

i) Excessive Perquisite Consumption

As Jensen and Meckling (1976) argue, when management owns less than 100% of the equity, agency costs occur due to the excessive perquisite consumption and shirking. In several empirical studies such as Ang et al. (2000); Fleming et al. (2005); Ertuğrul (2005); Zhang and Li (2008); Wellalage and Locke (2011); Hijazi and Conover (2011), the operating expense ratio is used as a principal-agent proxy of perquisite consumption. They state that higher expense ratio means “superfluous” or “perquisite” expenditure; this creates agency cost. Ertuğrul (2005) also argues that this ratio measures how effectively the management controls operating costs, including excessive perquisite expenditure.

Operating expense ratio is measured by operating expense divided by net sales. This ratio indicates how the firm's management controls operating costs, including excessive perquisite consumption, and other direct agency costs. Higher this expense ratio means excessive perquisite consumption which can create agency cost.

ii) Discretionary Expenditure Ratio

Discretionary expenditure ratio is measured as annual Selling, General and Administrative expenditure divided by annual net sales. SG&A expenditure capture most of the overhead costs incurred in the corporate offices. Selling expenses include the cost of sales personnel salaries and sales related expenses such as travel and advertising. Management may also use advertising and selling expenses to camouflage expenditures over perquisites (Hijazi and Conover, 2001, p.225). General and administrative expenses include officer's salaries, office salaries, office utilities expense, insurance expenses and office payrolls. SG&A expenditures include rent, utilities, lease payments and supplies. These expenditures directly reflect expenses on office buildings, furniture, automobiles and other similar activities.

Discretionary expenditure ratio indicates how effectively the firm's management controls discretionary expenses. This ratio also tends to capture the impact of agency costs in terms of excessive perquisite consumption. Higher this ratio means higher discretionary expenditure and that can create agency cost. It is used as an agency cost indicator in several empirical studies such as Singh and Davidson (2003); Ertuğrul (2005); Fleming et al. (2005); Florackis and Ozkan (2004); Truong (2006); Miller (2009); Henry (2010); Hijazi and Conover (2011). Chen and Yur-Austin (2007) define this proxy as the "managerial extravagance". This cost reflects managerial discretionary expenses and tends to capture the extent of potential consumption of perquisite.

As a result; higher this ratio means superfluous consumption of management which is detrimental to corporate earnings. Higher agency conflict of outside equity should be reflected as higher managerial discretionary expenses which are captured by SG&A expense ratio.

iii) Asset Turnover Ratio

Another principal-agent proxy is the asset turnover (utilization) ratio. It is used as a proxy for agency costs arising from shirking and poor asset management in several empirical studies such as Ang et al. (2000); Singh and Davidson (2003); Brooks and Davidson (2003); Florackis and Ozkan (2004); Ertuğrul (2005); Fleming et al. (2005); Truong (2006); Henry (2006); Chen and Yur-Austin (2007); McKnight and Weir (2009); Miller (2009); Henry (2010); Wellalage and Locke (2011); Hijazi and Conover (2011); Sajid et al. (2012). This ratio indicates how effectively the firm's management deploys its assets. Fleming et al. (2005) state that this ratio is chosen to proxy for the loss in revenue that may be attributable to inefficient asset use.

A high ratio represents that assets are utilizing to the most productive use and directly suggest low agency costs. Lower asset utilization ratio indicates that corporate managers are managing their firm on weak investment decisions and or utilizing assets to unproductive level and or investing them in negative net present value projects. This loss may be caused by insufficient commitment and weak effort. Thus, a low of this ratio means inefficient asset utilization, management shirking and agency costs for shareholders.

Apart from the above agency cost proxies, asset liquidity ratio, which is defined as the sum of cash and marketable securities divided by total assets is used as an agency cost proxy in some studies (Henry 2006; Junwei et al. 2011). Higher this ratio means the higher proportion of firms' assets that are held in liquid form and employment these funds to invest in sub-optimal ways. Thus, firms with higher asset liquidity ratios are seen to be subject to greater agency costs.

Jensen (1986) argues that managers with high level of free cash flow are likely to invest it in negative net present value projects. Some recent empirical literatures document that (Hijazi and Conover 2011; Chen et al. 2012) high free cash flow encourages managers to see greater opportunity for overinvesting in operational costs. Furthermore, low free cash flow stimulates managers to decrease the SG&A costs. Free cash flows are extremely difficult to use as a proxy (Truong 2006, p.52). It is generally

used as proxy for the total agency cost instead of direct agency costs of equity. Hijazi and Conover (2011, p.226) argue that free cash flow variable is generally used as a control variable as a proxy for the total agency cost of equity but not used as a dependent variable.

Apart from the above agency cost proxies, Jensen (1986) states that a firm with a large amount of free cash flows has a tendency to increase the agency costs of equity. The firms which have high growth prospects are more likely to be better managed. As Jensen (1986) argues, takeovers may be undertaken to maximize managerial utility instead of to maximize shareholder wealth, he also uses the number of firms acquired by a firm as an agency cost measure. Wellalage and Locke (2011) proxy the principal-principal agent cost as net income divided by number of working owners. Furthermore, McKnight and Weir (2009) use the interaction of free cash flow and growth prospects as an agency cost for the UK listed firms. They state that retaining free cash flows reduces the ability of the capital market to monitor the decisions of management.

Another detailed empirical study on agency cost belongs to Ertuğrul (2005). She argues that entrenchment is equity related agency cost and uses several proxies to measure entrenchment in terms of managerial ownership and excess compensation. Since managerial ownership can align the interests of managers with shareholders; she argues that the higher managerial ownership, the lower is the excess return. In her study, she also uses excess compensation as another proxy for entrenchment. To find the excess compensation, she regresses the total compensation for top five executives on economic determinants of compensation in terms of sales, investment opportunities, ROA, stock returns, standard deviation of ROA, standard deviation of stock returns and industry controls. She calculates the predicted compensation for the firm by using the coefficients from this regression and states that the difference between predicted compensation and actual compensation is excess compensation. She expects that firms which compensate their top managements excessively will have higher agency costs and also argues that overinvestment is an equity related agency cost. For measuring agency problems related to free cash flow, she uses the overinvestment measure as the difference between total investment expenditures and depreciation and amortization.

Ertuğrul (2005) also state debt-related agency costs as tangibles and debt level. She uses the ratio of inventory plus gross plant and equipment to total assets as a proxy for tangibles. She also utilizes the institutional ownership and percentage of independent directors on the board as monitoring proxies. Furthermore, Ertuğrul (2005) constructs an agency cost index combining the agency cost proxies which is explained above. She calculates percentile rankings for each agency cost proxy, where higher scores indicate higher agency costs and takes an average of these percentiles rankings to create her index.

Henry (2010) employs four different measures to proxy for the existence, and level of agency costs on 120 Australian listed firms between the years 1992 and 2002. He uses asset utilization ratio, discretionary expenditure ratio, Tobin's Q and interaction of free cash flow and growth as a proxy for agency costs. He argues that Tobin's Q is commonly employed as a representation of managerial performance and concludes that lower Tobin's Q ratio shows the existence of agency problems.

In the early studies of this field, the ratio of R&D investment to net sales is used as a proxy for the level of agency costs (Jensen et al. 1992). They state that these expenses states that the potential indirect bankruptcy costs. Crutchley and Hansen (1989) and Crutchley et al. (1999) also use the ratio of R&D investment to total assets. They also argue that firms with high R&D investment in terms of total assets can have more difficulty for borrowing.

The operating expense ratio, SG&A ratio and asset utilization ratio capture the extent of equity agency conflicts that may exist between managers and shareholders. Following the works of the earlier studies, this study utilize: operating expense ratio, SG&A ratio as direct agency cost proxies and asset turnover ratio as an inverse agency cost proxy. Furthermore, in this study another operating expense proxy, namely General Administrative Expenses over net sales (GA ratio) is also used as a proxy for the agency costs.

Table 4.1 depicts a literature review for model variables.

Table 4.1.
Literature Review for Agency Cost Proxy Variables

Agency Cost Variables	Definition	Author(s)
Operating Expense Ratio (Excessive Perquisite Consumption)	The ratio of operating expense to net sales	Ang et al. (2000); Fleming et al. (2005); Ertuğrul (2005); Zhang and Li (2008); Wellalage and Locke (2011); Hijazi and Conover (2011)
Log of Operating Expense	Natural log of operating expense to net sales	Wellalage and Locke (2009)
Selling, General, and Administrative (SG&A) Expense Ratio (Discretionary Expenditure Ratio)	The ratio of annual Selling, General and Administrative expenditure to annual net sales - used as a measure for managerial agency induced excessive pay and perquisite consumption.	Singh and Davidson (2003); Florackis and Ozkan (2004); Ertuğrul (2005); Fleming et al. (2005); Truong (2006); Chen and Yur-Austin (2007); Henry (2010); Hijazi and Conover (2011)
Asset Turnover (Utilization) Ratio	The ratio of net sales to total assets - provides a quantitative measure of the effectiveness of firm investment decision and the ability of the firm's management to direct assets to their most productive use	Ang et al. (2000); Singh and Davidson (2003); Brooks and Davidson (2003); Florackis and Ozkan (2004); Ertuğrul (2005); Fleming et al. (2005); Truong (2006); Henry (2006); Chen and Yur-Austin (2007); McKnight and Weir (2009); Miller (2009); Henry (2010); Wellalage and Locke (2009); Hijazi and Conover (2011); Sajid et al. (2012)
Asset Liquidity Ratio	The ratio of cash and marketable securities divided by total assets	Prowse (1990); Henry (2006); Junwei et al. (2011)
Tobin's Q	Measured as the sum of the market capitalization of equity plus the book value of preference shares plus the book value of long-term debt divided by the book value of total assets	Henry (2006); Henry (2010)
Interaction of free cash flow and growth	Measured as annual free cash flow multiplied by an annual growth dummy variable	Henry (2010)
Firm Free Cash Flow / Total Assets	Measured as the firm free cash flow divided by total assets	Henry (2006); Truong (2006); McKnight and Weir (2009)
Income ratio	This ratio is calculated as net income divided by number of working owners divided by total sales	Wellalage and Locke (2009)
Research and Development (R&D) investment to net sales	This ratio is calculated as R&D investment divided by net sales	Jensen et al. (1992); Crutchley et al. (1999)

4.1.1.2. Agency Costs and Ownership Structure

Ownership concentration measures how a firm's ownership is concentrated on its larger shareholders. A more concentrated ownership, in the form of large shareholders can create more effective monitoring. Jensen and Meckling (1976) foresights has led to construct models, where the managerial ownership matters not only in the sense how much the company owners own, but also in the sense how concentrated the large shareholders are. Additionally, it should be underlined that managerial ownership is only an indicator of the potential controllers of the firm.

Ang et al. (2000) make the first attempt to estimate the magnitude of agency costs whereas they examine the relationship between agency costs and ownership structure and provide evidences of relative equity agency costs for firms under different ownership and management styles. They use operating expense ratio and asset utilization ratio as a proxy of agency costs and utilize four ownership variables in order to capture the various aspects of the ownership structure of small-business corporations. Ownership variables are classified as; the ownership share of the primary owner, the number of non-manager shareholders, an indicator for firms where a single family controls more than 50 % of the firm's shares and an indicator for firms managed by a shareholder rather than an outsider. They study a sample of 1.708 US small firms in the year 1997, use a survey results and examine the determinants of agency costs in a multivariate regression framework.

They find that agency costs are; significantly higher when an outsider rather than an insider manages the firm; inversely related to the manager's ownership share and increase with the number of non-manager shareholders. They also find evidence of a positive influence that banks play an important role on firm management. Finally, they point out that a firm will have positive agency costs when the operating expense ratio is higher due to discretionary expenditure or inefficient effort by the management. They find that the operating expense ratio is higher and the asset turnover ratio is lower in firms with higher levels of outside ownership than in firms with lower levels of outside ownership.

Singh and Davidson (2003) extend the Ang et al. (2000) study to the publicly held 234 large US listed firms. They use Selling & General and Administrative expense ratio (SG&A) and asset turnover ratio for estimating the magnitude of equity agency costs. Inside ownership and outside block ownership are used as ownership variables. They find that firms with high level of management ownership are associated with low levels of agency costs.

Fleming et al. (2005) examine how agency costs change when ownership and control are separated. They utilize a survey sample of 3,800 Australian SMEs between 1996 and 1998. They use discretionary expense to sales ratio, logarithm of discretionary expense to sales ratio, asset utilization ratio and the logarithm of asset utilization ratio to proxy for the equity agency costs and used equity holding of working owner, equity holding of nonworking owner and parent firm equity holding as ownership variables. They examine the determinants of agency costs in a multivariate regression framework. Outcome of the study indicates that the magnitude of agency costs varies significantly with ownership structure and besides they report a positive relationship between equity agency costs and the ownership structure.

Davidson et al. (2006) test the agency cost measures of the listed 293 firms in terms of asset utilization and operating expense ratio in two different times, before the Initial Public Offering (IPO) and the year after the IPO. They find a positive relationship between management ownership and firm performance the year after the IPO. Furthermore, Chen and Yur-Austin (2007) provide information about the effectiveness of blockholder in reducing agency costs. They define agency costs in terms of managerial extravagance, poor asset management and underinvestment. Blockholder ownership data is classified as percentage of outside block ownership, inside block ownership, managerial block ownership and non-manager inside block ownership. They utilize a multivariate regression analysis for the large shareholder ownership US companies from 1996 to 2001. Their first hypothesis is that the block ownership is negatively correlated with managerial extravagance and is positively correlated with the asset turnover ratio. They find that outside blockholder are more vigilant about mitigating managerial extravagance in terms of SG&A ratio and claim

that only managerial blockholder can significantly overcome underinvestment problems. They also argue that blockholders having larger stakes invested in the firm, have more incentives to monitor the managerial behavior than the other small owners.

Jelinek and Stuerke (2009) investigate the managerial equity ownership on agency cost measures in terms of asset utilization and operating expense ratio. Firm size, firm leverage, institutional ownership and executive stock option variables are used as control variables. They utilize a large dataset comprising 15,186 firm year observation between 1992 and 2004. They find that the managerial equity ownership is nonlinearly and positively associated with asset turnover ratio whereas it is negatively associated with the operating expense ratio.

Empirical evidence related to the impact of ownership concentration is mixed. The theoretical findings by Jensen and Meckling (1976), Fama and Jensen (1983), Demsetz and Lehn (1985), Mourier (2010) argue that multiple blockholder work as monitoring mechanism and are likely to reduce agency costs. Large shareholders are believed to monitor the management better than small shareholders as they have more voting power to influence corporate decisions. However, large shareholders may also harm the firm by causing conflicts between large and minority shareholders.

As discussed in the previous part of the study, managerial shareholdings can reduce agency problems. Additionally, concentrated shareholdings can increase managerial monitoring and firm performance.

4.1.1.3. Agency Costs, Ownership Structure and Corporate Governance Mechanisms

McKnight and Weir (2009) investigate the impact of governance and ownership variables on agency costs within non-financial firm and large UK based firms incorporated in FTSE 350 Share Index. They use sales to total assets ratio, the interaction of free cash flows, growth prospects and the number of acquisitions as a proxy of agency costs. They use the percentage of non-executive directors, the separation of the posts of CEO and chairman, the presence of a nomination committee, the presence of an executive director on the nomination committee, the CEO tenure and

the number of additional directorships held by the CEO as corporate governance mechanisms. They utilize a panel data set of 534 firm observations from a total of 128 companies covering the period 1996-2000. As a result, they find out that change in board structures that have occurred in the post-Cadbury period have little, or no, effect on agency costs. Additionally, increasing board ownership and debt helps to reduce agency costs.

Florackis and Ozkan (2005) study the magnitude of agency costs utilizing a large sample of UK listed firms. They use asset turnover ratio and SG&A expense to sales ratio as an equity agency cost proxy and percentage of ownership held by executive directors and the percentage of equity ownership held by non-executive directors as ownership variables. Additionally, total number of board and CEO dummy are used as board structure and total salary paid in cash and options are utilized as managerial compensation structures. They investigate a large sample of publicly traded UK firms over the period 1992 to 2013, and find out that management shareholding enhance to lower agency cost. They also explore that managerial ownership; managerial compensation and ownership concentration seem to play an important role in decreasing agency costs.

Truong (2006) investigates the impact of board characteristics and corporate ownership on agency conflicts on the sample of Australian listed top 500 firms. He uses board size, proportion of outsider directors, board leadership, board age, active board member, number of inside directors and CEO tenure as board characteristics variables. He utilizes the endogeneity tests and use OLS regression analysis and finds a positive and significant relationship between managerial ownership and asset utilization. He also depicts that there is little evidence to suggest a linkage between board characteristics and agency costs in these firms.

Henry (2010) also utilizes the Australian data on his study. Furthermore, he examines whether the adoption of specific corporate governance practices is associated with agency cost benefits for the firms listed on Australian Stock Exchange. He uses fixed effect model after controlling the strict endogeneity and exogeneity tests. He

concludes that board independence variable reduce the four agency cost proxies and firm ownership structure influences its agency environment.

Byun (2007) investigates whether sound corporate governance mechanisms reduce agency costs. He utilizes a data set provided by the Korean Corporate Governance Service. Corporate governance mechanisms are categorized as shareholder right protection, board size, disclosure requirement, presence of an audit committee and dividend policy of corporations. As a result, he finds that sound practices tend to decrease the costs of external debt financing.

Miller (2009) explores the governance mechanisms as moderators of agency costs in terms of operating expense and asset utilization before the passage of the Sarbanes-Oxley (SOX) Act of 2002 and tries to find out how the change in agency costs pre and post SOX environment. He uses CEO ownership, blockholder ownership, board size, outside directors and audit fees as governance mechanisms and total asset variable as the control variable. He analyzes 133 domestic and manufacturing firms listed on NYSE. The results of this study reveal that the governance mechanisms do not moderate agency costs within this period.

A recent study which is conducted by Wellalage and Locke (2011) also investigate the linkage between agency costs, ownership structure and corporate governance mechanisms in 100 unlisted small unlisted New Zealand firms between the years 1998 and 2008. They indicate that ownership concentration has the most significant governance effect on corporate governance during this period. After utilizing a dynamic panel data, they find a U-shape relationship between internal ownership and firm performance. In agency cost point of view, they state that agency costs vary with the debt level, the firm age and firm size.

Hijazi and Conover (2011) investigate the empirical relationship between direct equity agency costs and corporate governance control mechanisms in order to control equity agency costs. They use operating expense ratio, asset turnover ratio, SG&A ratio as dependent variable and utilize internal corporate governance variables in terms of inside ownership, outside ownership, board size, board composition and CEO-

Chairperson duality as explanatory variables. They use both univariate and multivariate tests on 222 US firms. As a result, they find a negative relationship between the proportion of inside ownership and direct agency costs. Furthermore, they state that asset turnover ratio is the best proxy for direct equity agency costs.

Sajid et al. (2012) examine the role of ownership structure and corporate governance in reducing agency cost within a sample of 50 listed firms on Karachi Stock Exchange, Pakistan. They use multivariate fixed effect regression analysis between 2003 and 2006. They point out that smaller sized board has a tendency to lower agency costs and board independence has a positive relationship with asset utilization ratio. They also find that the separation of the post of CEO and chairperson and higher remuneration decrease the agency costs.

Chen et al. (2012) investigates corporate governance mechanisms and behavior of Selling General and Administrative costs, and use free cash flow, CEO Tenure, CEO Horizon and CEO fixed pay as a determinant of agency problem proxy. They utilize regression analyses on the firms listed in S&P 1.500 Index between the years 1995-2005 and find that the linkage between the agency problem and SG&A ratio is more significant in weak corporate governance conditions. Therefore, they suggest that corporate governance mechanisms play an important role in reducing the effect of the agency costs.

The effectiveness of a board as a corporate governance mechanism depends on its size and composition which makes optimal size of the board a crucial topic in finance. Larger boards are usually more powerful than small boards according to organizational effectiveness and they benefit the firm by increasing the pool of expertise (Pearce and Zahra, 1991). However, complexity and coordination problems may arise in larger boards (Eisenberg et al. 1998) compared to smaller firms which are less complex and easier to coordinate. On the other hand, several studies depict that relatively smaller sized firms are associated with higher agency costs than the others (Lasfer 2002; Singh and Davidson 2003; Truong 2006; Henry 2006; Junwei et al. 2011; Chen et al. 2012).

Board characteristics impact the effectiveness of the board of director's role in monitoring and guiding. Foreign directors may have advantages and disadvantages in their role of controlling agency problems as a monitor. They may bring special expertise in monitoring but also inherently costly as they may demand higher managerial compensation.

The first multinational and one of the most recent studies of the determinants and effects of having foreign independent directors on firm's a board which is conducted by Miletkov et al. (2011). Sample consists of 20.000 firms from 98 countries, including Turkey as well. They find a negative linkage between the presence of foreign directors and firm performance. Additionally, they argue that foreign directors may be inherently costly.

Larger board independence is perceived as monitory mechanism to minimize the agency problems. Boards that are more independent are expected to have incentives better aligned with the largest and minority shareholders. From the prior literature, boards with a significant proportion of non-executive directors are expected to decrease the agency cost proxies. Consistent with that view (Bhagat and Black 2002; Henry 2006; McKnight and Weir, 2009; Chen et al. 2012) propose an increasingly independent board structure within the firm result in lower agency costs. However, some scholars hold the opposite view that independent directors often prefer to play a low conflict role, and they claim that an increasingly independent board results in higher agency costs as a result of lacking information about firm's management practices (Hermalin and Weisbach, 1991; Agrawal and Knoeker, 1996; Bhagat and Black 2002).

An interesting study which is done by Loderer and Waelchli (2010) depict the diversity of these mechanisms on listed and unlisted Swiss firms. They state that board sizes of the listed firms are larger than those of unlisted firms. The average board size they find is seven in listed firms and five in the other unlisted firms. Furthermore, the percentage of independent directors also differs among these two groups as the median of independent directors in listed firms of 80 % is significantly larger than of the unlisted firms of 50 %.

The other component that characterizes the independence of a board is the separated or not roles of CEO. Bonazzi and Islam (2005) investigate the linkage between agency theory and corporate governance dealing with the CEO monitoring role. They set out a model on a case study based decision variables in order to identify whether to keep or fire a CEO and number of monitoring visits to assign for each CEO. The results of this case study reveal that the board monitoring of CEO improve the performance of the CEO and reduce possible conflict of interests.

From the prior literature, as far as the separation of the role of CEO and chairperson is concerned, it is believed that separated roles can lead to better board performance and hence, lower the levels of agency conflicts and agency costs (Truong 2006; Henry 2006; McKnight and Weir 2009; Lei et al. 2011; Hijazi and Conover 2011).

The quality of reporting and the level of disclosures are highly affected by the audit quality of the company. According to Collin et al. 2005; Haat et al. 2006; Lei et al. 2011 the audit quality of the firm is higher if the company is being audited by any one of the Big 4 public accountants rather than the other companies. They argue that the presence of these firms is positively related with the performance of the corporation. In literature, audit firm is represented by a dichotomous variable where one category represents the Big 4 audit firms and the other category represents all other audit firms in Turkey. This variable is proxied as if the firm is audited by the Big Four Audit Firm, it is labeled as 1; else 0 (Collin et al. 2005; Lei et al. 2011).

Agency theory also deals with the management incentives and higher management incentives are assumed to act as a positive incentive mechanism and help to reduce the agency costs (Haugen and Senbet 1981; Shleifer and Vishny 1997; Henry 2006; Junwei et al. 2011). An early study of Haugen and Senbet (1981) argue that equity based managerial compensation can align the interests of the owner manager with outside equity holders.

Building on the findings from prior studies, corporate governance mechanisms are expected to discourage managers from increasing operating expense, SG&A

expenditures relative to the net sales and encourage managers to increase the asset turnover ratio of the firm.

4.1.1.4. Agency Costs and Institutional Investors

As institutional investors are characterized to be sophisticated investors and have enhanced ability to monitor corporate management, they can also help to resolve agency conflicts between managers and shareholders. Academic researchers prove that institutional investors are better and more active monitors of the conflicts than individual investors (Bushee 1998; Atiase et al. 2006; Chen et al. 2012).

Atiase et al. (2006) investigate the institutional monitoring and corporate restructuring in terms of firm value maximization. They utilize a large sample of 182 corporate restructuring events between the 1995 and 1999 and test on probit model and the simultaneous equation models. They find that the institutional investors play an important monitoring role in encouraging managers to make value maximizing corporate finance decisions.

Several academicians demonstrate that this effective monitoring or actual activism may ensure the alignment of shareholder and managerial interest and result with the minimization of agency costs (La Porta et al. 1998; Crutchley et al. 1999; Henry 2006; McKnight and Weir 2009). Agency problems between managers and shareholders are likely to be mitigated through the monitoring effects of institutional investors in several studies (Doukas et al. 2000). Chen et al. (2012) state that institutional shareholders are better and more active monitors of managerial behavior than individual investors. However, in emerging markets, like Turkey, the level of institutional investors is very low.

4.1.1.5. Agency Costs and Dividend Policy

The other agency reduction mechanisms that have been suggested in prior literature are dividend policy of the corporations which has been one of the most crucial debates in academic literature. La Porta et al. (2000) apply the agency approach to dividends in the selected countries. By paying dividends, insider managers transfer

corporate earnings to investors and they cannot benefit themselves by using these earnings.

Dividends decrease agency costs by forcing management into the equity. Several academicians point out a negative relationship between dividend yield and agency costs. They propose that a higher dividend payout is an effective mechanism to minimize agency costs as dividends lower the level of available liquidity which may avoid the firms from a potential default risk. (Easterbrook 1984; Crutchley and Hansen 1989; Jensen 1992; Moh'd 1995; La Porta et al. 1998; Ertugrul 2005).

Henry (2006) provides limited evidence of dividend policy in controlling the agency costs. Soylemez (2007) also finds empirical results stating that dividend policy is an effective mechanism to minimize agency cost for Turkish firms.

4.1.1.6. Agency Costs and Debt Financing

Jensen and Meckling (1976) argue that debt servicing obligations help in reducing equity agency problems in the way that bank debt incorporates significant signaling characteristics that can mitigate informational asymmetry and hence, it provides a control mechanism for reducing the agency cost of a firm (Agrawal and Knoeber, 1996; McKnight and Weir, 2009).

In their early study of Jensen and Meckling (1976) argue that higher debt level increase the moral hazard of the manager and the cost of taking extra risk can enhance the agency costs. Especially bank debts play an important role in reducing direct agency costs through screening and monitoring corporate management activities.

Zhang and Li (2008) investigate the impact of capital structure on agency costs by utilizing both univariate and multivariate tests on 323 UK large public corporations. They use operating expense to sales as a proxy of agency costs and similarly find the negative relationship between firm leverage and agency costs.

Ang et al. (2000) argue that the creditors ensure efficient operation and effective asset utilization of the firms and also claim that agency costs will be higher in a highly leveraged firm where the risk of default is higher. Therefore, leverage is a

substitute mechanism in decreasing potential agency costs which means the higher indebtedness of the firm, the lower agency costs will be. Furthermore, greater financial leverage may affect managers' decisions and reduce agency costs as well (Harris and Raviv 1991; Zhang and Li 2008).

Miller (2009) examines the governance mechanisms as moderators of agency costs on 133 US firms in 2001 and 2002. He states that the only independent variable to explain the variations of agency costs is debt ratio which is an effective moderator of agency costs.

4.1.1.7. Agency Costs and Stock Returns

Firm managers can have several personal objectives that are not often in line with the maximization of shareholder value. As Jensen and Meckling (1976) state that agency costs decrease the value of the firm, and there are several papers in literature that examine the linkage between agency costs and stock returns.

Ertuğrul (2005) investigates 571 listed firms on NYSE between 1996 and 2003 and constructs an agency cost index calculating percentile rankings for each agency cost proxy. She finds some evidence that agency costs are linked to cross-sectional asset returns. And, continues to argue that the higher the level of institutional ownership result with lower rate of return. As to Morck et al. (1988) firms with higher industry-median adjusted dividend yields also have lower rates of return.

Doukas et al. (2000) investigate whether the security analysts act as a monitor to reduce the agency problems. They use a sample of 7.485 US manufacturing firm-year observations between 1988 and 1994, and they find that security analysts are more effective in reducing managerial non-value-maximizing attitudes. Doukas et al. (2005) extend this work to 1.027 UK firms between 1998 and 2000, again in the same purpose of assessing the monitoring power of security analysts from the agency conflict base. They find that while the smaller and more concentrated UK firms' security analysts are more effective in reducing agency conflicts, larger and more diversified firms' security analysts monitoring activities are less effective in minimizing agency problems.

4.1.1.8. Agency Problems and Financial Performance

Agency problems gain importance and might have severe results during the financial crises times as it causes firms to have financial distress, and this leads more agency problems. During the Asian financial crises, Kim and Lee (2003) investigate whether agency problems explain the performance of Korean chaebol and non-chaebol companies. They analyze the performance of 590 nonfinancial firms that are listed on the Korean Stock Exchange in 1997. They use ROA as a proxy for the financial performance of the firms. They use the largest shareholder ownership manager ownership, blockholder ownership, free cash flow and leverage ratios as a proxy for the degrees of potential agency problems. They use a multivariate regression analysis and suggest that corporate governance mechanisms matters in determining the role of agency problems in the financial crises period.

Kumar (2004) examines the effect of corporate foreign institutional and managerial ownership on firm performance from agency perspective in a panel of 2,575 Indian firms between 1994 and 2000. He finds that the equity ownership by dominant group influences firm performances; however foreign shareholding pattern does not influence the firm performance significantly.

Industrial classification on agency problems and financial performance is also worth to consider. Gasaway (2000) constructs an agency theory based analysis of management ownership and firm financial performance of 500 high technology firms between 1994 and 1997. Financial performance, accounting performance and market performance variables are used in order to measure firm performance. Findings reveal that increasing levels of management ownership does not seem to increase firm performance. And, besides minority management ownership seems to have little effect on firm financial performance.

Not only considering the industry specific variables, but also incorporating the country specific variables; Brooks and Davidson (2003) investigate the interaction of R&D activity and agency costs on the value of 24,000 publicly listed firms across thirteen high income economies between 1999 and 2001. They find that R&D adds

value while high agency costs reduce it. They explore that R&D keeps adding value, even when agency costs are high. They also state that those firms where the agency costs are high and so the R&D intensity, the debt control hypothesis is at work.

Bulan et al. (2009) explore the board characteristics on firm productivity in terms of total factor productivity among 1.109 US manufacturing firms between 1996 and 2005. They use board size, board independence, CEO board leadership and board ownership as board characteristics. They find that board independence is positively associated with productivity while CEO board leadership is negatively associated with productivity. They also reveal that board ownership is related to productivity with an inverted U-shape.

Table 4.2 presents a summary of the prior studies which investigate the relationship between agency costs, corporate governance mechanisms and ownership structure together with the other control mechanisms related with agency costs.

Table 4.2.
Summary of the Prior
Studies

#	Study	Research Question	Dependent Variable(s)	Independent Variable(s)	Control Variable(s)	Sample	Methodology	Findings
1	Sajid et al. (2012)	Investigating the role of ownership structure and corporate governance in mitigating agency cost	<u>Agency cost proxy:</u> Asset utilization ratio	Board size Board independence CEO-chair duality Remuneration structure Managerial ownership Institutional ownership External ownership	Firm size	A sample of 50 firms listed on Karachi Stock Exchange between 2003 and 2006	Multivariate fixed effect regression	Smaller sized board has a tendency to lower agency costs and board independence has a positive relationship with asset utilization ratio. The separation of the post of CEO-chairperson and higher remuneration decrease agency costs.
2	Wellalage and Locke (2011)	Investigating the linkage between agency costs, ownership structure and corporate governance in New Zealand unlisted small business	<u>Principal-Agent proxies</u> Operating expenses Assets utilization ratio <u>Principal-Principal proxies</u> Net income/ number of working owners divided by total sales	Percentage of working owners Monitoring variables-leverage	Firm size Firm performance Firm age Industry type	A sample of 100 unlisted small business between 1998 and 2008	Dynamic panel GMM estimation OLS estimation Endogeneity tests	Agency costs vary with leverage, the life of the business and with its size.

3	Hijazi and Conover (2011)	Examining the empirical relationship between direct equity agency costs and corporate governance control mechanisms to control equity agency costs	<u>Three direct agency cost proxies:</u> Operating expense Asset turnover Selling, general and administrative (SG&A) ratios	<u>Internal corporate governance control mechanisms:</u> Inside ownership Outside ownership concentration The size of the BoD The composition of the BoD CEO-Chairperson duality <u>External corporate governance control mechanisms:</u> The size of bank debt	Firm size Leverage Age Industry	222 US firms	Univariate and multivariate tests	Negative relationship between the proportion of inside ownership and direct agency cost is found. Asset turnover ratio is the best proxy for direct equity agency costs
4	Junwei et.al. (2011)	Investigating the relationship between agency costs and governance mechanisms	<u>Agency cost proxies</u> Asset utilization ratio Sales and management expense ratio Free cash flow Asset liquidity ratio	Board size The proportion of independent directors Dummy variable about duality of chairman and general manager The ratio of the total salary paid to managers to total assets Board shareholding The sum of stakes of the top ten shareholders The ratio of total debt to total assets	Firm size Industry (ln revenue)	China's A Share Listed companies between 2006-2009	Fixed effect regression analysis	The relationship between agency and several internal governance mechanisms is not statistically significant, and the factors influencing the relationship are complex and diverse.

5	Henry (2010)	Investigating the linkage between agency costs, ownership structure and corporate governance compliance for Australian firms	<u>Agency cost proxies</u> Asset utilization ratio Discretionary expenditure ratio Tobin's Q The interaction of free cash flows and growth	Individual governance attributes Board independence CEO-chair duality Board size Board remuneration Executive option use Existence of an audit committee Existence of a remuneration committee Existence of a nomination committee External agency-mitigating attributes Director ownership Institutional ownership External ownership Leverage Dividend yield	Firm risk Firm size	A sample of 120 companies listed on the Australian Stock Exchange between 1992 and 2002	Panel Data	Board independence variable have found to reduce the four agency cost proxies. Firm ownership structure influences its agency environment.
---	--------------	--	--	--	------------------------	---	------------	---

6	McKnight and Weir (2009)	Examining the impact of governance and ownership variables on agency costs within large UK firms	<u>Agency cost proxies:</u> Sales-to-total assets The interaction of free cash flows and growth prospects The number of acquisitions	Board characteristics The percentage of non-executive directors The separation of the posts of CEO and chairman The presence of a nomination committee The presence of an executive director on the nomination committee The CEO tenure The number of additional directorships held by the CEO Ownership Characteristics Managerial Ownership Institutional Investors Debt	Firm sales	A sample of 128 listed companies in UK	Panel Data, Endogeneity tests	Changes in board structures that have occurred in the post-Cadbury period have little, or no, effect on agency costs. Increasing board ownership and debt helps to reduce agency costs
7	Jelinek and Stuerke (2009)	Examining the managerial ownership on agency cost measures	<u>Agency cost proxies</u> Asset utilization ratio Expense ratio	Managerial equity ownership	Firm size Leverage Institutional ownership Research intensity Executive stock options	15.186 firm year observation between 1992 and 2004	Multivariate tests	Managerial equity ownership is nonlinearly and positively associated with asset turnover ratio, negatively associated with the expense ratio.

8	Miller (2009)	Examining the governance mechanisms as moderators of agency costs before the SOX act	<u>Agency cost proxies</u> Asset utilization ratio Expense ratio	CEO ownership Blockholder ownership Board size Outside directors Leverage Audit fees	Total assets (ln)	133 US firms in 2001-2002	Regression analysis	Governance mechanisms do not moderate agency costs in this period.
9	Zgang and Li (2008)	Investigating the impact of capital structure on agency costs	<u>Agency cost proxies</u> Operating expenses to sales	Debt to asset ratio	log of sales ROA Industry dummy	323 UK Public companies	Multivariate Tests	General relationship between leverage and agency costs is significantly negative
10	Chen and Austin (2007)	Investigating the effectiveness of blockholders in mitigating agency costs	<u>Proxies for Agency Costs:</u> SG&A Ratio (managerial extravagance) Asset turnover ratio Adjusted short term debt ratio	Blockholder ownership Outside block ownership Inside block ownership Managerial block ownership Nonmanager inside block ownership	Total assets Total sales Total leverage	Large publicly traded companies from 1996 to 2001	Multivariate regression models	Outside blockholders are more vigilant about mitigating managerial extravagance. Only managerial blockholders overcome underinvestment problems.

11	Truong (2006)	Examining the impact of board characteristics and corporate ownership on agency conflicts	<u>Proxies for agency costs</u> Asset utilization ratio Discretionary expenses	Board characteristics Board size Proportion of outsider directors Board leadership Board age Active board member Number of inside directors CEO tenure Corporate Ownership Blockholder ownership Blockholder concentration Managerial ownership Independent indicator Other governance mechanisms Growth options Short term debt Creditor supervision	Firm size Firm age Firm risk Firm profitability Firm diversification Industry dummy Regulation	Top 500 firms listed on the Australian Stock Exchange as at 2004	OLS estimation method	Find a positive and significant relationship between managerial ownership and asset utilization. There is little evidence to suggest a linkage between board characteristics and agency costs
12	Davidson et al. (2006)	Investigating the agency costs, ownership structure and corporate governance in pre- and post-IPO firms	<u>Proxies for agency costs</u> Asset utilization ratio SG&A ratio	Ownership variables The ownership share of the primary owner The number of nonmanager shareholders	industry effect	293 firms before the IPO and the year after the IPO	Independent sample t test Multivariate regression analyses	They find a positive relationship between management ownership and firm performance.

13	Henry (2006)	Examining the level of agency costs inherent in listed firms and evaluates governance and ownership attributes	<u>Measurement of agency costs:</u> Asset utilization ratio Asset liquidity ratio Free cash flow Tobin's Q	Ownership structure attributes Director ownership Institutional ownership External ownership Financial policy attributes Leverage ratio Dividend yield Corporate governance attributes Board size CEO-chair duality Board independence Board remuneration	Firm risk Firm size	A sample of 120 companies listed on the Australian Stock Exchange between 1992 and 2002.	Panel Data	Agency cost levels are related to the board independence, board remuneration, CEO-chairman duality and institutional share ownership
14	Hijazi (2006)	Investigating direct agency cost of equity on bank loans.	<u>Measurement of agency costs:</u> Operating expense SG&A ratio Asset utilization ratio Free cash flow	Bank loans	Firm size Firm Age Industry Firm leverage	6.139 NYSE firms for 1997.	Panel Data Chow Test	The proportion of institutional ownership and asset utilization ratio is statistically significant.

15	Ertuğrul (2005)	Examining the linkage between agency costs and stock returns	Monthly stock excess return	<u>Principal-Agent proxies (Equity related agency costs)</u> Excessive perquisite consumption Work shirking Entrenchment Overinvestment Debt-related agency costs Monitoring Creating an agency cost index	Firm beta Firm size Governance index	571 listed firms on NYSE between 1996 and 2003	Regression analysis	Agency costs are linked to cross-sectional asset returns. The higher the level of institutional ownership, the lower is the rate of return
16	Fleming et al. (2005)	Examining the linkage between agency costs and ownership structure	<u>Equity agency costs:</u> Discretionary expenses-to sales ln discretionary expense to sales ratio Asset utilization ratio ln asset utilization ratio	Ownership variables Equity holding of working owner Equity holding of nonworking owner Parent firm equity holding	Total bank debt divided by assets ROA R&D expenditure/sales ln sales Age	A sample of 3800 Australian SMEs between 1996 and 1998	Independent sample t test Multivariate regression analyses	A positive relationship between equity agency costs and the separation of ownership and control

17	Florackis and Ozkan (2004)	Extending the empirical literature on the determinants of agency costs by using a large sample of UK firms	Proxies for agency costs Asset turnover SG&A expense to sales	Ownership variables The percentage of ownership held by executive directors The percentage of equity ownership held by non-executive directors Board structure: The total number of board CEO dummy Compensation Structure Salary Option dummy Capital structure Debt to asset	Size Market to book	A large sample of publicly traded UK firms over the period 1999-2003	Univariate and multivariate analysis	Managerial ownership, managerial compensation and ownership concentration seem to play an important role in mitigating agency costs.
18	Singh and Davidson (2003)	Extending the work of Ang et al. (2000) to large corporations	Agency cost proxies: SG&A Expense ratio Asset turnover ratio	Inside ownership Outside block ownership Board size Proportion of insiders Proportion of independent outsiders	total salestotal assets	A sample of 1528 firms listed on NYSE from the year 1992 to 1994	Panel data; fixed, random, industry effects	Managerial ownership is positively related to asset utilization
19	Brooks and Davidson (2003)	Examining the R&D, Agency Costs and Capital Structure across 13 companies	Tobin's Q	Agency cost proxy: Asset turnover ratio	lnasset dividend yield ROA RD Expense to net sales debt level	24,000 publicly listed firms between 1999 and 2001	Panel data analysis	R&D adds value even when agency costs high.

20	Ang, Cole and Lin (2000)	Investigating the linkage between agency costs and ownership structure	Agency cost proxies: Expense ratio Asset utilization ratio	Ownership variables The ownership share of the primary owner The number of nonmanager shareholders External monitoring variables Firms managed by an outsider The number of banks from which the firm obtains financial services The length of a firm's relationship with its primary bank Debt to asset ratio	Firm age Firm size Industry dummy	A sample of 1708 small corporations	Independent sample t test Multivariate regression analyses	Agency costs are significantly higher when an outsider rather than an insider manages the firm; are inversely related to the manager's ownership share; increase with the number of nonmanager shareholders
----	--------------------------	--	--	--	--	--	---	--

4.1.2. Prior Empirical Literature Based on Turkish Context

Despite much valuable insights provided by the agency theory, only very few studies directly tackle the measurement issue of agency costs in Turkey. Turaboğlu (2002) investigates the problems among the claimholders and resulting agency costs within the framework of agency theory. He explores the firm ownership structure and firm performance under agency theory by using 66 listed and 48 non-listed Turkish firms between 1994 and 1999. Return on Equity (ROE), Tobin's Q ratio are used as dependent variables and ownership structure, net sales, tangible assets and industry dummy are utilized as independent variables. Overall, the empirical results indicate that different ownership structures do not have any effect on performance of Turkish firms in this period. Additionally, ownership structure does not affect agency costs in listed and non-listed companies in the overall period.

Akyol (2007) explores the agency costs and dividend policy for 108 listed firms between 1997 and 2002. Dividend yield is used as dependent variable and ownership structure, growth rate, financial leverage, operating leverage, firm size and free cash flow are used as the explanatory variables. Regression analysis is utilized and findings show that agency costs do not have an impact on the dividend yields of the listed firms in these period.

Söylemez (2007) investigate the effects of agency costs in terms of operating expense and free cash flow over total assets on 144 manufacturing firms between 2002 and 2006. Concentrated ownership, foreign ownership and free float ratio are used as ownership structure variables. Debt level, investor profile and firm risk are used as explanatory variables. In this study, firm size and market to book value are used as firm specific control variables. He utilizes two models with two regression analyses and finds that firms' size and firm performance has a tendency to decrease the agency costs in terms of operating expense. He also states that foreign ownership increase the agency costs whereas the level of free float decreases the agency costs. Furthermore, according to these results, institutional investors have not found as a monitoring mechanism for reducing the agency costs.

Güvençer (2008) studies the agency theory and its effect on firm performance on 128 listed firms between 2003 and 2007. He uses operating expense ratio as an agency cost proxy and market to book value as market performance indicator. He runs two models. In the first model, he investigates the relationship between agency costs and ownership structures and no statistically significant relation between the structure of capital ownership and agency costs is found in this model. In the second model, he investigates the linkage between market performance and ownership structure. He finds a significant relationship between firm performance and foreign firm's capital ownership for the period been analyzed.

In Turkey, after implementing the Corporate Governance Principles by CMB, several regulations have been realized to improve the good governance practices. There have been numerous empirical studies which indicates the linkage between corporate governance regulations and financial performance, ownership structure and financial performance in several industries, public and private firms.

One of these studies explores whether the corporate governance differs according to the ownership concentration of Turkish commercial bank. Turkey has experienced in 2000 and 2001 financial crises mainly related with the Turkish banking system and one of the main reasons of the failures for many banks is the inadequate compliance with the corporate governance regulations. The features of ownership structure are analyzed in two terms as the ownership concentration like the share of biggest shareholders and the others and as the shareholder's group type like public owned, family group owned and foreign owned banks in this study.

Berezneak (2007) examines the variations in the 28 Turkish commercial bank's governance structures can be related with the ownership concentration and the type. She utilizes regression analyses and explore that there is no relationship between the ownership concentration and corporate governance implications for the commercial banks in 2007. She also reveals that the publicly owned banks prefer to apply the corporate governance principles align with the direction of biggest shareholders. Otherwise, foreign owned and publicly owned banks apply the corporate governance mechanisms in order to attract foreign investors.

4.2. HYPOTHESIS DEVELOPMENT

According to the prior literature eight hypotheses are developed. Due to the inconclusive results of previous research on the significance and direction of the relationship between board size and agency costs; ownership concentration and agency costs, the alternative hypotheses are stated in a manner that allows for a 2-way test of the significance and direction of the latter relationship.

In the light of the prediction hypotheses in the null and alternative form are stated as;

H_{1,0}: There is no relationship between agency costs and board size.

H_{1,1}: There is a significant relationship between agency costs and board size.

H_{2,0}: There is no relationship between agency costs and the percentage of independent directors on the board.

H_{2,1}: There is a negative relationship between agency costs and the percentage of independent directors on the board.

H_{3,0}: There is no relationship between agency costs and the CEO-chairperson duality.

H_{3,1}: There is a positive relationship between agency costs and the CEO-chairperson duality.

H_{4,0}: There is no relationship between agency costs and audit quality.

H_{4,1}: There is a negative relationship between agency costs and audit quality.

H_{5,0}: There is no relationship between agency costs and managerial incentives.

H_{5,1}: There is a negative relationship between agency costs and managerial incentives.

H_{6,0}: There is no relationship between agency costs and ownership concentration.

H_{6,1}: There is a significant relationship between agency costs and ownership concentration.

H_{7,0}: There is no relationship between agency costs and institutional ownership.

H_{7,1}: There is a negative relationship between agency costs and institutional ownership.

H_{8,0}: There is no relationship between agency costs and firm dividend yield.

H_{8,1}: There is a negative relationship between agency costs and dividend yield.

H_{9,0}: There is no relationship between agency costs and firm leverage.

H_{9,1}: There is a negative relationship between agency costs and firm leverage.

H_{10,0}: There is no relationship between agency costs and firm performance.

H_{10,1}: There is a negative relationship between agency costs and firm performance.

The differences in hypotheses expectations across the different agency cost proxies must be noted. Higher agency costs are expected for sample firms with higher operating expense ratio, SG&A ratio and GA Ratio; whereas agency costs are expected to be more prominent in firms with lower asset utilization ratios or which exhibit poor management performance.

4.3. SAMPLE SELECTION AND DATA DESCRIPTION

Relevant data are acquired from a number of sources. Agency cost proxies are obtained from the BIST Data Database. Corporate governance attributes and ownership variables are hand-collected from company annual report documents, Corporate Governance Compliance Reports and BIST Public Disclosure Platform (KAP). The data relevant with the institutional investors is gathered from The Association of Capital Market Intermediary Institutions of Turkey (TSPAKB) and Central Securities Depository Institution of Turkey (MKK). The presence of the Biggest four¹ external auditor which represents the audit quality variable is obtained from the External Auditor's reports declared by the companies. Management incentives data is available from the 2008 for Turkish firms and it is obtained from the financial statement's footnotes of each firm. Data for control variables are also derived from the financial statements of the companies.

The sample consists of the Turkish non-financial firms incorporated on BIST covering the period 2005 and 2011. Because of the data limitation, the data relevant with the management incentives is examined for the years of 2008-2011. Due to their different accounting practices, financial companies are excluded from the sample. After adjustments, the dataset is provided as 1.491 firm-level yearly observations from a total of 213 nonfinancial companies incorporated on BIST.

The analyses are done using with the Data Analysis and Statistical Software (STATA) program which provides a number of tools for analyses.

Industry classifications of these 1.491 firm-level yearly observations are illustrated in the Table 4.3 below.

¹ At the time of the study, the biggest four auditing firms in Turkey are the Deloitte, Ernst &Young, KPMG and PWC.

Table 4.3.
Industry Classifications of the Firms

Industry Group	Number of Observation
1 Mining	14
2 Manufacturing Industry	1001
3 Electricity, Gas and Water	28
4 Construction and Public Works	21
5 Wholesale and Retail Trade	168
6 Transportation, Telecommunication and Storage	28
7 Education, Health, Sports and Other Services	42
8 Holding and Investment Companies	119
9 Technology	70
TOTAL	1491

4.3.1. The Dependent Variables

Prior research on agency cost measurement has been explained on the previous part of the study. This study employs four different proxy measures that relate to various aspects of firm operations, in an attempt to provide a comprehensive and robust representation of the agency costs environment for Turkish nonfinancial listed firms. For this purpose; operating expense ratio, Selling, General and Administrative (SG&A) ratio, General Administrative (GA) ratio and asset turnover ratio are used as the direct agency cost proxies.

The first dependent variable is the operating expense ratio (identified as *opexpr* in the analyses). Several empirical studies have utilized operating expense ratio as a direct agency cost proxy in order to state how effectively the firm's management controls operating costs including excessive perquisite consumptions (Ang et al. 2000; Fleming et al. 2005; Ertuğrul 2005; Truong 2006; Zgang and Li 2008; Jelinek and Stuerke 2009; Miller 2009; Wellalage and Locke 2011; Junwei et al. 2011; Hijazi and Conover 2011).

The second ratio is the Selling, General and Administrative (SG&A) Expenses to sales ratio (identified as *sgrat* in the analyses). As identified before, SG&A expenditures are the sum of Selling Expenses and Administrative Expenses. Selling Expenses include sales salaries and commissions, sales office salaries, travel and

entertainment, advertising expense, freight and transportation, shipping supplies and expense, postage and stationery, telephone and internet expense and depreciation of sales equipment. Administrative expenses include officers' salaries, office salaries, legal and professional services, utilities expense, insurance expense, depreciation of building and depreciation of office equipment (Kieso et al. 2010, p.138). Additionally, management may also use these expenses to camouflage expenditures on perquisites (Hijazi, 2006, p.7). Therefore, higher agency conflict would be reflected in higher managerial discretionary expense on SG&A expenses (Singh and Davidson 2003; Florackis and Ozkan 2004; Hijazi 2006; Davidson et al. 2006; Chen and Yur-Austin 2007; Hijazi and Conover 2011).

The third dependent variable is the General and Administrative (GA) expense to sales (identified as *grat* in the analyses). These expenses include officers' salaries, office salaries, legal and professional services, utilities expense, insurance expense, depreciation of building and depreciation of office equipment (Kieso et al. 2010, p.138).

These three ratios are the direct agency cost proxy. A positive coefficient on any of the independent variables when regressed each of these dependent variables indicates an increase in these ratios, which demonstrates an increase in the agency costs. A negative coefficient on any of the independent variables when regressed each of these dependent variables indicates a decrease in these ratios, which demonstrates an increase in the agency costs.

Several empirical studies have utilized asset turnover ratio (identified as *astr* in the analyses) as a direct and inverse agency cost proxy in order to state efficiently a firm manages its assets. (Ang et al. 2000; Singh and Davidson 2003; Florackis and Ozkan 2004; Fleming et al. 2005; Ertuğrul 2005; Hijazi 2006; Henry 2006; Chen and Yur-Austin 2007; Jelinek and Stuerke 2009; McKnight and Weir 2009; Miller 2009; Henry 2010; Wellalage and Locke 2011; Junwei et al. 2011; Sajid et al. 2012).

Asset utilization, also known as the asset turnover ratio measures management's ability to employ assets efficiently. This ratio can indicate the asset utilization effectiveness and the ability of the firm's management to direct assets into

the most productive use. A high asset utilization ratio shows a large amount of sales are generated for a given level of assets. A low ratio indicates that management is using its assets in non-cash flow generating, non-optimal investment decisions and probably value destroying ventures (Hijazi, 2006, p.6). Therefore, a higher asset utilization ratio may reflect the management in an efficient way; a lower asset utilization ratio reflects asset deployment for unproductive purposes. Given that a higher asset turnover indicates efficient use of firm assets, a positive coefficient on any of the independent variables when regressed against asset turnover ratio indicates a positive impact on the dependent variable and thus, a decrease in the agency costs. Conversely, a negative coefficient on any of the independent variables indicates a negative impact on the dependent variable and an increase in the agency costs.

In order to see the variations of the variables, industrial classifications are performed. Figure 4.1 shows the asset utilization ratio variable with an industrial breakdown. As can be seen below, this efficiency ratio ranges from 0,2621 for Electricity, Gas and Water to 0,9224 for manufacturing industry with a mean value of 0,8185.

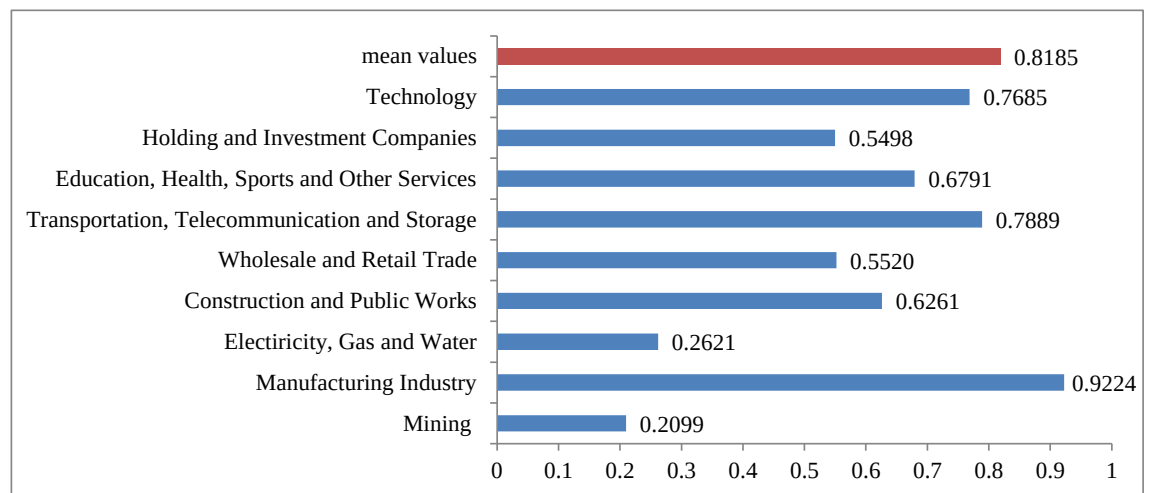


Figure 4.1.
Asset Utilization Ratio by Industrial Classification

Figure 4.2 shows the operating expense ratio with an industrial breakdown. As can be seen from the table, this efficiency ratio ranges from 0,0798 for Education, Health, Sports and Other Services to 0,2244 for mining industry with a mean value of

0,1589. Therefore, both of these figures underline the importance of controlling for differences across industries in terms of agency costs.

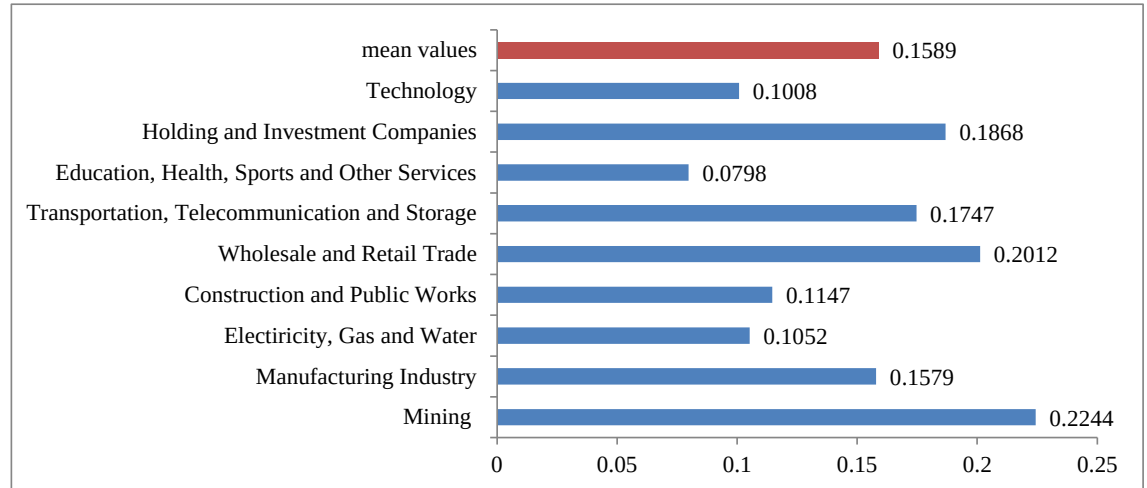


Figure 4.2.
Operating Expense Ratio by Industrial Classification

Finally; operating expense ratio, discretionary expenditure ratio, general and administrative to net sales ratio and asset turnover ratio are used to provide a comprehensive and robust representation of the agency cost environment for listed Turkish nonfinancial companies. Each of the dependent variable is used as a single dependent variable in multivariate regressions.

Table 4.4 summarizes the variables, abbreviations and definitions for the dependent, explanatory and control variables.

4.3.2. The Explanatory Variables

The following section provides detailed information about the measurement of each explanatory and control variables. The variables used in this study as potential determinants of agency cost levels can be classified as two broad categories in terms of Corporate Governance Mechanisms and Control Mechanisms Related with Agency Costs in terms of Ownership Structure, Institutional Investors, Dividend Policy and Debt Financing.

Table 4.4.
Summary of Variables, Abbreviations and Definitions

Variables	Abbreviations	Definitions
Dependent Variable		
Operating expense ratio	opexpr	The ratio of operating expense to net sales
SG&A ratio	sgrat	The ratio of annual Selling, General and Administrative expenditure to annual total sales.
GA ratio	grat	The ratio of annual General and Administrative expenditure to annual total sales.
Asset turnover ratio	astr	The ratio of net sales to total assets
Panel A: Explanatory Variables; Governance Variables		
Board characteristics		
Board size	brdsize	Represented by the number of directors on the Board
Female directors	fedirec	The percentage of female directors on the board
Male directors	madirec	The percentage of male directors on the board
Local directors	locdirec	The percentage of foreign directors on the board
Foreign directors	fordirec	The percentage of male directors on the board
Independent directors	inddirec	The percentage of independent directors on the board
CEO-chairperson duality	CEOchairdual	A dummy variable is included to signify the existence of CEO and boardchairperson duality, which is given a value of "1" if the CEO is also the chairperson of the board of directors and "0" otherwise
Audit Quality	AuditQua	Proxied as if the firm is audited by the BigFour Accounting Firm, it is labeled as 1; else 0.
Managerial Incentives	lnmngincent	Measured as the natural logarithm of managerial incentives at the end of the financial year

Table 4.4 continues

Table 4.4. (continues)
Summary of Variables, Abbreviations and Definitions

Variables	Abbreviations	Definitions
Panel B: Explanatory variables; Agency-mitigating variables		
Ownership concentration		
The greatest associate	GrtAssoc	The percentage of the greatest associate on the ownership
The second great associate	SecGrtAssoc	The percentage of the second great associate on the ownership
The third great associate	ThrdGrtAssoc	The percentage of the third great associate on the ownership
Freefloat	Freefloat	The percentage of public ownership
Individual ownership		
Domestic individual	dmind	The ratio of the number of shares held by domestic individuals to the total number of outstanding shares
Foreign individual	frind	The ratio of the number of shares held by foreign individuals to the total number of outstanding shares
Institutional ownership		
Domestic investment fund	dmfund	The ratio of the number of shares held by domestic mutual funds to the total number of outstanding shares
Domestic corporate	dmcorp	The ratio of the number of shares held by domestic corporate to the total number of outstanding shares
Domestic other institutions	dmothr	The ratio of the number of shares held by domestic other institutions to the total number of outstanding shares
Foreign investment fund	frfund	The ratio of the number of shares held by foreign investment funds to the total number of outstanding shares
Foreign corporate	frcorp	The ratio of the number of shares held by foreign corporate to the total number of outstanding shares
Foreign other institutions	frothr	The ratio of the number of shares held by foreign other institutions to the total number of outstanding shares
Dividend yield	dumdiv	Proxied as if the dividend yield is above the mean, it is labeled as 1; else 0.
Debt financing	debtr	Measured as total debt divided by total assets
Panel C: Firm-level control variables		
Firm profitability	roa	The ratio of net income to total assets
Firm size	lnasset	The natural logarithm of total asset at the end of the financial year
Firm age	age	The number of years that passed since the establishment of the firm to the observation date
Industry dummy	inddummy	Classified in nine categories

i) Corporate Governance Variables

A number of corporate governance attributes are also employed as they have influence on the level of agency costs. These are classified as the board composition, CEO-Chairperson duality, audit quality and managerial incentives.

Board size (identified as *brdsize* in the analyses) is represented as the total number of directors on board. Board composition is also an important debate on this issue whereas board of directors help to solve agency problems inherent in managing any organization (Hermalin and Weisbach 1991; Singh and Davidson 2003; Florackis and Ozkan 2004; Truong 2006; Henry 2006; Miller 2009; Henry 2010; Hijazi and Conover 2011; Sajid et al. 2012). Board composition is categorized as per in terms of gender diversity as female (*fedirec*) and male (*madirec*) and national diversity as local (*locdirec*) and foreign (*fordirec*). It is represented as the percentage of female/male and foreign/local directors on the board.

Another essential measure of the effectiveness of a board is the independence of board of directors (identified as *inddirec* in the analyses). As been mentioned priorly, board independence is one of the key effective corporate governance mechanisms (Singh and Davidson 2003; Florackis and Ozkan 2004; Hermalin and Weisbach 2000; Truong 2006; Davidson et al. 2006; Henry 2006; Miller 2009; McKnight and Weir 2009; Henry 2010; Hijazi and Conover 2011; Sajid et al. 2012). Independent directors are represented by the percentage of independent board members; those of whom are declared as to be independent by the firm according to the CMB's Corporate Governance Guidelines.

CEO-Chairperson duality (identified as *CEOchairdual* in the analyses) is represented as a dummy variable is included to signify the existence of CEO and board chairperson duality, which is given a value of "1" if the CEO is also the chairperson of the board of directors and "0" otherwise. The duality of CEO-chairperson and the separation of the posts of CEO-chairperson has been commonly used in the agency theory literature (Florackis and Ozkan 2004; Henry 2006; Miller 2009; McKnight and Weir 2009; Henry 2010; Hijazi and Conover 2011; Sajid et al. 2012).

Several studies have used the presence of Big-Four auditor as variable which affect the agency cost level. Generally the brand name of the external auditor is used as a proxy for representing the quality of external auditing (identified as *AuditQual* in the analyses). Following prior studies (Collin et al. 2005; Lei et al. 2011); this study also utilizes the presence of Big-4 as a corporate governance mechanism.

The effectiveness of managerial compensation (identified as *lnmngincentr* in the analyses) is provided by several empirical studies in terms of cash, bonus or executive stock options. (Florackis and Ozkan 2004; Jelinek and Stuerke 2009; Henry 2010). For this purpose, managerial incentive variable is also documented in this study.

ii) Ownership Structure and The Other Control Variables Related with Agency Costs

A range of mechanisms to align the interests of the managers and owners have been suggested to reduce agency costs in literature. There are several control variables related with agency costs which may impact on firm-level agency costs. These attributes can be grouped as ownership concentration, individual ownership, institutional ownership, dividend yield and debt financing.

In order to test the different compositions of large shareholders on agency costs, the largest shareholders are classified as three groups in terms of The Greatest Shareholder (*GrtAssoc*), The Second Great Shareholder (*SecGrtAssoc*), and The Third Great Shareholder (*ThrdGrtAssoc*). Based on the collected data, the ownership concentration is measured by the ownership share of these three largest shareholders. In this study, the definition of a blockholder is a shareholder holding 10 % or more of the firms' stock (Mourier 2010, p.25). In order to evaluate the different compositions of ownership, they are distinguished as three largest blockholder as; The Greatest Shareholder, The Second Great Shareholder, and The Third Great Shareholder. The Greatest Associate is represented by the percentage of the greatest associate on the ownership whereas the second great associate is represented by the percentage of the second great associate on the ownership. Additionally, The Third Great Associate is

represented by the percentage of the third great associate on the ownership. Free Float is represented by the percentage of free float of the firm.

The ownership share of the primary owner (Ang et al. 2000; Davidson et al. 2006); corporate ownership in terms of blockholder ownership and concentration (Truong 2006; Miller 2009); managerial ownership (Chen and Yur-Austin 2007; Jelinek and Stuerke 2009) are also studied in agency theory.

Another essential agency mitigating variable is the monitoring effects of institutional investors (Henry 2006; McKnight and Weir 2009; Henry 2010; Sajid et al. 2012). Nofsinger and Sias (1999) use the annual fraction of shares held by institutional investors for the firms listed on NYSE. They define the fractional institutional ownership as the ratio of number of shares held by institutional investors to the number of shares outstanding. In this study, this definition is implemented to analyze the institutional investor's data. The annual fraction of shares held by domestic and foreign institutional investors between 2005 and 2011 is used. Institutional investors are categorized as the domestic and foreign institutional investors. Moreover, the domestic and foreign institutional investors are divided into three categories which are defined by the CMB Investor's Analysis Report (2011). These categories are listed below:

Investment Funds; comprises mutual funds and private pension plans

Corporate; comprises banks, financial intermediaries, corporations and investment trusts.

Other Institutions; comprises charities, associations and cooperatives.

In this study, the fractional institutional ownership is divided into two categories as domestic and foreign institutional ownership. According to the classification which is shown above, domestic institutional ownership is again divided into again two categories as domestic investment fund ownership (*dmfund*) and domestic corporate ownership (*dmcorp*). As the same manner, foreign institutional ownership is also divided into two categories as foreign investment fund ownership (*frfund*) and foreign corporate ownership (*frcorp*). Fractional individual ownership is

divided into two categories as domestic individual ownership (*dmind*) and foreign individual ownership (*frind*).

In order to see its effect on agency cost proxies, dividend yield is used (Brooks and Davidson 2003; Henry 2006; Henry 2010) as a dummy variable and proxied as if the dividend yield is above the mean, it is labeled as 1; else 0 (identified as *dumdiv* in the analyses).

Creditors are also important stakeholders. As debt ratio (identified as *debtr* in the analyses) increases, firm's default risks also increase. Therefore, debt level plays an agency mitigating variable (Ang et al. 2000; Florackis and Ozkan 2004; Henry 2006; Hijazi 2006; McKnight and Weir 2009; Henry 2010; Junwei et al. 2011).

4.3.3. Firm-level Control Variables

In order to ensure that the independent variables been described previously are actually the predictors of the agency costs, several control variables which have been found by academicians that impact the agency cost proxies are included. Several prior studies have reported that firm profitability, firm size and firm age have bearings on the magnitude of agency costs. Therefore, these variables are incorporated into the multivariate analyses.

Mourier (2010) states that return on assets (identified as *roa* in the analyses) is an industry dependent measure that varies in size from industry to industry. This proxy is used as a control variable together with the industry dummies. It is calculated as net income divided by total assets, and it shows the profitability of the company associated to and generated from its total assets. Several empirical studies utilize firm performance as a control variable in order to see the effect on agency cost level (Fleming et al. 2005; Truong 2006; Zhang and Li 2008; Wellalage and Locke, 2011).

Firm size is used as the natural logarithm of total assets (identified as *lnasset* in the analyses) at the end of the financial year as a control variable. Large firms generally draw more scrutiny from the capital markets (Chen and Yur-Austin 2000), which can be regarded as an external monitoring mechanism (Ang et al. 2000; Singh and Davidson

2003; Hijazi 2006; Henry 2010; Hijazi and Conover 2011; Wellalage and Locke 2011; Sajid et al. 2012).

Closely related to firm size, firm age (identified as *age* in the analyses) is used as a control variable (Ang et al. 2000; Fleming et al. 2005; Hijazi 2006; Truong 2006; Hijazi and Conover 2011; Wellalage and Locke 2011).

Agency cost proxies vary within industries (identified as *industry dummy* in the analyses. Industry has been used as a control variable to control for direct industry effects on performance (Ang et al. 2000; Truong 2006; Davidson et al. 2006; Hijazi 2006; Zhang and Li 2008; Wellalage and Locke 2011; Hijazi and Conover 2011; Junwei et al. 2011). It is coded according to BIST reports and represented by dummy variables. The empirical model includes nine corresponding dummy variables to control industry specific effects.

5. RESEARCH FINDINGS

In this part of the study, the results of the descriptive statistics, correlation coefficients, cross sectional regression analyses and panel data regression analyses are demonstrated in terms of the four agency cost proxies. And further analyses will also be provided to have clearer evaluation of the results.

5.1. DESCRIPTIVE STATISTICS

The first step for evaluating the data model been developed is calculation of descriptive statistics. Table 5.1 displays; four agency cost proxy variables, explanatory and control variables with mean and median statistics for each individual year of the overall sample period between 2005 and 2011. Statistics are presented as Panel A; to show the results in overall period of time and as Panel B; to demonstrate mean values for each sample year.

In order to eliminate the extreme values, outliers are used for some of the variables for avoiding the excess value of minimum and maximum points of related variables. This elimination is made according to 1 % and 99 % percentiles of the relevant variables.

Across the firm observations, in terms of dependent variables; the average (median) operating expense ratio across this period for Turkish firms is 0.1583 (0.1460) whereas the average SG&A ratio is 0.0958, with a median level of 0.0750. For GA ratio; the mean (median) result is 0.1352 (0.0362).

One of the objectives of this study is to compare the results with the other studies. Fleming et al. (2005) who analyze a sample of 3.800 Australian SME's between 1996 and 2003, find a higher mean (median) operating expense ratio than Turkish firms which is 0.2051 (0.1671). Moreover, Florackis and Ozkan (2004) studied for the large 897 UK firms for the period between 1999 and 2003 and depict the SG&A ratio with the mean (median) values as of 0.4500 (0.2800).

The last agency cost variable is the asset turnover ratio in which the mean value of the model is found as 0.8198, which is 0.0477 higher than the median

efficiency level (0.7721). To compare finding with the other studies using this ratio; Singh and Davidson (2003) observe the proxies of agency costs for the sample of 1.528 firms listed on NYSE between 1992 and 1994 and find mean (median) asset utilization ratio as 1.4296 (1.2400). In a recent study conveyed by Henry (2010), he analyzes a sample of 120 companies listed on the Australian Stock Exchange between 1992 and 2002 and finds that the mean (median) asset turnover ratios as 0.8649 (0.6780). The similarity in the results of Australian and Turkish firms is worth mentioning.

On the other hand Junwei et al. (2011) who observe the mean and median asset turnover ratios for the China's A-listed firms from 1996 to 2009, depict the average asset turnover ratio as 0.7428 in which the median operating efficiency level becomes 0.6 lower than the mean level. All these comparisons indicate that the average asset turnover ratio in Turkey is higher than China, lower than Australian and NYSE firms for the related periods.

Meanwhile, Panel B demonstrates the result of the movements in annual mean values for each individual year. While the agency cost proxies of operating expense ratio and asset turnover ratio and are quite stable across the seven-year sample period, SG&A and GA ratios of the firms have increased in the recent years. There is an evidence of very little movement in asset turnover ratio, which suggests no substantial improvement in sample firm efficiency during this period.

In regards of the governance variables during the period, number of board size varies from 3 to 15. Across the sample firms, the average board size is 6.4757 and it is substantially the same for the each year. The board of directors in Turkey is unitary in its structure and consist at least three members appointed for three years.

In order to evaluate the board composition per gender, the descriptive of the female and male directors is given. The percentage of female directors varies from 0 % to 75 % with a mean of 12 %. On the other hand, the percentage of male directors varies from 25 % to 100 % with a mean of 88,12 %. It can be seen that the percentage of male directors has decreased from 89 % to 86,15 % in recent years. Although, there is a little increase in the percentage of female directors in the recent years, male directors on the board in Turkey is still dominant. Deloitte's "Women in the Board: A Global Perspective" Report 2013 states the percentage of female directors on the board as 28,8 %; 28,7 % and 31,9 % in Finland, Sweden and Norway respectively. The reason of the high percentage of female directors on the board within those countries is the new amendments emphasizing the representation of both genders on the board. However, the percentage of female directors on the board is only 8,7 % in German and 8,3 % in Swiss where no gender quotas for women on representation on boards are in force.

As to the foreign directors perspective; the percentage of foreign directors varies from 10,67 % to 13,02 % with a mean of 12,63 %. And there appears to be an increasing trend towards foreign directors after 2005, especially, when it reaches the peak level as 14,53 % in 2009. After this year, a little decrease in percentage of foreign directors and a little increase in the percentage of local directors on the board are observed.

Table 5.1.
Descriptive Statistics for the Dependent and Independent Variables
Panel A: Overall Period from 2005 to 2011

	Abbreviation	Mean	Median	Standard Deviation	Minimum	Maximum	N
Dependent variables							
Operating expense ratio	opexpr	0.1583	0.146	0.0978	0.0033	0.4961	1366
SG&A ratio	sgrat	0.0958	0.0750	0.1110	0.0105	0.4970	1366
GA	grat	0.1352	0.0362	0.3582	0.0105	0.4950	847
Asset turnover ratio	astr	0.8198	0.7721	0.4416	0.0038	1.9959	1341
Governance variables							
Board characteristics							
Board size	brdsize	6.4757	6	2.0737	3	15	1341
Female directors	fedirec	0.1225	0	0.1531	0	0.75	1341
Foreign directors	fordirec	0.1263	0	0.2411	0	1	1341
Independent directors	inddirec	0.0276	0	0.0806	0	0.5	1341
Managerial incentives	lnmngincent	14.2222	14.2838	1.4435	9.4579	14.4482	899
Agency mitigating variables							
Ownership Concentration							
GreatAssociate	GrtAssoc	0.4775	0.4885	0.2289	0	0.9928	1341
SecondGreatAssociate	SecGrtAssoc	0.0874	0	0.1156	0	0.5083	1341
ThirdGreatAssociate	ThrdGrtAssoc	0.0174	0	0.0477	0	0.4999	1341
Freefloat	Freefloat	0.3368	0.3073	0.1892	0.0012	0.9868	1341
Individual Ownership							
Domestic individual	dmind	0.6248	0.6905	0.3073	0	0.9999	1341
Foreign individual	frind	0.0071	0.0016	0.0217	0	0.228	1341
Institutional Ownership							
Domestic fund	dmfund	0.1011	0.001	0.0211	0	0.1543	1341
Domestic corporation	dmcorp	0.1226	0.0306	0.1939	0	1	1341
Foreign fund	frfund	0.1019	0.0098	0.1736	0	0.9733	1341
Foreign corporation	frcorp	0.1209	0.0242	0.206	0	0.9733	1341
Debt financing	debtr	0.4636	0.4338	0.2606	0.0064	14.317	1341
Firm level control variables							
Firm profitability	roa	0.0254	0.0272	0.1097	-0.4778	0.4929	1341
Firm size	lnasset	19.2834	19.1514	1.6579	15.6317	25.7413	1341
Firm age	age	34.8724	36	13.8733	2	100	1341

Panel B: Annual Mean Values from 2005 to 2011

	Abbreviation	2005	2006	2007	2008	2009	2010	2011	2005-2011
Dependent variables									
Operating expense ratio	opexpr	0.1550	0.1529	0.1605	0.1638	0.1656	0.1642	0.1504	0.1583
SG&A ratio	sgrat	0.1950	0.0020	0.0540	0.0945	0.1811	0.2202	0.2130	0.0958
GA	grat	0	0.0022	0.0597	0.1036	0.1440	0.1368	0.1213	0.1352
Asset turnover ratio	astr	0.8300	0.8739	0.8523	0.8036	0.7660	0.7994	0.8165	0.8198
Governance variables									
Board size	brdsize	6.5000	6.4526	6.4255	6.4468	6.5376	6.5153	6.4479	6.4757
Female directors	fedirec	0.1140	0.1116	0.1110	0.1255	0.1175	0.1342	0.1428	0.1225
Foreign directors	fordirec	0.1067	0.1223	0.1219	0.1309	0.1453	0.1261	0.1302	0.1263
Independent directors	inddirec	0.0104	0.1510	0.1960	0.0703	0.0309	0.0400	0.0538	0.0276
Managerial incentives	lnmngincent	—	—	—	14.0989	14.1079	14.2248	14.3975	14.2222
Agency mitigating variables									
GreatAssociate	GrtAssoc	0.4594	0.4684	0.4701	0.4672	0.4932	0.4910	0.4919	0.4775
SecondGreatAssociate	SecGrtAssoc	0.0847	0.0814	0.0878	0.0969	0.0863	0.0890	0.0857	0.0874
ThirdGreatAssociate	ThrdGrtAssoc	0.0224	0.0167	0.0184	0.0214	0.0138	0.0126	0.0172	0.0174
Freefloat	Freefloat	0.3342	0.3361	0.3364	0.3221	0.3377	0.3452	0.3452	0.3368
Individual Ownership									
Domestic individual	dmind	0.6830	0.6485	0.5903	0.602	0.6268	0.6142	0.6096	0.6248
Foreign individual	frind	0.0075	0.0066	0.0078	0.0074	0.0066	0.0072	0.0065	0.0071
Institutional Ownership									
Domestic fund	dmfund	0.0101	0.0093	0.0089	0.0076	0.0087	0.0123	0.0136	0.1011
Domestic corporation	dmcorp	0.0745	0.0864	0.1097	0.1414	0.1386	0.1460	0.1592	0.1226
Foreign fund	frfund	0.0803	0.0777	0.1002	0.1227	0.1123	0.1093	0.1098	0.1019
Foreign corporation	frcorp	0.1235	0.1536	0.173	0.1099	0.0989	0.1016	0.0879	0.1209
Debt ratio	debtr	0.4212	0.4446	0.4258	0.04942	0.4723	0.4739	0.5115	0.4636
Firm level control variables									
Firm profitability	roa	0.0268	0.0342	0.0524	-0.0039	0.0169	0.0284	0.0234	0.0254
Firm size	lnasset	19.0111	19.1074	19.1565	19.3187	19.3369	19.4308	19.6076	19.2834
Firm age	age	31.7287	32.9105	34.0531	34.5851	35.6331	37.1071	37.9062	34.8724
Number of observation		188	190	188	188	199	196	192	1341

In general terms, the variables of board composition except independent directors; are quite stable across the seven year sample period. The degree of board independence has increased after 2009, as a result of the recent regulations on corporate governance principles in Turkey. It should be also noted that higher percentage of so called “independent directors” before 2009 are unable to match with the criteria’s of international standards of board independency.

Ararat et al. (2010) evidence that the Turkish board members are generally populated with the ex-members of army forces, ex-bureaucrats and ex-and current politicians between 2006 and 2008 and point out that the percentage of these kinds of directors on the board has increased 12.61 % to 15.33 % from 2006 to 2008. They also state that the presence of these directors may serve as an intermediary mechanism between the firm and official bodies.

Board independency has become is a key element with recent efforts to improve corporate governance in a large number of countries including Turkey and therefore independent directors, who are defined as being independent from significant and especially controlling shareholders, plays the major role in corporate governance. With more independent directors, boards that are expected to be more independent and the incentives to be better aligned among the firms. As a result; increase in the number of independent directors relative to executive directors is one of the important mechanisms to improve corporate governance.

The recent regulations in Turkey pay an importance to an effective election of the board of directors. The regulations state that if the board Chairman and CEO are the same person reasons, for this matter will be disclosed. Turkish framework similar with the UK’s framework regards duality as undesirable as this could give one person too much power over board decisions. However, related table also depicts that interestingly, there is a trend towards more CEO-chairperson duality towards the end of the sample period after an initial decline up until 2007.

In the overall period, Table 5.1, Panel B depicts that almost 52,19 % firms are audited by the Big Four audit firms. While the firms which are audited by the Big Four

is 46,27 % in 2005; the firms which prefer Big Four audit firms has been increased to 57,81 %. It is notable that there has been a significant increase in the audit quality within seven years.

Managerial incentives, in a broad sense influence the performance through stimulating top managers to high efforts, have started to be reported within the financial footnotes of the firms since 2008. Mean value for the natural log of the top management incentives is shown as 14.2222 in Table 5.1. Evidences show that sample firms are increasingly providing and introducing incentives to the top management.

As a summary, governance variable figures of the sample prove that the firms have been adopting good corporate governance regulations as recommended by the implementation of Turkish corporate governance codes in recent years.

In regards to the agency-mitigating variables across this period; ownership structure is evaluated at the first place. As mentioned in the previous chapters it is categorized as the percentages of the greatest shareholder associate; the second great shareholder associate and the third great shareholder associate. In the overall period, the percentage of the greatest associates varies from 45,94 % to 49,19 % with a mean percentage of 47,75 %. The results also indicate that sample firms have increased the level of shareholder concentration within the last three years which is not surprising as the concentrated ownership, often in the form of family-controlled is very common practice among Turkish firms and those of them listed on BIST.

Demirağ and Serter (2003) find that the average percentage shares held by the largest shareholder is 45.10 % in their analysis through 94 firms listed on BIST in 1999. Ararat et al. (2010) also document that Turkish board characteristics are consisted with the members of the controlling shareholder and their affiliated parties. Shareholder concentration is common in other emerging economies as well (Wang 2010). For East Asian countries, such as Hong Kong, Indonesia and Malaysia, the greatest shareholdings of the firms are approximately 50 % (Claessens and Yurtoğlu 2013, p.10).

Aguilera et al. (2012) have collected firm ownership data for the emerging markets; Brazil, Chile and South Korea and they argue that concentration of corporate shareholdings continues to be common characteristics among these emerging economies. They measure the largest shareholders percentage for Brazil, Chile and South Korea between 2004 and 2008 as 66%, 68% and 39.9% respectively.

Claessens and Yurtoğlu (2013, p.10) also state that Israel, Kenya, Turkey, Tunisia and Zimbabwe has concentrated ownership. On the other hand, widely held corporations are more common in other countries, like US.

Free float percentages of the firms been analyzed are quite stable with a mean percentage of 33,68 %. Hence increase in the free float percentages of the firms will enable to decrease the ownership concentration of Turkish firms.

The descriptives of individual and institutional ownership have also been reported in this table. In terms of individual ownership, domestic individual ownership has a mean percentage of 62,48 % and the foreign individual ownership only has a mean percentage of 0,07 %. And as per to the institutional ownership, the mean percentage of domestic corporation has the biggest share in the sample with 12,26 %. This figure also states that the institutional ownership shares are still not in the desired level.

Dividend yield has increased between 2005 and 2009 and peaked at a mean level of almost 25 % in 2009 and, interestingly, there appears to be a decreasing trend after this year which supports the suggestion of Turkish firms do not have a stable dividend policy.

Sample firms also appear to become more risky over time that can be seen from the variation of 42,12 % to 51,15 %. Additionally, the average debt ratio of the firms is 46,36 % in the overall sample.

Related table also presents the firm level control variables for the study sample. The overall mean value of the return on asset is 0.0254 which varies from 0.0268 to

0.0234 between 2005 and 2011. Only in 2008, as results of the global financial crises effect, negative value can be seen in the related variables.

The mean value for the natural log of the asset size varies from 19.011 and 19.6076 between 2005 and 2011, with a mean value of 19.2834 for the overall sample. The firm age of these firms also vary from 8 to 100 with a mean value 34,87.

In overall, descriptive statistics provide valuable information for evaluating 1.341 observations between the years 2005 and 2011.

5.2. CORRELATION COEFFICIENTS

This part of the study introduces the correlations among the explanatory and control variables. Multicollinearity, a problem in multiple regressions which results one or more independent variables to be highly correlated with one or more of the other independent variables, is also investigated in this section. Independent variables that are over the reference point 0.80 indicate the existence of multicollinearity (Gujarati, 2004, p.359).

Table 5.2 evidences that, there is not a multicollinearity problem in terms of these variables.

Table 5.2.
Pearson's Correlation Coefficients for the Independent Variables for the Overall Period

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) brdsize	1.000																	
(2) fedirec	-.0344	1.000																
(3) fordirec	.0736	-.2708	1.000															
(4) Inddirec	.0241	-.0532	-.0390	1.000														
(5) GrtAssoc	.0133	-.0741	.3179	.0427	1.000													
(6) SecGrtAssoc	.1612	.0152	.1509	-.0843	-.2687	1.000												
(7) ThrdGrtAssoc	.0899	.0014	-.0496	-.0905	-.2732	.2639	1.000											
(8) Freefloat	-.1409	.0791	-.3623	.1011	-.5958	-.3115	-.1824	1.000										
(9) dmind	-.3346	.1293	.2920	-.0743	-.2917	-.0812	.0319	.2965	1.000									
(10) frind	-.0036	.0321	.0279	-.0145	-.0283	.0299	-.0354	.0344	-.0384	1.000								
(11) dmfund	.2150	.0248	-.0074	.0318	.0217	.1381	-.0092	-.0707	-.1299	.0106	1.000							
(12) dmcop	.0156	-.0668	-.0430	.0212	.1169	.1620	.0699	-.0980	-.3973	-.0611	-.0951	1.000						
(13) frfund	.3528	-.0176	.0304	.0424	.3360	.1358	-.0749	-.0822	.5773	.1891	-.1257	.0044	1.000					
(14) frcorp	.1780	-.1225	.4264	.0611	.2626	-.0130	-.0383	-.2541	-.5982	.1090	-.0180	-.2058	.1261	1.000				
(15) debtr	-.1667	.0589	.0425	.0413	-.0017	-.0341	-.0879	.0497	.0155	-.0106	-.0669	-.0396	.0103	.0130	1.000			
(16) roa	.2342	-.0133	.0483	-.0140	.1520	.0471	.0690	-.1267	-.2586	.4830	.1377	.0689	.2233	.1364	-.4372	1.000		
(17) lnasset	.5469	-.0509	.0937	.1351	.1836	.0892	-.0886	-.2201	-.5971	-.0497	.2653	.0486	.5919	.3228	.0752	.2379	1.000	
(18) age	.1633	-.0232	.0570	.0700	.1891	.0145	-.0310	-.2009	-.1738	-.0473	.1088	.0155	.1573	0.0879	-.0516	.0978	.2728	1.000

From the correlation coefficients among the corporate governance variables, high correlations, that may threaten the interpretation of independent variables, are not found in the model. Furthermore negative correlation between the free float percentages and the ownership type is found as expected with the highest percentage of 59,58 % which is between the free float percentage and the greatest associates ownership.

Table 5.3, illustrates the correlation coefficients for the proxies of agency costs observed for overall period. As can be seen from this table; operating expense ratio, SG&A ratio and GA ratio are negatively related with the asset turnover ratio. From this correlation results it can be also observed that; while these three ratios are proxies, asset turnover ratio is an inverse proxy for agency costs.

Table 5.3.
Pearson's Correlation Coefficients for the Dependent Variables for the Overall Period

	opexpr	sgrat	grat	astr
opexpr	1.000			
sgrat	0.7228	1.000		
grat	0.2614	0.3408	1.000	
astr	-0.2254	-0.1887	-0.1196	1.000

5.3. CROSS SECTIONAL REGRESSION ANALYSES

Cross Sectional Regression Analysis is used to highlight the relationship between dependent variables, explanatory and control variables.

General linear model for cross sectional data permits the intercept and slope coefficients to vary over time and individual with like; (Baltagi, 2005).

$$y_{it} = \alpha_{it} + x'_{it}\beta_{it} + u_{it}, \quad [\text{eq.1}]$$

$$i = 1, \dots, N ;$$

$$t = 1, \dots, T$$

where y_{it} is a scalar dependent variable,

x_{it} is a $K \times 1$ vector of independent variables,

u_{it} is a scalar disturbance term,

i indexes individual (firm; in this study) in a cross section and

t is time.

Due to the higher number of parameters than the observations, linear model becomes very general and inestimable. Therefore some restrictions are necessary to take place on parameters with additional changes on time and individual.

The most restrictive model is “pooled model” that specifies “constant coefficients” (just like OLS) such as;

$$y_{it} = \alpha + x'_{it}\beta + u_{it}, \quad [\text{eq. 2}]$$

$$i = 1, \dots, N ;$$

$$t = 1, \dots, T$$

If this model is correctly specified and regressors are uncorrelated with the error term, then it can be consistently estimated using “pooled OLS”.

Following two tables present the results of cross sectional analysis. The numbers in parentheses represent the robust standard errors and the other numbers show the coefficients of the variables, whereas the bottom lines show some of the tests and number of observations. Furthermore, coefficient is also used to represent the variable's significance.

To interpret the results of this cross sectional regression model, as being one of the most essential coefficient, R squared variable is used to represent the proportion of total variation in the dependent variable determined by its linear relationship to the

control and explanatory variables. And as being a function of R squared, the number of independent variables and the number of cases; F test is used to test the significance of R squared variable. And it can be seen that F test results have been significant for all the periods.

Although the scope of the study includes data covering a seven year period, separate analyses have been conducted for each year's sample. Additionally all variables of those seven years are also considered in the last column of the table.

Cross Sectional Regression Analysis are utilized for the dependent variables of operating expense ratio and asset turnover ratio. Industry dummy variables are also introduced to the model. Table 5.4 reports results for the cross sectional regression analysis for operating expense ratio.

In regards to the board composition; board size is found positively and significantly related with the dependent variable in the overall period. Additionally, while the percentage of female directors on the board are found to have a significant and positive relationship between operating expense ratio; the percentage of foreign directors are found to have a significant and negative relationship as shown in the table. The proportion of independent directors on board is negatively correlated with the related ratio only in 2005. CEO-chairperson duality are also found to be significantly and negatively related with the operating expense ratio as expected.

Table 5.4 displays that great and second great associates are not significantly related with the operating expense ratio whereas the third great associate has negative correlation with that ratio. As dividend policy is known as an effective agency cost mechanism, a negative and significant relationship between dividend yield and expense ratio is observed for overall period but not for individual years

Firm profitability and firm size are found to be significantly and negatively related with the operating expense ratio. These findings are parallel with the previous literature. There are mixed results about the linkage between firm age and operating expense ratio. This analysis provides that firm age is positively significant with the operating expense ratio.

Table 5.4
Cross Sectional Regression Analysis for Operating Expense Ratio as
Dependent Variable

	2005	2006	2007	2008	2009	2010	2011	2005-2011
	0.0011	0.0093	-0.0014	0.0079	0.0022	-0.0010	0.0032	0.0028
brdsize	(0.0039)	(0.0035)***	(0.0044)	(0.0044)*	(0.0042)	(0.0044)	(0.0040)	(0.0016)*
	0.1237	0.0960	0.1026	0.0604	0.1659	0.2168	0.1248	0.1221
fe dire c	(0.0477)**	(0.0431)**	(0.0518)*	(0.0483)***	(0.0479)***	(0.0513)***	(0.0476)**	(0.0184)***
	-0.0321	-0.0367	-0.0317	-0.0142	-0.0204	0.0177	0.0029	-0.0165
fordire c	(0.0341)	(0.0321)	(0.0377)	(0.0346)	(0.0329)	(0.0375)	(0.0344)	(0.0118)***
	-0.2262	-0.1271	-0.1130	0.1175	0.1432	0.1839	0.07800	0.0543
inddirec	(0.1288)*	(0.0980)	(0.1113)	(0.1004)*	(0.0835)*	(0.0813)**	(0.0695)	(0.0338)
	-0.0472	-0.0015	-0.0268	-0.0235	0.0002	-0.0410	0.0006	-0.0191
CEOchair	(0.0211)**	(0.0201)	(0.0241)	(0.0224)	(0.0208)	(0.0219)	(0.0207)	(0.0080)**
	0.0019	0.0269	0.0338	0.0164	0.0182	0.0301	0.0085	0.0192
AuditQual	(0.0154)	(0.0147)*	(0.0176)*	(0.0166)	(0.0166)	(0.0183)	(0.0172)	(0.0056)***
	-0.0247	0.0704	0.0030	0.0751	0.0317	-0.0098	-0.0039	0.0213
GrtAssoc	(0.0472)	(0.0481)	(0.0570)	(0.0547)	(0.0575)	(0.0634)	(0.0580)	(0.0196)
	-0.0742	0.0852	0.0504	0.0478	-0.0438	-0.1093	-0.0052	0.0040
SecGrtAssoc	(0.0722)	(0.0722)	(0.0809)	(0.0803)	(0.0826)	(0.0838)	(0.0779)	(0.0289)
	-0.2523	-0.0454	-0.2951	-0.1158	-0.0667	-0.0266	-0.1524	-0.1587
ThrdGrtAssoc	(0.1586)	(0.1589)	(0.1759)*	(0.1647)	(0.1883)	(0.2193)	(0.1341)	(0.0509)***
	-0.0966	0.0604	0.0340	0.0751	-0.0664	-0.0136	-0.0215	-0.0025
Free float	(0.0587)	(0.0583)	(0.0701)	(0.0658)	(0.0697)	(0.0725)	(0.0637)	(0.0242)
	0.0183	0.0072	0.0852	0.0783	0.1361	0.0379	-0.1247	-0.0129
dmind	(0.0971)	(0.1649)	(0.3122)	(0.3162)	(0.3374)	(0.2256)	(0.1648)	(0.0481)
	-0.2484	-0.0080	0.0786	0.925	0.2603	0.0400	-0.2209	-0.0143
frind	(0.2789)	(0.3483)	(0.4274)	(0.4392)	(0.4564)	(0.4212)	(0.3946)	(0.1084)
	0.0927	0.1230	0.1423	0.0927	-0.0632	-0.4357	-0.1508	-0.2003
dmfund	(0.3702)	(0.5205)	(0.6631)	(0.6722)	(0.6861)	(0.4297)	(0.3280)	(0.1181)
	0.0040	0.0269	0.0686	0.0825	0.1365	0.0507	-0.0987	-0.0049
dmcorp	(0.1044)	(0.1683)	(0.3136)	(0.3162)	(0.3349)	(0.2234)	(0.1617)*	(0.0480)
	0.1440	0.1090	0.0999	0.1344	0.1868	0.0918	-0.0583	0.0501
frfund	(0.1108)	(0.1728)	(0.3132)	(0.3147)	(0.3347)	(0.2264)	(0.1642)	(0.0485)
	0.0897	0.1027	0.1601	0.1102	0.1875	0.0937	-0.0305	0.0496
frcorp	(0.1025)	(0.1667)	(0.3121)	(0.3157)	(0.3338)	(0.2224)	(0.1656)	(0.0484)
	-0.0292	-0.0218	-0.0300	-0.0107	-0.0109	-0.0359	-0.0385	-0.0201
dumdiv	(0.0230)	(0.0205)	(0.0207)	(0.0189)	(0.0180)	(0.0274)	(0.0252)	(0.0059)***
	0.0246	-0.0012	0.0162	-0.0220	0.0072	-0.0027	-0.0068	0.0043
debtr	(0.0323)	(0.0308)	(0.0352)	(0.0300)	(0.0301)	(0.0312)	(0.0308)	(0.0111)
	-0.1016	-0.3097	-0.0474	-0.2657	-0.1495	-0.0757	-0.3164	-0.1841
roa	(0.0844)	(0.0732)***	(0.0865)	(0.0719)*	(0.0883)*	(0.1019)	(0.0899)***	(0.0305)***
	-0.0252	-0.0301	-0.0211	-0.0268	-0.0169	-0.0164	-0.0133	-0.0206
lnasset	(0.0067)***	(0.0064)***	(0.0077)***	(0.0073)**	(0.0070)**	(0.0077)**	(0.0069)*	(0.0028)***
	0.0006	0.0006	0.0008	0.0008	0.0002	0.0010	0.0003	0.0007
age	(0.0005)	(0.0004)	(0.0005)	(0.0005)	(0.0005)	(0.0005)*	(0.0005)	(0.0001)***
industry dummy	+	+	+	+	+	+	+	+
	0.7498	0.7274	0.4757	0.5391	0.3905	0.5262	0.5486	0.5904
cons	(0.1764)***	(0.2116)***	(0.3451)	(0.3553)	(0.3818)	(0.2989)*	(0.2386)**	(0.0715)***
F test	1.91***	2.91***	1.90***	2.42***	2.09***	2.27***	2.29***	15.54***
R - squared	0.2517	0.3354	0.2472	0.2993	0.2967	0.2863	0.2879	0.2203
Number of obs	195	197	198	194	194	194	194	1366

legend, ***p<0.01, **p<0.05, *p<0.10

The following table (Table 5.5) reports the results of the cross sectional regression analysis for asset turnover. In consistent with the prior studies (Yermack, 1996; Eisenberg et al. 1998; Hossain et al. 2001) showing that the larger the board size lower the agency costs, the results of the study also finds positive correlation between board size and asset turnover ratio.

Related table also reports that concentrated ownership variables are not correlated with asset turnover ratio and that is also similar with the prior study findings (La Porta et al. 1998; Hossain et. al. 2001).

According to the board composition, the percentage of foreign directors are found to be positively and significantly related with the asset turnover ratio for each year of the sample period.

The proportion of independent directors of the board on the other hand is positively correlated with asset turnover ratio in 2008 which point out the fact that the presence of an independent board has a negative impact on agency costs and it is also consistent with those reported in prior studies (Singh and Davidson 2003; Miller 2009; Henry 2010). However overall findings of the study contradicts with that assumption, and supporting Koerniadi and Rad (2012)'s argument that board independence may not generally be suitable for firms where managers are considered as active partners along with other stakeholders.

CEO-chair duality decreases the asset turnover ratio which is essentially in line with the second hypothesis related with CEO-chair duality. By taking more recent practice into account, current research findings of the study provide a worthwhile outcome for Turkey.

In regards to the institutional investor's variable across the sample, all of them are found to be significant and positively correlated with this ratio.

Table 5.5
Cross Sectional Regression Analysis for Asset Turnover Ratio as
Dependent Variable

	2005	2006	2007	2008	2009	2010	2011	2005-2011
brdsize	0.0307 (0.0186) -0.0415	0.0120 (0.0163) -0.0227	0.0297 (0.0189) 0.0944	0.0239 (0.0177) 0.2414	0.0254 (0.0178) -0.0022	0.0140 (0.0179) -0.2562	0.0104 (0.0179) 0.1147	0.0186 (0.0060)*** -0.0083
fedirec	(0.2578) 0.2738 (0.1633)*	(0.2119) 0.4706 (0.1595)***	(0.2247) 0.3212 (0.1601)**	(0.1923) 0.4212 (0.1514)**	(0.1993) 0.4238 (0.1433)**	(0.2102) 0.4130 (0.1679)**	(0.2076) 0.5085 (0.1609)***	(0.0735) 0.3843 (0.0568)***
fordirec	0.2993 (0.4814) -0.1066	0.6137 (0.5371) -0.1096	-0.0102 (0.4052) -0.0511	0.7165 (0.4137)* -0.0978	-0.1745 (0.3495) -0.0254	-0.1608 (0.3324) -0.0700	-0.1316 (0.2952) -0.0806	0.0201 (0.1435) -0.0771
inddirec	(0.0977) 0.0661 (0.0698)	(0.0967) 0.0681 (0.0705)	(0.1005) -0.0174 (0.0725)	(0.0860) 0.0188 (0.0674)	(0.0856) 0.0154 (0.0710)	(0.0874) -0.0099 (0.0772)	(0.0868) 0.0444 (0.0751)	(0.0319)** 0.0211 (0.0247)
AuditQual	0.0708 (0.1796) 0.0283	0.0024 (0.2334) -0.0515	0.0337 (0.1744) -0.1765	-0.2189 (0.2250) -0.1052	-0.3483 (0.2510) -0.0146	-0.0925 (0.2719) 0.0559	0.0368 (0.2550) 0.2748	-0.0836 (0.0728) 0.0161
GrtAssoc	(0.2850) 0.6989 (0.7305)	(0.3909) 0.0257 (0.7530)	(0.2870) 0.4164 (0.6287)	(0.3378) -0.8445 (0.6790)	(0.3574) -1.3414 (0.8115)	(0.3645) -0.9753 (0.9291)	(0.3558) -0.3313 (0.5833)	(0.1175) -0.2850 (0.2244)
SecGrtAssoc	-0.0028 (0.2320) 0.6333	-0.2320 (0.2557) 0.9724	-0.2752 (0.2420) 1.1442	-0.5185 (0.2713)* 1.6888	-0.2607 (0.2924) 0.3385	-0.5035 (0.3070) 0.5939	-0.2275 (0.2831) 1.1373	-0.3099 (0.0857)*** 0.7671
dmind	(0.2905)** -0.8710 (0.6476)	(0.2899)*** -0.0700 (0.9502)	(0.2713)*** 0.6216 (0.7090)	(1.3321) 0.6480 (1.8581)	(1.3101) -1.6037 (1.8866)	(0.9437) 0.1903 (1.8129)	(0.7014) -0.8082 (1.6986)	(0.1246)*** -0.0892 (0.3257)
frind	2.7407 (1.4563)* 0.7312	1.4674 (1.5092) 1.0557	2.5199 (1.1337)** 1.2026	2.8270 (2.7320) 1.8501	0.8359 (2.7409) 0.4198	0.1981 (1.8068) 0.3961	1.3775 (1.3561) 1.1502	1.6050 (0.4211)*** 0.8120
dmcorp	(0.3861)* 0.8459 (0.4229)**	(0.3650)*** 1.4198 (0.4173)***	(0.3038)*** 1.4749 (0.3368)***	(1.3366) 1.6427 (1.3283)	(1.2976) 0.3990 (1.3046)	(0.9342) 0.2453 (0.9478)	(0.6882)* 1.0659 (0.7057)	(0.1330)*** 0.8559 (0.1445)***
frfund	0.5223 (0.3415) 0.0953	0.5844 (0.2881)*** -0.0406	1.0685 (0.2690)*** -0.0409	1.5883 (1.3380) 0.0728	0.4024 (1.2974) 0.0826	-0.1029 (0.9310) 0.0261	1.0548 (0.7061) 0.0889	0.6778 (0.1272)*** 0.0227
frcorp	(0.0855) 0.4346 (0.1732)**	(0.0269)* 0.4431 (0.1584)***	(0.0828) 0.5650 (0.1324)***	(0.0822) 0.4342 (0.1233)***	(0.0773) 0.5444 (0.1263)***	(0.1273) 0.3529 (0.1265)***	(0.1161) 0.4519 (0.1390)***	(0.0296) 0.4435 (0.0525)***
debt	0.1746 (0.4299) -0.0972	0.6555 (0.3713)* -0.0530	0.5434 (0.2880)* -0.0768	0.6671 (0.2986)** -0.0768	1.0088 (0.3616)*** -0.0202	0.2738 (0.3938) -0.0352	1.2786 (0.3833)*** -0.0747	0.7161 (0.1173)*** -0.0510
roa	(0.0327)*** 0.0001 (0.0024)	(0.0269)* -0.0004 (0.0024)*	(0.0259)*** 0.0023 (0.0020)	(0.0259)*** -0.0404 (0.0023)*	(0.0294) -0.0029 (0.0024)	(0.0307) -0.0024 (0.0025)	(0.0298)** -0.0016 (0.0025)	(0.0104)*** -0.0017 (0.0008)**
lnasset	0.0001 (0.0024)	-0.0004 (0.0024)*	0.0023 (0.0020)	-0.0404 (0.0023)*	-0.0029 (0.0024)	-0.0024 (0.0025)	-0.0016 (0.0025)	-0.0017 (0.0008)**
age	(0.0024)	(0.0024)*	(0.0020)	(0.0023)*	(0.0024)	(0.0025)	(0.0025)	(0.0008)**
industry dummy	+	+	+	+	+	+	+	+
cons	0.9430 (0.6599)	-0.0410 (0.6159)	0.1963 (0.6162)	-0.6284 (1.4999)	0.2215 (1.4910)	0.9966 (1.2377)	0.3397 (0.9507)	0.3163 (0.2328)
F test	5.25***	20.15***	5.80***	2.72***	3.39***	2.90***	3.59***	31.38***
R - squared	0.3017	0.3386	0.3875	0.3328	0.3677	0.3361	0.3913	0.2962
Number of obs	188	190	188	188	199	196	192	1341

legend, ***p<0.01, **p<0.05, *p<0.10

5.4. PANEL DATA REGRESSION ANALYSES

Panel data, also named as longitudinal data or cross sectional time series data, is a dataset where multiple cases of entities are observed across time (Wooldridge, 2002). A number of techniques are utilized to test the measures of agency costs and first thing to determine with the panel data is to select the appropriate model among the fixed-effects or random effects models.

As Wooldridge (2002) provides clear insights on the issue, panel data analysis allows the unobservable and consistent heterogeneity in specific to each company. There are two suggested methods of panel data to be conducted: Linear regression with Fixed Effects or Generalized Least Squares (GLS) Linear Regression with Random Effects (Wooldridge, 2002, p.252).

The fixed effect model is based on the assumption that unobserved differences between individuals can be captured by differences in a constant term. Thus, this model allows controlling for unobservable individual characteristics.

The equation for the general fixed effect model is (Reyna, 2009);

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it} \quad [\text{eq.3}]$$

where;

Y_{it} is the dependent variable where i = entity and t = time,
 α_i ($i=1 \dots n$) is the intercept term,
 X_{it} represents one independent variable,
 β_1 is the coefficient for that independent variables,
 u_{it} is the error term.

In the case of this study, the sample restricts to making inferences only on the Turkish nonfinancial listed firms over the period 2005-2011. Therefore, it cannot be estimated the effect of any time-invariant individual characteristics, like the effect of industry with the fixed effect models. For this purpose, this model is suitable to use because in this study the variables that change over time is important rather than the time invariant characteristics affect them. Therefore, in this study it is willing to

estimate how an increase in the governance mechanisms, ownership structure and the other control mechanisms related with agency costs affects agency cost proxies holding the firm level variables constant.

The second suggested method of panel data is the Generalized Least Squares (GLS) Linear Regression with Random Effects.

The equation for random effect model is (Reyna, 2009);

$$Y_{it} = \beta_1 X_{it} + \alpha + u_{it} + \varepsilon_{it} \quad [\text{eq.4}]$$

where;

u_{it} is the between entity error,
 ε_{it} is the within entity error.

Random effects assume that the entity's error term is not correlated with the predictors and this allows for time-invariant variables to play a role as explanatory variables.

The constant (α_i) in the fixed effect represents unobservable individual firm-specific effects which differ between firms and are time invariant. However, in the random effects model, the constant is a random outcome variable which has a cross section specific error component, and it is uncorrelated with the errors of the regressors variables. Thus;

$$\alpha_i = \alpha + \varepsilon_{it} \quad [\text{eq. 5}]$$

and ε_{it} has a zero conditional mean.

Each model has different assumptions. For the fixed effect model, it is not possible to introduce industry dummy variables for a firm, as these variables can be perfectly collinear in the fixed effect model (Wooldridge, 2002).

For determining which model to be used, Hausman (1978) specification test is applied to demonstrate the difference between the random effects and fixed effects estimates. It is a test of strict exogeneity and used to differentiate both models by testing the correlation between the x variables and the individual random effects.

Hausman test also controls whether the coefficients estimated in these two models is equal or not and basically tests the correlation of the unique errors (ui) with the regressors. It tests whether the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effect estimator. If they are (insignificant P-value, $\text{Prob} > \chi^2$ larger than .05) then it is safe to use random effects. If a significant P-value occurs, the null hypothesis of no correlation is rejected and accepted the fixed effect model.

A number of techniques are utilized to empirically test the impact of corporate governance mechanisms, and ownership structure together with the other agency control mechanisms on agency costs. Given the seven-year panel structure of the sample firm data employed in this study, fixed effects multivariate regression analysis is conducted to investigate this relationship. Fixed effects modeling allows to control unobserved heterogeneity across the sample firms, which also goes some way to remove omitted variable bias concerns and provides robust regression model estimates (Baltagi, 2005)

This paper is also alleviated concerns about the potential endogeneity problem. As first lag values of debt ratio is treated as endogenous in this analysis, it appears that no potential endogeneity problem does occur.

In the following chapters of this section, the results of the multivariate regression analysis relating agency cost proxies to governance mechanisms, ownership structure and the other variables is presented by taking into account of the control variables which are also incorporated in order to test whether firm profitability, firm size and firm age impacts agency costs.

This section represents the panel data regression model results relating the corporate governance, control mechanisms in terms of ownership structure together with institutional investors, dividend policy and debt financing and control variables of interest to the four dependent variables proxying for the extent of agency costs. Given the seven year panel structure of the sample firm employed in this study, panel data regression analysis is employed to empirically test this manner.

First Model, Model (1) depicts the impact of governance mechanisms on agency cost proxies. The second model, Model (2) examines the impact of control mechanisms in terms of ownership structure together with institutional investors, dividend policy and debt financing on agency cost proxies. And, the last model further examines how the governance variables and all control mechanisms relate to agency cost proxies. All of these models are estimated by panel data regressions with fixed effects.

5.4.1. Operating Expense Ratio as a Proxy for Agency Cost

As explained in the previous part of the study, three models have been implemented for each of the agency cost proxies. Table 5.6 depicts the results of these models in a linear regression model on panel data basis. The dependent variable mentioned in this table is the operating expense ratio, used as a proxy of excessive perquisite consumption.

First model depicts the impact of governance mechanisms on the agency cost in terms of excessive perquisite consumption. The significance result obtained from the Hausman test indicates that the assumptions for the random effects estimation violates the model whereas fixed effect model which has significance level of 5 % ($\text{Prob} > \chi^2 = 0.0221$) becomes appropriate to apply operating expense agency cost measure.

This model reports a significant and negative relation between board size and operating expense ratio and between audit quality and operating expense ratio and a significant positive relation is found between the percentage of female directors on the board and this agency cost proxy.

The second model examines the impact of control mechanisms in terms of ownership structure together with institutional investors, dividend policy and debt financing on agency cost proxies. The significant result obtained from the Hausman Test also indicates that it is safe to use fixed effect model as well with the significance level of 1 % ($\text{Prob} > \chi^2 = 0.0015$). Within this group, corporate ownership variables are not found statistically related with the operating expense ratio, but domestic and foreign individual investor variables are.

Table 5.6
Fixed Effects Regression Model Result for Operating Expense Ratio

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		-0.0033		-0.0032
brdsize	+/-	(0.0018)*	—	(0.0021)
		0.0575		0.0563
fedirec	+/-	(0.0181)**	—	(0.0238)**
		0.0191		0.0250
fordirec	+/-	(0.0143)	—	(0.0085)***
		0.0265		0.0235
inddirec	-	(0.0275)	—	(0.0404)
		-0.0075		-0.0077
CEOchairdual	+	(0.0079)	—	(0.0071)
		-0.0118		-0.0114
AuditQual	-	(0.0054)**	—	(0.0071)
			-0.0005	-0.0013
GrtAssoc	+/-	—	(0.0191)	(0.0336)
			0.0072	-0.0005
SecGrtAssoc	+/-	—	(0.0269)	(0.0357)
			-0.0133	0.0041
ThrdGrtAssoc	+/-	—	(0.0452)	(0.4640)
			0.0178	0.0228
Freefloat	+/-	—	(0.0228)	(0.0421)
			0.0796	0.0707
dmind	-	—	(0.0430)*	(0.0561)
			-0.2660	-0.2845
frind	-	—	(0.1076)**	(0.1516)*
			0.0056	0.0035
dmfund	-	—	(0.1006)	(0.0903)
			0.0654	0.0576
dmcorp	-	—	(0.0428)	(0.0562)
			0.0703	0.0588
frfund	-	—	(0.0438)	(0.0570)
			0.0585	0.0481
frcorp	-	—	(0.0435)	(0.0572)
			0.0038	0.0029
dumdiv	-	—	(0.0044)	(0.0033)
			-0.0261	-0.0242
debtr	-	—	(0.0123)**	(0.0184)
		-0.1302	-0.1372	-0.1368
roa	-	(0.0167)***	(0.0182)***	(0.0215)***
		-0.1853	-0.0176	-0.0171
lnasset	+/-	(0.0042)***	(0.0043)***	(0.0069)**
		0.0013	0.0017	0.0014
age	+/-	(0.0007)*	(0.0007)**	(0.0009)
		0.4951	0.3828	0.4065
cons		(0.0711)***	(0.0856)***	(0.1330)***
F test		11.52***	7.40***	4.26***
Goodness of fit (R2)		0.0827	0.0884	0.1032
Number of obs		1366	1366	1366

legend, ***p<0.01, **p<0.05, *p<0.10

The last model further examines how the governance variables and all agency control variables relate to operating expense ratio. And it is also safe to use fixed effect model as the model's significance level is 1 % ($\text{Prob} > \text{Chi}^2 = 0.0001$). This model presents that while board size is not significantly related with the operating expense ratio (Truong 2006), both the percentage of female directors and the percentage of foreign directors is positively and significantly related with the operating expense ratio (Miletkov et al. 2011). This indicates that firms which have more female and foreign directors are less efficient in reducing agency costs, as they refer to the fact that although foreign directors may bring special expertise in monitoring, they may also inherently costly when they demand a higher level of compensation. The finding of the study is consistent with the above assumptions.

The presence of independent directors on the board is not found to be statistically significant in explaining the variations on the operating expense. A recent study conducted by Boivie et al. (2011) across 2,000 large US firms, they argue that board independence is less likely to reduce agency costs when CEO organizational identification (multi-item measure depending on survey results; one sociological factor) is high. One of the reasons for this insignificance relationship may be the level of independency of the independent directors. Although Fama (1980) states that the independent directors are vital for ensuring an effective governance system since they have more independence from management; independent directors of Turkish firms observed within these period may not have that level of independency.

CEO-chair duality and audit quality is not found to be statistically significant as expected in the hypothesis. Although, it is not significant, the negative relationship between audit quality and operating expense ratio suggest that audit quality does not significantly decrease the agency cost level of Turkish nonfinancial listed firms when operating expense ratio is proxied as an agency cost level.

Similar to the (Ang et al. 2000; Singh and Davidson 2003; Chen and Yur-Austin 2007) results, this study also finds that ownership concentration types are not significantly related with operating expense ratio. And these owners have no significant influence of reducing excessive perquisite consumption.

The results also evidence that types of ownership cannot decrease operating expense ratio and, hence, align the interest of managers with those of shareholder, which is in line with the prior studies (Hossain et al. 2001) indicating that high firm ownership concentration has a somewhat negative impact on firm value and hence agency cost level. Additionally, free float is not found to be statistically significant in the fixed effect model using the operating expense.

Even though the institutional investors are not found significantly in explaining the variations on the operating expense ratio, foreign individual investors have power to explain statistically the variation on agency costs. Furthermore, none of the institutional investor variables are found to be statistically significant in the fixed effect model using the operating expense ratio. Singh and Davidson (2003) display similar results, for the case when agency costs are approximated with the operating expense ratio.

Dividend policy has no impact on this agency cost proxy and also no significant relationship found between debt levels and operating expense ratio which supports the result of Ang et al. (2000). Therefore, it can be stated that these agency mitigating variables are not effective in protecting firms from excessive consumption.

Both of the controlling variables of firm profitability and firm size are negatively and significantly associated with the operating expense ratio in all three models. This is consistent with prior studies such as Fleming et al. 2005; Chen and Yur-Austin (2007) as they state that excessive perquisite consumption is lower in larger and profitable firms than the others, hence strongly performing firms indicates lower levels of excessive consumption.

As it is also provided on the table, firm age variable do not explain the variations on operating expense significantly. And this is consistent with prior studies such as Ang et al. (2000) who state no relationship between firm age and operating expense ratio.

5.4.2. Selling, General and Administrative Expenditure Ratio as a Proxy for Agency Cost

Table 5.7 depicts the results of panel data analysis relating Selling, General and Administrative (SG&A) expenditure ratio to governance mechanisms, ownership structure and the other agency mitigating variables. First model investigates the role of corporate governance mechanisms in reducing the agency problem in terms of SG&A ratio. The Hausman test is significant with a level of 1 % ($\text{Prob} > \chi^2 = 0.0000$) and indicates that it is safe to use fixed effect model.

Apart from the board size and the percentage of foreign directors, the other governance mechanism indicators are found to be significantly related with this ratio. The percentage of independent directors is found to be significant but positively related as it is not expected in the hypothesis. Furthermore, higher CEO-chairperson duality is found to increase the SG&A ratio and hence, decreases the agency costs as expected.

In order to see the impact of ownership structure and the other agency mitigating variables on this agency cost proxy, the second model is utilized. The Hausman test is also found to be significant with a level of 1 % ($\text{Prob} > \chi^2 = 0.0015$) and indicates that it is safe to use fixed effect model. Only the greatest associate is found to be positively and significantly related with this agency cost proxy.

With the exception of the foreign corporate institutional investor type, the other institutional investor variables are found to be significantly related with the SG&A ratio. However, this relationship is positive as it is not expected in the hypothesis.

The last model further examines how the governance variables and the all agency mitigating variables relate to this variable. This model is significant with a level of 1 % ($\text{Prob} > \chi^2 = 0.0000$) and it is also safe to use fixed effect model in this last model.

Governance variables, board size and audit quality are not found to be significantly related with this ratio in contrary to Henry's (2010) results of significant

and negative relationship between board size and SG&A ratio. He also observes no relationship between CEO-chairperson duality and agency cost in terms of SG&A ratio.

The percentage of independent directors is found to be significant but positively related as it is not expected in the hypothesis whereas the prior literature also expects a significant proportion of independent directors on the board to decrease the agency cost proxies (Henry 2010). Very low percentage of independent board directors and their low level of independency might cause the unexpected result for the observed Turkish nonfinancial firms.

Some of the researches like Agrawal and Knoeber (1996); Hermalin and Weisbach (1991) argue that independent directors are usually characterized by lack of information about the firm, do not bring the requisite skills to the job and, hence, prefer to play a less critical monitoring role.

Only the greatest associate is found to be positively and significantly related with this agency cost proxy in the second and third model which is inconsistent with the results of Florackis and Ozkan (2004); Chen and Yur-Austin (2007) as they report a significant and negative relationship between ownership structure and SG&A ratio. They also indicate that ownership concentration helps to reduce discretionary spending, and therefore, the agency conflicts between managers and shareholders. Apart from the foreign corporate institutional investor type, the other institutional investor variables are also found to be significantly related with the SG&A ratio. However, in contrary to the hypothesis and previous literature stating that institutional ownership does not have influence on agency costs (Henry 2010), a positive relationship is found.

Table 5.7.
Fixed Effects Regression Model Result for SG&A Ratio

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		0.0035		0.0033
brdsize	+/-	(0.0041)	—	(0.0041)
		0.0798		0.0878
fedirec	+/-	(0.0424)*	—	(0.0423)**
		-0.0543		-0.0613
fordirec	+/-	(0.0343)	—	(0.0351)*
		0.1758		0.1810
inddirec	-	(0.0636)***	—	(0.0631)***
		0.0596		0.0595
CEOchairdual	+	(0.0181)***	—	(0.0180)***
		-0.0129		-0.0122
AuditQual	-	(0.0127)	—	(0.0127)
			0.1232	0.1371
GrtAssoc	+/-	—	(0.0446)***	(0.0448)***
			-0.0086	-0.0076
SecGrtAssoc	+/-	—	(0.0630)	(0.0627)
			0.1332	0.1436
ThrdGrtAssoc	+/-	—	(0.1076)	(0.1072)
			0.0599	0.0518
Freefloat	+/-	—	(0.0531)	(0.0528)
			0.1990	0.2010
dmind	-	—	(0.0754)***	(0.0749)***
			-0.2605	-0.2858
frind	-	—	(0.2403)	(0.2385)
			0.4199	0.4453
dmfund	-	—	(0.2246)*	(0.2236)*
			0.1563	0.1572
dmcorp	-	—	(0.0762)**	(0.0757)**
			0.1512	0.1496
frfund	-	—	(0.0783)*	(0.0778)*
			0.0920	0.1014
frcorp	-	—	(0.0736)	(0.0733)
			-0.0194	-0.0190
dumdiv	-	—	(0.0105)*	(0.0104)*
			0.0057	0.0114
debtr	-	—	(0.0284)	(0.0281)
		-0.0512	-0.0380	-0.0365
roa	-	(0.0379)	(0.0416)	(0.0413)
		-0.0169	-0.0177	-0.0189
lnasset	+/-	(0.0096)*	(0.0099)*	(0.0099)*
		0.0190	0.0192	0.0178
age	+/-	(0.0017)***	(0.0017)***	(0.0018)***
		-0.2645	-0.4740	-0.4462
cons		(0.1621)	(0.1843)**	(0.1860)**
F test		26.65***	16.67***	13.46***
Goodness of fit		0.1672	0.1737	0.1929
Number of obs		1415	1415	1415

legend, ***p<0.01, **p<0.05, *p<0.10

Dividend yield has negative impact on this agency cost proxy both in the second and last model as expected in the hypothesis. On the other hand Henry (2010) depicts no relationship between dividend yield and discretionary expenditure ratio.

All models of the related table indicate no significant relationship between debt ratio and the agency cost in terms of SG&A ratio, which is consistent with Henry (2010). However Singh and Davidson (2003); Florackis and Ozkan (2004); Chen and Yur-Austin (2007) find that debt ratio is negatively and significantly associated with the SG&A ratio, which can help reducing discretionary spending as the creditors restrain managers from accessing extra cash flow.

Lastly, both of the controlling variables of firm size and firm age are found to be significantly associated with the SG&A ratio in all three models. Consistent with the results of Singh and Davidson (2003) which is utilized a sample of 1.528 firms listed on NYSE from the year 1992 to 1994; firm size has a negative and significant coefficient for the third model suggesting that larger firms have relatively smaller SG&A ratios. Chen and Yur-Austin (2007, p.596) also suggest that larger firms draw more public attention and extensive analyst coverage which makes the discretionary spending lower.

5.4.3. General Administrative Expenditure Ratio as a Proxy for Agency Cost

Table 5.8 depicts the results of panel data analysis relating General Administrative (GA) expenditure ratio to governance mechanisms, ownership structure and the other agency mitigating variables. In the first model of the related table, in which a significance level of 1 % ($\text{Prob} > \chi^2 = 0.0001$) obtained from Hausman test and therefore confirming to use fixed effect model, investigates the role of corporate governance mechanisms in reducing the agency problem in GA ratio.

Apart from the percentage of independent directors, the other governance mechanism indicators are not significantly related with this ratio. The percentage of independent directors is found to be significant but positively related as it is not expected in the hypothesis.

Table 5.8.
Fixed Effects Regression Model Result for GA Ratio

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		-0.0111		-0.0097
brdsize	+/-	(0.0103)	—	(0.0104)
		-0.1516		-0.1469
fedirec	+/-	(0.1037)	—	(0.1050)
		-0.0225		-0.0380
fordirec	+/-	(0.0845)	—	(0.0879)
		0.3192		0.3024
inddirec	-	(0.1576)***	—	(0.1585)*
		-0.0149		-0.0174
CEOchairdual	+	(0.0442)	—	(0.0444)
		-0.0069		-0.0100
AuditQual	-	(0.0313)	—	(0.0316)
			0.1948	0.1799
GrtAssoc	+/-	—	(0.1111)*	(0.1130)
			0.2837	0.2811
SecGrtAssoc	+/-	—	(0.1620)*	(0.1628)*
			-0.4500	-0.4310
ThrdGrtAssoc	+/-	—	(0.2657)*	(0.2671)
			0.2255	0.2134
Freefloat	+/-	—	(0.1288)*	(0.1291)*
			0.0330	0.0555
dmind	-	—	(0.1834)	(0.1837)
			-0.6643	-0.6218
frind	-	—	(0.6147)	(0.6158)
			-0.3071	-0.1845
dmfund	-	—	(0.5343)	(0.5363)
			-0.0436	-0.0301
dmcorp	-	—	(0.1863)	(0.1866)
			-0.0078	0.0167
frfund	-	—	(0.1919)	(0.1922)
			0.0437	0.0630
frcorp	-	—	(0.1797)	(0.1803)
			-0.0132	-0.0136
dumdiv	-	—	(0.0263)	(0.0264)
			-0.0165	-0.0159
debtr	-	—	(0.0687)	(0.0690)
		-0.1767	-0.1696	-0.1769
roa	-	(0.0921)*	(0.1006)*	(0.1008)*
		-0.0631	-0.0551	-0.0603
lnasset	+/-	(0.0244)**	(0.0252)**	(0.0255)**
		0.0306	0.0301	0.0301
age	+/-	(0.0041)***	(0.0042)***	(0.0044)***
		0.3290	-0.0868	0.0893
cons		(0.4109)	(0.4697)	(0.4777)
F test		9.26***	5.91***	4.59***
Goodness of fit		0.0688	0.0732	0.0796
Number of obs		1341	1341	1341

legend, ***p<0.01, **p<0.05, *p<0.10

Second model is utilized to indicate the impact of ownership structure and the other agency mitigating variables on this agency cost proxy. Significant result of 1 % (Prob>Chi²=0.0001) obtained from the Hausman test also verifies to use fixed effect model. In this model, ownership concentration variables are found statistically related with this ratio.

While the third great associate variable is found to be negatively related with the GA ratio, great associate and second great associate variables are found to be positively related with the SG&A ratio. Additionally none of the institutional and individual investor are found to be significant.

The last model further examines how the governance variables, ownership structure and the other agency mitigating variables relate to this proxy whereas the significance level of 1 % (Prob>Chi²=0.0000) also assures to use fixed effect model.

In regards to the governance variables, only the percentage of independent directors is found to be significantly related with this ratio in the last model and in the first one likewise. The percentage of independent directors is found to be significant but positively related as it is not expected in the hypothesis. The results also depict that firms with greater ownership are likely to increase the GA ratio and hence increase the agency cost level.

This model also presents the same results like in the second model which state the coefficients of all institutional and individual investor are not found to be significant and negatively related as it is expected. Therefore, it can be stated that, investor types do not have a power to decrease the expenses in terms of GA and unable to mitigate the agency costs.

All of three models point out the same results that the coefficient of firm profitability is negative and significant as expected in the hypothesis. Thus, these variables explain the variations on the GA ratio as it can be observed from the level of significance of their coefficients. Thus, it indicates that the more profitable firms have a tendency to decrease the agency cost.

The other firm control variables are found to be significant with the GA ratio. Based on the result it can be argued that the older firms are likely to increase the agency cost level, whereas the larger firms are likely to decrease the agency cost in terms of GA ratio.

5.4.4. Agency Cost in terms of Poor Asset Management

Table 5.9 depicts the results of panel data analysis relating asset turnover ratio to governance mechanisms, ownership structure and the other agency mitigating variables.

First model depicts the impact of governance mechanisms on the agency cost in terms of asset utilization ratio. Hausman test results, with a significance level 1 % ($\text{Prob} > \chi^2 = 0.0000$) supports to use fixed effect model. This model reports a significantly negative relation only between the percentage of independent directors and asset utilization ratio whereas CEO-chair duality and asset utilization ratio as inversely with the expected sign.

In order to see the impact of ownership structure and the other agency mitigating variables on this agency cost proxy, the second model is utilized. Hausman test results, with a significance level 1 % ($\text{Prob} > \chi^2 = 0.0003$) supports to use fixed effect model. In this model, ownership concentration variables are not found statistically related with the asset turnover ratio whereas all institutional and individual investor are found to be significant and positively related as expected.

The last model further examines how the governance variables and all agency mitigating variables relate to agency cost proxies. Again Hausman test results, with a significance level 1 % ($\text{Prob} > \chi^2 = 0.0000$) supports to use fixed effect model. Third model presents the same results of the first model in terms of the percentage of independent directors and CEO-chair duality. The coefficient of these variables is also consistent with the findings of this model.

It can be stated that higher CEO-chair duality lowers the asset turnover ratio and hence, increases the agency costs as it is expected. Although, UK's framework

regards duality as undesirable, McKnight and Weir (2009) evidence that duality does not influence agency costs in terms of poor asset management for a sample of 128 listed companies in UK. In contrary Henry (2010) argues that the CEO-chairperson duality positively impacts on firm asset utilization ratio and hence, increases agency cost.

Although a significant and positive relationship is expected between percentage of independent directors and agency cost, a negative relationship is observed between percentage of independent directors and agency cost which is consistent with the prior literature of Miller's (2009) study which utilizes 133 US firms in 2001-2002; and Henry's (2010) with the sample of 120 companies listed on the Australian Stock Exchange between 1992 and 2002; stating that the degree of board independence increases the agency costs in terms of asset utilization ratio.

McKnight and Weir (2009) find no evidence that the independent director representation affects agency costs in term of asset turnover ratio. They also point out that although the Combined Code of UK propose one third of independent directors on the board, higher proportion of independent directors does not bring clear benefits to shareholders in the form of lower agency costs.

None of the models suggest any evidence on the impact of the board size, female and foreign director's representation to agency costs (Truong 2006) as their coefficients are negative but insignificant in both equations.

Table 5.9.
Fixed Effects Regression Model Result for Asset Turnover Ratio

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		-0.0088		-0.0075
brdsize	+/-	(0.0083)	—	(0.0111)
		-0.0151		-0.0037
fe dire c	+/-	(0.0841)	—	(0.0804)
		-0.0869		-0.1289
fordirec	+/-	(0.0685)	—	(0.0817)
		-0.3972		-0.3639
inddirec	+	(0.1278)***	—	(0.2106)*
		-0.1361		-0.1293
CEOchairdual	-	(0.0359)***	—	(0.3634)***
		0.0215		0.0170
AuditQual	+	(0.0254)	—	(0.0258)
			-0.0261	0.0018
GrtAssoc	+/-	—	(0.0898)	(0.0989)
			0.0276	0.0336
SecGrtAssoc	+/-	—	(0.1310)	(0.1495)
			-0.1685	-0.1654
ThrdGrtAssoc	+/-	—	(0.2147)	(0.2354)
			-0.3145	-0.3088
Freefloat	+/-	—	(0.1041)***	(0.1721)
			0.3161	0.2996
dmind	+	—	(0.1482)***	(0.1272)**
			0.8455	0.8590
frind	+	—	(0.4968)*	(0.5501)
			1.1793	1.0970
dmfund	+	—	(0.4318)***	(0.4305)**
			0.3862	0.3633
dmcorp	+	—	(0.1506)**	(0.1261)***
			0.3224	0.2970
frfund	+	—	(0.1550)**	(0.1335)**
			0.2612	0.2567
frcorp	+	—	(0.1453)*	(0.1152)**
			0.0184	0.0186
dumdiv	+	—	(0.0213)	(0.0182)
			0.1843	0.1766
debtr	+	—	(0.0555)**	(0.0836)**
		0.5010	0.6001	0.5787
roa	+	(0.0747)***	(0.0813)***	(0.1134)***
		-0.1168	-0.1463	-0.1391
lnasset	+/-	(0.0198)***	(0.0204)***	(0.0468)***
		-0.0007	-0.0040	-0.0010
age	+/-	(0.0033)	(0.0034)	(0.0058)
		3.1259	3.4704	3.3198
cons		(0.3332)***	(0.3796)***	(0.8059)***
F test		15.77***	10.40***	5.00***
Goodness of fit (R2)		0.1117	0.1220	0.1406
Number of obs		1341	1341	1341
legend, ***p<0.01, **p<0.05, *p<0.10				

Inconsistent with the results of Singh and Davidson (2003); Chen and Yur-Austin (2007); Henry (2010); the coefficient for the board size is found statistically insignificant. Thus, board size and board composition do not appear to reduce agency costs in terms of asset turnover ratio. On the other hand Florackis and Ozkan (2004) who used a large sample of publicly traded UK firms over the period 1999-2003, find the coefficient of board size as negative, which probably indicate that firms with larger board size are less efficient in their asset utilization ratio.

No significant relationship between audit quality and asset turnover ratio is detected from the model. Although it is not significant, the model finds a positive relationship between audit quality and the magnitude of agency cost as expected.

In all of the three models, the coefficients for the ownership concentration types are not significant. Therefore, these results state that firms with greater ownership do not have stronger or weaker asset utilization ratios. In other words, larger ownership does not align the interests of shareholders and management and therefore does not play any role in decreasing the agency costs.

The results also do not support the assumption of firms with greater ownership have better asset utilization ratios whereas Ang et al. 2000; Florackis and Ozkan (2004); Chen and Yur-Austin (2007); McKnight and Weir (2009) evidences that larger ownership improves the asset management quality, aligns the interests of shareholders and management, and thus lowers agency costs.

The third model like the second one find the coefficients of institutional investors as positive and significant which implies that institutional investors, especially domestic fund investors having higher coefficient, improve asset management quality.

The coefficient of domestic fund indicates that a 1 point (0.01) increase in the percentage of domestic fund ownership is associated with an increase on asset turnover ratio by 0.0970 (roughly 1 % of the asset turnover) under the 5 % significance level which is in line with the hypothesized signs.

Institutional ownership is found to be positively related to asset turnover ratio whereas the coefficients are statistically significant at the 5 % and 1 % significance level and it strongly evidences that institutional investors can work as an effective mechanism that help aligning the interests of managers with those of shareholders. However in literature McKnight and Weir (2009) find no relationship between institutional ownership and the asset turnover ratio for UK firms and Henry (2010) also finds no relationship between these variables for Australian listed firms.

Dividend policy interestingly has no impact on this agency cost proxy. Although it is not significant, the positive relationship between dividend yield and the asset turnover ratio states that the dividend policy does not significantly decrease the agency cost level for Turkish nonfinancial listed firms which is contrary to Henry's (2010) statement that the dividend yield increases the asset turnover ratio and decrease the agency cost.

The debt ratio is positive and statistically significant at the 5 percent significance level both on the second and third model and additionally increased debt is associated with lower agency costs in terms of poor asset management. In literature firms with more debt tend to have lower agency costs (Jensen, 1986). Ang et al. (2000), Singh and Davidson (2003), Chen and Yur-Austin (2007) and McKnight and Weir (2009) evidence that the debt ratio is significantly but negatively related to asset turnover ratio.

As Chen and Yur-Austin (2007) argue, the creditors feel less obliged to supervise manager's performance when the economy is stable, and tend to rely more on shareholders for monitoring management. This argument is also inconsistent with the Singh and Davidson's findings (2003) who indicate that higher leverage adversely affects firm efficiency for NYSE listed firms. On contrary Henry (2010) finds no relationship between these variables.

All of the three models present the same results that the coefficients of firm profitability are positive and significant as expected (Fleming et al 2005). This is also consistent with strongly performing firms showing greater levels of asset utilization.

Inconsistent with the Singh and Davidson (2003); Florackis and Ozkan (2004) and consistent with the Junwei et al. (2011) study, the coefficients of firm size are found negative and significant for all of three models. These results indicate that larger firms are associated with reduced asset utilization ratio and have more agency costs, and smaller firms are more efficient in their asset utilization and, hence, less severe agency problems between managers and shareholders occur.

The study indicates positive but insignificant relationship between dividend yield and asset turnover ratio, whereas Henry (2010) depicts a positive and significant correlation.

In overall, the results display that institutional ownership, debt ratio and firm profitability can help in mitigating agency problems by enhancing asset utilization.

Examination of the age indicator variable fails to demonstrate any statistically significant coefficients in all of three models which is consistent with the Ang et al. (2000) and Fleming et al.'s (2005) studies as they also find no relationship between firm age and asset utilization ratio.

Table 5.10 summarizes the results for the all agency cost proxies which provide the same regression model results relating the corporate governance mechanisms, ownership structure, other agency mitigating and firm level control variables of interest to the four dependent variables proxying for the extent of agency costs present in sample firms. The results are also sensitive to the definition of agency costs and some consistent results are found across the different measures of some variables.

The analyses of SG&A ratio (*sgrat*) proxied by the agency cost measure indicate the highest goodness of fit (R-square) with a value of 19,29 %. According to the sample model's goodness of fit; this ratio is more effective proxy for direct agency costs of equity than of the operating expense ratio, GA ratio and asset turnover ratio.

Within all the governance variables only CEO-Chair duality is found to be consistent with the Hypothesis 3 which refers to *there is a positive relationship between*

agency costs and the CEO-chairperson duality which means that the CEO-Chair duality decreases the asset turnover ratio and increase the SG&A ratio as expected. Moreover, the separation of CEO-chair duality increases the asset turnover ratio and decreases the SG&A ratio, and hence decreases the agency cost of the firms.

Inconsistent with the Hypothesis 2, this study finds a negative and significant relationship between the percentage of independent directors and asset turnover ratio. Therefore, the percentage of independent directors on the board is found as the unexpected sign with the Hypothesis 2, and the null hypotheses is rejected accordingly. Then, as a conclusion *a positive relationship between agency costs and the percentage of independent directors on the board* are found in the study.

Some of the researches like Agrawal and Knoeber (1996); Hermalin and Weisbach (1991) argue that independent directors are usually characterized by lack of information about the firm and do not bring the requisite skills to the job and, hence, prefer to play a less critical monitoring role. Ararat et al. (2010, p.30) also state that board independence is a little effective in the observation period of 2006 and 2008. They interpret this results as that the independent directors are not independent enough or not independent at all in these time span. They also argue that additional disclosure in the Corporate Governance Guidelines in Turkey about the personal, financial or social integration between the largest shareholders and independent directors can be revealed whether the independent directors are really independent. In their study, they also suggest that for improving the accountability of independent directors to all shareholders, the authority can be given to institutional investors to nominate and elect the independent directors.

All of the models employed in the study indicate that board size has no influence on agency cost levels. Therefore, the alternative Hypothesis 1 is rejected and the null Hypothesis 1 is accepted as *there is no relationship between agency costs and board size*. Mixed findings are reported in regards to the impact of board size, with larger boards having significantly better asset efficiency and expense control. This result is similar with the Miller (2009) results, board size of the firm do not have a power on agency cost level.

Table 5.10.
Summary of the Results for the all Agency Cost Proxies

Independent Variables	Expected	opexpr	sgrat	grat	Expected	astr
		-0.0032 (0.0210)	0.0033 (0.0041)	-0.0097 (0.0104)		-0.0075 (0.0111)
brdsize	+/-	0.0563 (0.0238)**	0.0878 (0.0423)**	-0.1469 (0.1050)	+/-	-0.0037 (0.0804)
fedirec	+/-	0.0250 (0.0085)***	-0.0613 (0.0351)*	-0.0380 (0.0879)	+/-	-0.1289 (0.0817)
fordirec	+/-	0.0235 (0.0404)	0.1810 (0.0631)***	0.3024 (0.1585)*	+	-0.3639 (0.2106)*
inddirec	-	-0.0077 (0.0071)	0.0595 (0.0180)***	-0.0174 (0.0444)	-	-0.1293 (0.3634)***
CEOchairdual	+	-0.0114 (0.0071)	-0.0122 (0.0127)	-0.0100 (0.0316)	+	0.0170 (0.0258)
AuditQual	-	-0.0013 (0.0336)	0.1371 (0.0448)***	0.1799 (0.1130)	+/-	0.0018 (0.0989)
GrtAssoc	+/-	-0.0005 (0.0357)	-0.0076 (0.0627)	0.2811 (0.1628)*	+/-	0.0336 (0.1495)
SecGrtAssoc	+/-	0.0041 (0.4640)	0.1436 (0.1072)	-0.4310 (0.2671)	+/-	-0.1654 (0.2354)
ThrdGrtAssoc	+/-	0.0228 (0.0421)	0.0518 (0.0528)	0.2134 (0.1291)*	+/-	-0.3088 (0.1721)
Freefloat	+/-	0.0707 (0.0561)	0.2010 (0.0749)***	0.0555 (0.1837)	+	0.2996 (0.1272)**
dmind	-	-0.2845 (0.1516)*	-0.2858 (0.2385)	-0.6218 (0.6158)	+	0.8590 (0.5501)
frind	-	0.0035 (0.0903)	0.4453 (0.2236)*	-0.1845 (0.5363)	+	1.097 (0.4305)**
dmfund	-	0.0576 (0.0562)	0.1572 (0.0757)**	-0.0301 (0.1866)	+	0.3633 (0.1261)***
dmcorp	-	0.0588 (0.0570)	0.1496 (0.0778)*	0.0167 (0.1922)	+	0.2970 (0.1335)**
frfund	-	0.0481 (0.0572)	0.1014 (0.0733)	0.0630 (0.1803)	+	0.2567 (0.1152)**
frcorp	-	0.0029 (0.0033)	-0.0190 (0.0104)*	-0.0136 (0.0264)	+	0.0186 (0.0182)
dumdiv	-	-0.0242 (0.0184)	0.0114 (0.0281)	-0.0159 (0.0690)	+	0.1766 (0.0836)**
debtr	-	-0.1368 (0.0215)***	-0.0365 (0.0413)	-0.1769 (0.1008)*	+	0.5787 (0.1134)***
roa	-	-0.0171 (0.0069)**	-0.0189 (0.0099)*	-0.0603 (0.0255)**	+	-0.1391 (0.0468)***
lnasset	+/-	0.0014 (0.0009)	0.0178 (0.0018)***	0.0301 (0.0044)***	+/-	-0.0010 (0.0058)
age	+/-	0.4065 (0.1330)***	-0.4462 (0.1860)**	0.0893 (0.4777)		3.3198 (0.8059)***
cons						
F test		4.26***	13.46***	4.59***		5.00***
Goodness of fit		0.1032	0.1929	0.0796		0.1406
Number of obs		1366	1415	1341		1341

legend, ***p<0.01, **p<0.05, *p<0.10

Both the percentage of female and foreign directors on the board is found to be significantly related with the agency cost in terms of operating expense ratio and SG&A ratio. The results state that the firms which have more female directors are less efficient in reducing these two agency cost proxy. Additionally the percentage of foreign directors provides inconsistent results as the firms having higher number of foreign directors are less efficient in reducing operating expense ratio, but more effective in reducing SG&A ratio. Ararat and Dallas (2011) also evidence that independent directors perform their role more independent in diverse boards, such as when boards include foreign directors in Turkish corporations.

The results depict no significant relationship between the four dependent variables proxying for the extent of agency costs and audit quality. Although it is not significant, the negative relationship between the agency costs in terms of operating expense ratio, SG&A ratio (*sgrat*), GA ratio (*grat*) and audit quality; the positive relationship between the asset turnover ratio and audit quality is observed. As expected, audit quality does not significantly decrease the agency cost level for Turkish nonfinancial listed firms for the related time period. Therefore, the alternative Hypothesis 4 is rejected and the null Hypothesis 4 is accepted as *there is no relationship between agency costs and audit quality*.

Several agency mitigating mechanisms is found to help mitigate agency problems between managers and shareholders in the previous models. In regards to the ownership structure variables, the greatest associate is found to be positively related with the SG&A ratio (*sgrat*), whereas the second greatest associate becomes positively related with the G&A ratio (*grat*). These findings indicate that ownership concentration increases the agency cost levels in terms of SG&A ratio and GA ratio whereas they do not have power to increase or decrease agency costs in terms of poor asset management.

The percentage of free float is found to be significantly and positively related with only the agency cost in terms of GA ratio. The results indicate that the free float percentages of the corporations do not have a power to decrease the other agency cost variables.

All of the institutional investors' types are found to be significant and positively related with the asset turnover ratio as expected. However, when the other agency cost proxies are evaluated, as also mentioned by the literature, some inconsistent results may arise in the study. These inconsistent results fail the alternative Hypothesis 7 and accept that *there is no relationship between agency costs and institutional ownership*.

McKnight and Weir (2009) also evidence no relationship between institutional ownership and asset turnover ratio but state a positive and significant relationship between institutional ownership and operating expense ratio and they argue that the institutions become less effective in monitoring board actions at higher levels of institutional ownership as the higher levels of institutional ownership may not mitigate the agency cost problem.

Dividend yield (*dumdiv*) and debt policy (*debtr*) have inconsistent results with the expected sign. While the dividend yield mitigates the agency costs in terms of only SG&A ratio, the debt ratio mitigates agency cost in terms of only poor asset management. Therefore, it can be stated that both of these variables do not have power to mitigate these four agency cost variable.

Firm profitability (*roa*) is found to be significantly related with the agency cost in terms of operating expense ratio, GA (*grat*) ratio and asset turnover ratio. Although it is not significant, the negative relationship between this ratio and the agency costs in terms of SG&A ratio (*sgrat*) is observed as expected. This finding is also parallel with Fleming et al. 2005 result that firm profitability helps to mitigate the agency cost. Moreover, the results is consistent with the Hypothesis 10 that refers *there is a negative relationship between agency costs and firm performance*. This also reveals the fact those strongly performing firms' operates with lower levels of excessive consumption and greater levels of asset utilization.

The logarithm of assets (*lnasset*) is negatively related with four agency cost proxy variables which supports the assumption that the larger firms are associated with

reduced asset utilization ratio. However those of larger firms of the study are also found to be less associated with excessive perquisite consumption as well.

Lastly, firm age (*age*) variable is unable to explain the variations on the entire agency cost proxies whereas it is found significantly and positively related with the SG&A and GA ratios.

5.5. FURTHER ANALYSES

Further analysis is also conducted on the BIST National Industrials and BIST National Services indices in order to demonstrate more explicit effects of the sample variables on all agency cost proxies.

BIST National Industrials index includes manufacturing sector whereas BIST National Services index includes Electricity, Wholesale and Retail Trade, Education, Sports, Telecommunication, Transportation and Construction.

Furthermore, the effectiveness of managerial incentives on agency cost levels of the firms is also clearly stated in the following part of the study.

5.5.1. Results related with the BIST National Industrials and BIST National Services

Three models again are introduced in the study as the results are provided for all models of each agency cost proxy in Appendices I – VIII. Related tables demonstrated in these appendices gives detail results of the analyses. Tables 5.11 and 5.12 illustrate the fixed effect regression model results for all agency cost proxies, governance, ownership structure and the other agency mitigating variables for BIST National Industrials and Services, respectively.

Table 5.11
Fixed Effects Regression Model Result of all Agency Cost proxies in BIST
National Industrials

Independent Variables	Expected	opexpr	sgrat	grat	Expected	astr
		0.0000	0.0018	0.0024		-0.0119
brdsize	+/-	(0.0017)	(0.0049)	(0.0060)	+/-	(0.0092)
		0.0650	0.0781	-0.0271		-0.0468
fedirec	+/-	(0.0176)***	(0.0495)	(0.0584)	+/-	(0.0890)
		0.0129	-0.0600	-0.0068		0.0249
fordirec	+/-	(0.0146)	(0.0414)	(0.0507)	+/-	(0.0772)
		0.0621	0.1291	-0.0112		-0.3356
inddirec	-	(0.0275)**	(0.0783)*	(0.0947)	+	(0.1443)**
		-0.0090	0.0729	0.0465		-0.1258
CEOchairdual	+	(0.0083)	(0.0234)***	(0.0264)*	-	(0.0403)***
		-0.0079	-0.0140	-0.0123		-0.0207
AuditQual	-	(0.0051)	(0.0144)	(0.0172)	+	(0.0261)
		-0.0140	0.0563	0.1409		0.0810
GrtAssoc	+/-	(0.0194)	(0.0551)	(0.0684)**	+/-	(0.1041)
		-0.0259	-0.1095	0.3068		0.2046
SecGrtAssoc	+/-	(0.0292)	(0.0821)	(0.1073)***	+/-	(0.1634)
		-0.0232	0.0128	-0.3880		-0.1579
ThrdGrtAssoc	+/-	(0.0433)	(0.1225)	(0.1456)***	+/-	(0.2218)
		0.0129	-0.0338	0.0726		-0.0868
Freefloat	+/-	(0.0249)	(0.0691)	(0.0839)	+/-	(0.1278)
		0.0833	0.1656	0.0755		0.1301
dmind	-	(0.0354)**	(0.0740)**	(0.0874)	+	(0.1331)
		-0.3494	-0.2365	0.1492		0.8312
frind	-	(0.0971)***	(0.2620)	(0.3095)	+	(0.4714)*
		0.2170	0.2558	-0.1550		1.2227
dmfund	-	(0.0934)	(0.2536)	(0.2993)	+	(0.4558)***
		0.0564	0.1388	0.1284		0.2288
dmcorp	-	(0.0350)	(0.0751)*	(0.0893)	+	(0.1360)*
		0.0658	0.1006	0.0803		0.1642
frfund	-	(0.0364)*	(0.0777)	(0.0923)	+	(0.1406)
		0.0674	0.0765	0.0854		0.1412
frcorp	-	(0.0361)*	(0.0719)	(0.0850)	+	(0.1295)
		0.0035	-0.0168	-0.0115		0.0121
dumdiv	-	(0.0039)	(0.0111)	(0.0132)	+	(0.0201)
		0.0003	-0.0532	-0.0428		0.1180
debtr	-	(0.0129)	(0.0367)	(0.0429)	+	(0.0654)*
		-0.1540	-0.0354	-0.1047		0.6594
roa	-	(0.0185)***	(0.0512)	(0.0609)*	+	(0.0928)***
		-0.0101	-0.0256	0.0268		-0.2919
lnasset	+/-	(0.0046)**	(0.0127)**	(0.0160)*	+/-	(0.0243)***
		0.0009	0.0214	0.0120		0.0144
age	+/-	(0.0007)	(0.0021)***	(0.0025)***	+/-	(0.0038)
		0.2494	-0.3532	-1.0979		5.8252
cons		(0.0867)***	(0.2325)	(0.2903)***		(0.4421)***
F test		7.63***	10.77***	5.06***		12.47***
Goodness of fit (R2)		0.1659	0.2186	0.1209		0.2533
Number of obs		967	970	932		932
legend, ***p<0.01, **p<0.05, *p<0.10						

The result of linear regression model on panel data with fixed effects on BIST National Industrials is provided in Table 5.11 and it is generally consistent with the results of the whole sample.

The table demonstrates that the asset turnover ratio indicates the highest goodness of fit (R-square) with a value of 25,33 % which evidences that this ratio is more effective proxy for direct agency costs of equity than operating expense ratio, sgrat and grat for the firms listed on BIST National Industrial between 2005 and 2011.

On the other hand the analyses conducted with four proxies have almost parallel results. For manufacturing firms, the percentage of independent directors is found to be statistically significant with the asset turnover ratio. Inconsistent with the Hypothesis 2, this study finds a negative and significant relationship between the percentage of independent directors and asset turnover ratio similar with the results of the overall sample.

Only CEO-chair duality is found as the expected level and consistent with the Hypothesis 3, referring to *there is a positive relationship between agency cost and CEO-chairperson duality* in similar with the whole sample which indicates that the separation of CEO-chairperson increases the asset turnover ratio and hence decreases the agency cost of the BIST National Industrial firms.

The other governance mechanisms; board size and audit quality are not found significantly related with four agency cost proxy which can be explained as they have no effect on the agency costs in terms of poor asset management and excessive perquisite consumption.

Inconsistent results are found in terms of ownership structure and institutional ownership types like for the whole sample. Dividend yield variable do not have power to explain the variations on the agency cost levels. Firm-specific characteristics also have the same results like the entire sample.

Table 5.12 depicts the results of linear regression model on panel data with fixed effects for BIST National Services. The results with the SG&A ratio indicates the highest goodness of fit (R-square) in the entire sample with a value of 21,13 %, thus it can be stated that SG&A ratio is more effective proxy to assign direct agency costs of equity than operating expense ratio, sgrat and grat for the firms listed on BIST National Industrials between 2005 and 2011.

Inconsistent with the Hypothesis 2, this study finds a positive and significant relationship between the percentage of independent directors and SG&A ratio for the servicing firms, similar with the results of the overall sample. Only CEO-chair duality is found as the expected sign consistent with the expectation of Hypothesis 3.

The findings also depicts that audit quality is surprisingly only related with the expected sign in the service firms but not in manufacturing firms. While the audit quality of the entire sample of BIST National Industrials firms is not found to be statistically significant with all four agency cost proxies as expected in the hypothesis, it is found to be statistically significant in terms of operating expense ratio and asset turnover ratio for BIST National Services firms. Therefore, it can be stated that, BIST National Services firms which are audited by the Big Four audit companies have higher asset turnover ratio and less operating expense ratio and hence, less agency cost level.

Inconsistent results are found in terms of ownership structure and institutional ownership types like for the whole sample. It can be revealed that for these firms, institutional investor's variables are less significantly related with the agency cost levels. Dividend yield variable do not have power to explain the variations on the agency cost levels. Firm-specific characteristics also have the same results like the entire sample.

Table 5.12
Fixed Effects Regression Model Result of all Agency Cost proxies in BIST
National Services

Independent Variables	Expected	opexpr	sgrat	grat	Expected	astr
		-0.0082	0.0080	-0.0567		0.0024
brdsize	+/-	(0.0046)*	(0.0080)	(0.0315)*	+/-	(0.0176)
		0.0118	0.1102	-0.2940		0.1345
fedirec	+/-	(0.0465)	(0.0860)	(0.3191)	+/-	(0.1779)
		0.0634	-0.0869	0.2300		-0.5706
fordirec	+/-	(0.0388)	(0.0736)	(0.2766)	+/-	(0.1542)***
		-0.0365	0.3251	0.4415		-0.2643
inddirec	-	(0.0667)	(0.1176)***	(0.4414)	+	(0.2461)**
		-0.0078	0.0548	-0.2368		-0.0786
CEOChairdual	+	(0.0177)	(0.0301)*	(0.1202)*	-	(0.0670)***
		-0.0311	-0.0119	0.0869		0.1061
AuditQual	-	(0.0156)**	(0.0275)	(0.1058)	+	(0.0590)*
		0.0702	0.2653	0.1572		-0.0807
GrtAssoc	+/-	(0.0564)	(0.1012)***	(0.3846)	+/-	(0.2144)
		-0.0131	0.1351	-0.0909		0.0528
SecGrtAssoc	+/-	(0.0643)	(0.1195)	(0.4584)	+/-	(0.2556)
		0.1015	0.5354	-0.5379		-0.1707
ThrdGrtAssoc	+/-	(0.1305)	(0.2435)**	(0.9311)	+/-	(0.5192)
		0.0488	0.1734	0.4640		-0.6638
Freefloat	+/-	(0.0502)	(0.0897)*	(0.3242)	+/-	(0.1808)***
		-0.1853	0.7007	2.9594		0.5832
dmind	-	(0.3735)	(0.5873)	(2.2880)	+	(1.2758)
		-0.2221	0.1133	-2.1670		-0.7865
frind	-	(0.4624)	(0.7645)	(3.2760)	+	(1.8267)
		-0.4627	1.5812	1.8097		1.5245
dmfund	-	(0.4635)	(0.7656)**	(2.7526)	+	(1.5349)
		-0.1766	0.5739	2.6527		0.5817
dmcorp	-	(0.3705)	(0.5847)	(2.2760)	+	(1.2691)
		-0.1940	0.6441	2.8138		0.6104
frfund	-	(0.3683)	(0.5796)	(2.2642)	+	(1.2625)
		-0.2197	0.5514	2.9537		0.5324
frcorp	-	(0.0370)	(0.5844)	(2.2772)	+	(1.2698)
		-0.0025	-0.0335	-0.0450		0.0715
dumdiv	-	(0.0148)	(0.0274)	(0.1161)	+	(0.0647)
		-0.0502	0.0849	-0.0667		0.1739
debtr	-	(0.0277)*	(0.0480)*	(0.1802)	+	(0.1005)*
		-0.1017	-0.0432	-0.3438		0.4243
roa	-	(0.0416)**	(0.0733)	(0.2627)	+	(0.1465)***
		-0.0245	-0.0126	-0.1669		0.0474
lnasset	+/-	(0.0099)**	(0.0172)	(0.0649)**	+/-	(0.0362)
		0.0012	0.0098	0.0715		-0.0248
age	+/-	(0.0021)	(0.0036)***	(0.0138)***	+/-	(0.0077)***
		0.8527	-0.8974	-1.2381		-0.0544
cons		(0.3947)**	(0.6445)	(2.4786)		(1.3821)
F test		1.84**	4.36***	2.83**		3.42**
Goodness of fit (R2)		0.1121	0.2113	0.1577		0.1845
Number of obs		392	431	402		402
legend, ***p<0.01, **p<0.05, *p<0.10						

In overall comparison of the results of BIST National Industrials and BIST National Services; the coefficients and expected signs of the percentage of independent directors is also the same for the whole sample. Therefore, it can be interpreted that this study finds a positive and significant relationship between the percentage of independent directors and agency costs which is inconsistent with the Hypothesis 2 referring *there is a negative relationship between agency costs and the percentage of independent directors on the board*.

While the audit quality fails to show any statistically significant coefficients for BIST National Industrials, it is found to be on the expected signs for the BIST National Services. Thus, audit quality has impact to decrease agency costs in BIST National Services.

For the BIST National Services, the results of the percentage of independent directors and CEO chair duality are consistent with the results of the whole sample. However, the percentage of foreign directors has found to increase agency costs.

Overall, the analysis relating with ownership concentration and agency costs suggest that the variations of these variables do not significantly explain the variations of agency costs across Turkish firms. Dividend yield is not found as an effective agency cost mitigating variable for both of these two samples. From the perspective of control variables, increasing firm profitability is found to significantly enhance firm asset utilization ratios and reduce operating expenses both of the two industries.

5.5.2. Effectiveness of Managerial Incentives

Managerial incentives, in a broad sense, aim to influence the performance through stimulating top managers to achieve greater efforts and they are commonly used in corporations to align the interest of top management with the interests of the owners of a company, which is conflicted by the separation of ownership and management.

In Turkey, these incentives are commonly used as cash rather than salary bonus or stock options, and have been reporting in the footnotes of the financial statements

since 2008. Therefore in this empirical model, the incentives are calculated as a natural logarithm of the sum of the total annual benefits paid to top management between 2008 and 2011.

Hausman test results for the model evidence that the assumptions for the random effects estimation are not violated and validate to use fixed effect model for the all agency cost proxies.

Three models again are introduced in the study as the results are provided for all models of each agency cost proxy in Appendices IX – XII. Related tables demonstrated in these appendices gives detail results of the analyses. As shown in Table 5.13, the results of the analyses indicates that SG&A ratio has highest goodness of fit (R-square) with 27,66 %, which denotes that this ratio is more effective proxy for direct agency costs of equity than operating expense ratio, grat and asset turnover ratio for the listed firms between 2008 and 2011.

In all the models, with no exception, no evidence is found for managerial incentives to work as an effective incentive mechanism in aligning the interests of managers with the shareholders which might be the outcome of the fact that, in contrary to the literature stating that equity based compensation has more effect to reduce agency costs than the other incentives types, unlike the other emerged markets, it is not common to use equity based compensation schemes in Turkey.

There is no significant relationship found between the four dependent variables proxying for the extent of agency costs and the managerial incentives for the whole sample. These inconsistent results fails to accept the alternative Hypothesis 5 and accepts the null Hypothesis 5 which refers there is *no relationship between agency cost and managerial incentives*.

In literature; Florackis and Ozkan (2004) evidence that managerial salary can work as an effective incentive mechanism for UK firms to help aligning the interests of managers and stakeholders in terms of asset utilization ratio whereas Henry (2010) use executive options as an indicator for the managerial incentives and finds no relationship between executive option use and asset turnover ratio and SG&A ratio.

In parallel with the seven years observation, board size remains statistically insignificant for all agency cost proxy variables within four years period.

It is interesting that the percentage of independent directors on the board is statistically insignificant for all agency cost proxy variables within these four years period. Although the independent directors has found to increase the operating expense ratio, and decrease asset turnover and hence, increase the agency cost in the seven years period, they seem to play less effective role in mitigating agency costs in last four years.

In regards to other variables, audit quality is also found insignificantly related with the all agency cost proxy after managerial incentives variable is introduced into the model between the years 2008 and 2011.

Related table also states that institutional investors play no significant role in decreasing agency costs. Within four years of observation period, none of the institutional investor's types show any statistically significant relationships with the three expense ratios. That evidences that the institutional investors are unable to protect firms from excessive consumption. Only the percentage of domestic fund and domestic corporate is significantly and positively related with asset turnover ratio as it is expected. Therefore it can be stated that these institutional ownership variables have power to decrease the agency cost in terms of poor asset management and play an effective agency cost mitigating variable.

Table 5.13
Fixed Effects Regression Model Result of all Agency Cost Proxies between
2008-2011

Independent Variables		Expected opexpr	sgrat	grat		Expected astr
		-0.0018	0.0038	-0.0004		0.0044
brdsize	+/-	(0.0022)	(0.0050)	(0.0019)	+/-	(0.0191)
		0.0601	0.0104	0.0285		0.0758
fe direc	+/-	(0.0322)*	(0.0485)	(0.0189)	+/-	(0.1068)
		0.0030	0.0269	0.0021		0.0150
fordirec	+/-	(0.0171)	(0.0478)	(0.0181)	+/-	(0.1248)
		-0.0058	0.1076	0.0039		-0.3686
inddirec	-	(0.0394)	(0.0688)	(0.0274)	+	(0.3243)
		-0.0177	0.0726	-0.0046		-0.0837
CEOchairdual	+	(0.0088)**	(0.0232)***	(0.0094)	-	(0.0601)
		-0.0047	-0.0182	-0.0046		-0.0231
AuditQual	-	(0.0084)	(0.0151)	(0.0058)	+	(0.0352)
		0.0006	0.0087	-0.0005		0.0013
lnmngincentr	-	(0.0008)	(0.0069)	(0.0007)	+	(0.0051)
		0.0024	0.0027	0.0039		0.0135
GrtAssoc	+/-	(0.0281)	(0.0611)	(0.0240)	+/-	(0.1335)
		-0.0148	-0.1306	-0.0116		0.0002
SecGrtAssoc	+/-	(0.0307)	(0.0732)*	(0.0284)	+/-	(0.2192)
		-0.0449	-0.1414	-0.0319		-0.0214
ThrdGrtAssoc	+/-	(0.4442)	(0.1165)	(0.4448)	+/-	(0.1925)
		-0.0086	0.0398	-0.0110		-0.0514
Freefloat	+/-	(0.0430)	(0.0708)	(0.0282)	+/-	(0.1843)
		0.0585	0.0403	0.0390		0.1796
dmind	-	(0.0705)	(0.1220)	(0.0465)	+	(0.1926)
		-0.2405	-0.4226	-0.1158		0.7931
frind	-	(0.2902)	(0.3915)	(0.1622)	+	(0.9827)
		0.0324	-0.0790	-0.0301		0.7581
dmfund	-	(0.1040)	(0.2542)	(0.0965)	+	(0.4408)*
		-0.0016	0.0329	0.0036		0.3392
dmcorp	-	(0.0719)	(0.1182)	(0.0450)	+	(0.1660)**
		0.0099	0.0204	0.0253		0.2031
frfund	-	(0.0738)	(0.1243)	(0.0474)	+	(0.2042)
		0.0331	-0.0247	0.0432		-0.0196
frcorp	-	(0.0749)	(0.1279)	(0.0490)	+	(0.2032)
		0.0056	-0.0052	0.0001		-0.0059
dumdiv	-	(0.0037)	(0.0117)	(0.0044)	+	(0.0195)
		-0.0442	0.0733	-0.0172		0.3029
debtr	-	(0.0263)*	(0.0382)*	(0.0146)	+	(0.1166)**
		-0.1398	0.0804	-0.0910		0.5054
roa	-	(0.0255)***	(0.0468)*	(0.0179)***	+	(0.1446)***
		-0.0394	-0.0578	-0.0273		-0.0781
lnasset	+/-	(0.0119)***	(0.0159)***	(0.0062)***	+/-	(0.0663)
		0.0009	0.0319	0.0005		0.0096
age	+/-	(0.0018)	(0.0032)***	(0.0012)	+/-	(0.0082)
		0.8899	-0.1141	0.5900		1.6052
cons		(0.2060)***	(0.2959)	(0.1152)***		(1.2427)
F test		5.13***	9.79***	3.73***		2.50***
Goodness of fit (R2)		0.1844	0.2766	0.1302		0.0823
Number of obs		776	794	776		775

5.6. SUMMARY OF THE EMPIRICAL RESULTS

In this study, the effectiveness of the corporate governance mechanisms and agency mitigating variables in the Turkish nonfinancial listed firms is examined. In particular, the impact of corporate governance mechanisms, agency mitigating variables in terms of ownership concentration, institutional investors, dividend yield and debt ratio on the costs arising from agency conflicts mainly between managers and shareholders is explored.

The empirical models are utilized on Turkish nonfinancial listed firms between 2005 and 2011. Further analyses are also conducted on BIST National Industrials and BIST National Services indices in order to see more clear effects of the related variables on agency cost levels of the firms. The effectiveness of managerial incentives on agency cost levels is also observed after 2008, the year when the reporting of incentives in the financial statements as footnotes.

In an attempt to provide a comprehensive and robust representation of the agency costs environment for Turkish nonfinancial listed firms, this study employs four different proxy measures that relate to various aspects of firm operations.

In regards to the governance variables, the overall findings depict that CEO-chairperson duality decreases the asset turnover ratio and increase the SG&A ratio for the overall sample and for both BIST National Services and Industrials. Therefore, it can be stated that the separation of CEO and chairperson is an effective governance mechanism for these firms in the related period.

The percentage of independent directors on the board, which is considered as an effective governance mechanism, indicates some interesting outcomes. In contrary to the prior literature that states boards with a significant proportion of independent directors are expected to decrease the agency cost proxies, the percentage of independent directors on board is found to increase the operating expense ratio, and decrease asset turnover and hence, increase the agency cost for the entire sample in the seven years period which underlines to question the accountability, effectiveness and independence of the independent board members in Turkey.

The study also reveals that independent directors seem to play more effective role in mitigating agency costs for both BIST National Industrials and Services Indices in the last four years.

All the models employed in this study evidence that board size has no effect on agency costs in Turkish firms. As an exception, BIST National Services indices firm's board size is found significantly and negatively related with the operating expense ratio.

In regards to the board composition, the percentage of female directors is found to increase the agency costs in terms of operating expense and excessive perquisite consumption whereas the percentage of foreign directors on board provides inconsistent results.

While the audit quality is not found to be statistically significant as expected in the hypothesis for the four agency cost proxy and for the entire sample and also BIST National Industrials as well, it is found to be statistically significant as expected sign for the operating expense ratio and asset turnover ratio for BIST National Service firms. Therefore, it can be stated that, BIST National Services firms which are audited by the Big Four audit companies have higher asset turnover ratio and less operating expense ratio and hence, less agency cost level.

In contrary to the literature no significant relationship found between four dependent variables proxying for the extent of agency costs and the managerial incentives across the whole sample which might be explained by the lack of common usage of the equity based compensation schemes in Turkey whereas it is common in developed markets and argued to be the most effective incentive mechanism to solve the conflicts between manager and owners.

In regards to the ownership structure variables, the greatest and second greatest associate is found to be positively and significantly related with the SG&A ratio and GA ratio respectively for the entire sample. For BIST National Industrials, while these two variables are found to increase the agency costs in terms of GA ratio, the third greatest associate is found to decrease the agency costs.

Overall findings state that all type of institutional investors is not effective in protecting firms from excessive consumption. It is also found that institutional investors in terms of domestic fund and domestic corporate has power to decrease the agency cost in terms of poor asset management and play an effective agency cost mitigating variable.

Another agency mitigating mechanisms used in the study is dividend yield and debt policy which have inconsistent results with the expected sign. While the dividend yield mitigates the agency costs only in terms of SG&A ratio, the debt ratio mitigates agency cost only in terms of poor asset management.

All of the agency cost proxies present the same results that the coefficients of firm profitability are significantly related with the dependent variable which is consistent with Fleming et al. (2005) argument that firm profitability helps to mitigate agency cost. This also reveals the fact that strongly performing firms' results lower levels of excessive consumption and greater levels of asset utilization.

The logarithm of assets is negatively related four agency cost proxy variables which supports the view that larger firms are associated with reduced asset utilization ratio but larger firms are also found to be less associated with excessive perquisite consumption as well.

Lastly, firm age variable do not explain the variations on the entire agency cost proxies, but it is found to be significantly and positively related with the SG&A ratio and GA ratio.

6. CONCLUSION

This section briefly summarizes the study and provides some concluding remarks. The aim of this study is to investigate the empirical determinants of agency costs and focus on the role of corporate governance and agency mitigating variables in decreasing agency problems for the Turkish nonfinancial firms. Evaluating the effectiveness of mechanisms related to corporate governance and structure of ownership in mitigating the costs arises from agency costs and presenting how governance mechanisms deal with the agency costs is empirically tested in order to accomplish this purpose.

Berle and Means (1932) first discuss the impact of the separation of ownership and control in a modern firm. Jensen and Meckling (1976) states this separation enhances the conflicts of interest among stakeholders of the modern firm. From the perspective of agency theory, these conflicts can be between stockholders and managers and stockholders and debtholders. Agency costs in terms of managerial superfluous, excessive perquisite consumption and poor asset management may arise when interests of managers conflict with those of shareholders. Broad fields of studies on agency theory concentrate on describing the governance mechanisms and agency mitigating variables that solve the agency problem or lessen the agency conflict.

In this study, three models are constructed and a set of hypotheses are tested for each agency cost proxy. First model depicts the impact of governance mechanisms on agency cost proxies. The second model examines the impact of control mechanisms in terms of ownership structure together with institutional investors, dividend policy and debt financing on agency cost proxies. And, the last model further examines how the governance variables and all agency mitigating variables relate to agency cost proxies.

These models are tested by using a sample of 213 non-financial firms listed on BIST for the seven years of reporting period from 2005 to 2011, which accumulates to 1.491 firm-year observations.

In addition to whole sample, above mentioned models are also implemented to BIST National Industrials and BIST National Services indices separately between 2008 and 2011, which enables to demonstrate more clear effects of agency cost proxies. Furthermore, the effectiveness of managerial incentives on agency cost levels of the firms is also clearly stated.

The main finding of this study is that the governance variables and agency mitigating variables differently reduce the extent of conflicts of interest between managers and shareholders. Like the other studies; McKnight and Weir (2009), Singh and Davidson (2003); the results are sensitive to the definition of agency costs.

Agency costs in terms of excessive perquisite consumption and poor asset management may arise when a conflict between interest' of managers and shareholders' exists. Empirical literature states that the operating expense ratio, SG&A ratio, GA ratio and asset utilization ratio can capture the extent of equity agency conflicts that may exist between managers and shareholders. It is also essential to state that considering the four agency cost proxy variables, SG&A ratio indicate the highest goodness of fit for evaluating the whole sample and BIST National Services whereas asset turnover ratio indicate the highest goodness of fit for BIST National Industrials among the other agency cost proxy variables.

In regards to the governance variables, the separation of CEO and chairperson is found as an effective governance mechanism by increasing the asset efficiency and decreasing the excessive perquisite consumption and hence, decreasing the agency cost level of the Turkish firms in the overall period. This can be interpreted as CEO-chairperson duality is undesirable as it gives one person too much power over the decision making process. These results reveal that the separation of the posts of CEO and Chairperson in corporations is one of the effective corporate governance mechanisms and can mitigate agency costs.

Inconsistent with the expectations, the percentage of independent directors on the board is found to increase the agency cost in these period for the whole sample and both for the BIST National Industrials and Services. This finding may be interpreted as

that these directors of the related firms are not independent enough in these periods. Furthermore, the results evidence that in the last four years, the percentage of independent directors on the board in Turkey is going to increase according to the new Turkish regulations. This may suggest that the independent directors may increase the necessary knowledge, experience, time and skills to be effective monitors. In the near future, they can play a more effective role on boards and decrease agency costs in corporations.

The study evidences that board size has effect on agency costs only in BIST National Services indices firms, which raises the issue on how firm's determine their own preferred governance structures. Therefore, it can be stated that firm's will undertake specific governance mechanism more effectively in the near future.

In regards to the board composition, the percentage of foreign directors on board gives inconsistent results whereas the percentage of female directors is found to increase the agency costs in terms of operating expense and excessive perquisite consumption. This indicates that boards having higher number of female and foreign directors are less efficient in reducing agency costs as they refer to the fact that although foreign directors may bring special expertise in monitoring, they may also inherently costly when they demand a higher level of compensation. Furthermore, as to the gender distribution, it is observed that male directors on the board in Turkey are still dominant. Although percentage of female directors have slightly increased in the recent years, new regulation on the board composition requiring to appoint at least one female to the board of directors will elevate female ratio in the near future, and might lead them to better concentrate on the agency problems.

It is interestingly stated that audit quality is found to be related in the expected sign only in the service firms listed on BIST National Services. Therefore, it can be stated that, BIST National Services firms which are audited by the Big Four audit companies have higher asset turnover ratio and less operating expense ratio and hence, less agency cost level. On the other hand, for BIST National Industrials firms audit quality does not significantly decrease the agency cost level of Turkish nonfinancial listed firms in the overall period.

For all the models, there is no evidence that managerial incentives can work as an effective incentive mechanism that helps aligning the interests of managers with the shareholders which might be explained by the lack of common usage of the equity market in Turkey whereas it is common in developed markets in terms of stock options to solve the conflicts between manager and owners effectively. Therefore, the problem of designing an optimal compensation contract specific for each firm can need to be deeply investigated for Turkish firms.

In regards to the ownership structure variables, the greatest and second greatest associate is found to be positively and significantly related with SG&A ratio and GA ratio respectively for the entire sample and increase the agency costs in these terms. Additionally no relationship is found in any model of the study between the ownership concentration and asset turnover of the corporations.

For BIST National Industrials, while these two variables are found to increase the agency costs in terms of GA ratio, the third greatest associate is found to decrease the agency costs. More importantly, this evidence indicates that the effectiveness of ownership structure differs depending on the types of block ownership and the nature of agency costs and therefore it can be stated that highly concentrated firms like the firms in Turkey are more engaged with the agency cost problems but do not effectively control excessive perquisite consumption and facilitate asset utilization.

Moreover, the free float percentages of firms are found very low, which evidences that Turkish firms do not prefer to increase the free float percentages as a result of the ownership concentration. Consequently, the major barrier for enhancing the good corporate governance mechanisms is the concentration of ownership by the family firms.

As the Turkish corporate governance is characterized by concentrated ownership structure dominated by the family firms, corporate governance should play more efficient role to solve or reduce conflict between large shareholders and minority interests thorough improvements in the regulations of transparency and minority protection rights.

Institutional investors in terms of domestic fund and domestic corporate is found to have power to decrease the agency cost in terms of poor asset management and play an effective agency cost mitigating variable, whereas individual investors are not found to reduce the agency costs for the entire sample so as the foreign types of institutional investors.

These finding highlights the fact that the ownership of securities have been switching from individuals to institutional side with an increasing trend in recent years. Despite the fact that the role of institutional investors in Turkish economy is limited, and hence their monitoring mechanism is not in the desired level, there is a huge capacity for the pension plans industry for becoming key institutional investors, as it plays a crucial role as institutional investors in emerged countries. Furthermore, less active institutional investors, an unpredictable macro-economic environment and problems in the capital markets are other factors that limit incentives for firms to adopt good corporate governance practices.

The other agency mitigating variables; dividend yield and debt policy have inconsistent results with the expectations. While the dividend yield mitigates the agency costs in terms of only excessive perquisite consumption, the debt ratio mitigates agency cost in terms of only poor asset management. Therefore, it can be stated that both of these variables do not have power to mitigate with these four agency cost variable.

The results are somewhat sensitive to firm characteristics such as firm size and firm age. Although the study supports the view that larger firms are associated with reduced asset utilization ratio, it also depicts those larger firms to be less associated with excessive perquisite consumption. Firm age variable is not found to be significant to explain the variations on the entire agency cost proxies.

Among many contributions of this study to the literature, it is worth to mention that this is the first Turkish study related to agency costs that uses panel data analysis applied with the largest data set which has not investigated deeply so far.

This study makes significant contribution in Turkish context addressing the agency problem in terms of corporate governance and ownership structure, especially after the establishment of the new regulations on Turkish Corporate Governance Context.

The outcomes of the study are wished to be useful for the firms to manage agency problem and reduce the agency costs and for the regulators to define more effective corporate governance mechanisms for the country.

Consequently, the investigation of agency costs and the effectiveness of governance mechanisms and agency mitigating variables in Turkey, in a period that witnesses an intensive discussion of corporate governance issues with the new regulations, would be of significant importance. Defining the new proxies of agency costs and the effectiveness of corporate governance mechanisms, together with incorporating external market mechanism, laws and regulations into an empirical model and presenting the results in a broad manner deserves higher number of academic papers. Additionally, this study is humbly aimed to encourage academicians to explore the new dimensions of the agency problem.

APPENDICES

Appendix I: Fixed Effects Regression Model Result for Operating Expense Ratio in BIST National Industrials

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		0.0001		0.0000
brdsize	+/-	(0.0016)	—	(0.0017)
		0.0740		0.0650
fedirec	+/-	(0.0166)***	—	(0.0176)***
		0.0128		0.0129
fordirec	+/-	(0.0127)	—	(0.0146)
		0.0668		0.0621
inddirec	-	(0.0264)**	—	(0.0275)**
		-0.0116		-0.0090
CEOchair	+	(0.0079)	—	(0.0083)
		-0.0043		-0.0079
AuditQual	-	(0.0049)	—	(0.0051)
			-0.0199	-0.0140
GrtAssoc	+/-	—	(0.0193)	(0.0194)
			-0.0363	-0.0259
SecGrtAssoc	+/-	—	(0.0293)	(0.0292)
			-0.0437	-0.0232
ThrdGrtAssoc	+/-	—	(0.0434)	(0.0433)
			-0.0099	0.0129
Freefloat	+/-	—	(0.0250)	(0.0249)
			0.0887	0.0833
dmind	-	—	(0.0356)**	(0.0354)**
			-0.3342	-0.3494
frind	-	—	(0.0979)***	(0.0971)***
			0.0276	0.2170
dmfund	-	—	(0.0938)	(0.0934)
			0.0616	0.0564
dmcorp	-	—	(0.0353)*	(0.0350)
			0.0742	0.0658
frfund	-	—	(0.0366)**	(0.0364)*
			0.0709	0.0674
frcorp	-	—	(0.0362)*	(0.0361)*
			0.0039	0.0035
dumdiv	-	—	(0.0039)	(0.0039)
			0.0012	0.0003
debtr	-	—	(0.0130)	(0.0129)
		-0.1674	-0.1488	-0.1540
roa	-	(0.0169)***	(0.0186)***	(0.0185)***
		-0.0132	-0.0094	-0.0101
lnasset	+/-	(0.0033)***	(0.0045)**	(0.0046)**
		0.0008	0.0014	0.0009
age	+/-	(0.0004)*	(0.0007)**	(0.0007)
		0.3803	0.2203	0.2494
cons		(0.0587)***	(0.0850)**	(0.0867)***
F test		144.33***	9.03***	7.63***
Goodness of fit (R²)		0,1253	0,1431	0,1659
Number of obs		967	967	967
legend, ***p<0.01, **p<0.05, *p<0.10				

Appendix II: Fixed Effects Regression Model Result for Operating Expense Ratio in BIST National Services

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		-0.0090		-0.0082
brdsize	+/-	(0.0046)*	—	(0.0046)*
		0.0147		0.0118
fe dire c	+/-	(0.0453)	—	(0.0465)
		0.0589		0.0634
fordire c	+/-	(0.0362)	—	(0.0388)
		-0.0327		-0.0365
inddire c	-	(0.0654)	—	(0.0667)
		-0.0058		-0.0078
CEOchairdual	+	(0.0173)	—	(0.0177)
		-0.0314		-0.0311
AuditQual	-	(0.0150)**	—	(0.0156)**
			0.0938	0.0702
GrtAssoc	+/-	—	(0.0557)*	(0.0564)
			-0.0185	-0.0131
SecGrtAssoc	+/-	—	(0.0638)	(0.0643)
			0.1353	0.1015
ThrdGrtAssoc	+/-	—	(0.1289)	(0.1305)
			0.0423	0.0488
Freefloat	+/-	—	(0.0501)	(0.0502)
			-0.1441	-0.1853
dmind	-	—	(0.3660)	(0.3735)
			-0.1613	-0.2221
frind	-	—	(0.4557)	(0.4624)
			-0.3881	-0.4627
dmfund	-	—	(0.4587)	(0.4635)
			-0.1419	-0.1766
dmcorp	-	—	(0.3634)	(0.3705)
			-0.1438	-0.1940
frfund	-	—	(0.3607)	(0.3683)
			-0.1703	-0.2197
frcorp	-	—	(0.3636)	(0.0370)
			0.0013	-0.0025
dumdiv	-	—	(0.0148)	(0.0148)
			-0.0575	-0.0502
debtr	-	—	(0.0273)**	(0.0277)*
		-0.0800	-0.1164	-0.1017
roa	-	(0.0367)**	(0.0411)***	(0.0416)**
		-0.0288	-0.0251	-0.0245
lnasset	+/-	(0.0093)***	(0.0097)**	(0.0099)**
		0.0018	0.0006	0.0012
age	+/-	(0.0019)	(0.0019)	(0.0021)
		0.7532	0.7669	0.8527
cons		(0.1554)***	(0.3898)*	(0.3947)**
F test		3.29***	2.00**	1.84**
Goodness of fit (R²)		0,0852	0,0878	0,1121
Number of obs		392	392	392

legend, ***p<0.01, **p<0.05, *p<0.10

**Appendix III: Fixed Effects Regression Model Result for SG&A Ratio in
BIST National Industrials**

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		0.0008		0.0018
brdsize	+/-	(0.0049)	—	(0.0049)
		0.0769		0.0781
fe dire c	+/-	(0.0492)	—	(0.0495)
		-0.0450		-0.0600
fordire c	+/-	(0.0401)	—	(0.0414)
		0.1110		0.1291
inddire c	-	(0.0784)	—	(0.0783)*
		0.0704		0.0729
CEOchairdual	+	(0.0234)***	—	(0.0234)***
		-0.0147		-0.0140
AuditQual	-	(0.0142)	—	(0.0144)
			0.0469	0.0563
GrtAssoc	+/-	—	(0.0054)	(0.0551)
			-0.0883	-0.1095
SecGrtAssoc	+/-	—	(0.0821)	(0.0821)
			0.0005	0.0128
ThrdGrtAssoc	+/-	—	(0.1226)	(0.1225)
			-0.0112	-0.0338
Free float	+/-	—	(0.0693)	(0.0691)
			0.1588	0.1656
dmind	-	—	(0.0743)**	(0.0740)**
			-0.2214	-0.2365
frind	-	—	(0.2639)	(0.2620)
			0.2370	0.2558
dmfund	-	—	(0.2539)	(0.2536)
			0.1396	0.1388
dmcorp	-	—	(0.0756)*	(0.0751)*
			0.1031	0.1006
frfund	-	—	(0.0781)	(0.0777)
			0.0657	0.0765
frcorp	-	—	(0.0720)	(0.0719)
			-0.0163	-0.0168
dumdiv	-	—	(0.0111)	(0.0111)
			-0.0620	-0.0532
debtr	-	—	(0.0368)*	(0.0367)
		-0.0111	-0.0401	-0.0354
roa	-	(0.0470)	(0.0514)	(0.0512)
		-0.0291	-0.0240	-0.0256
lnasset	+/-	(0.0122)**	(0.0126)*	(0.0127)**
		0.0218	0.0218	0.0214
age	+/-	(0.0019)***	(0.0020)***	(0.0021)***
		-0.0178	-0.3832	-0.3532
cons		(0.2062)	(0.2278)*	(0.2325)
F test		21.77***	13.53***	10.77***
Goodness of fit (R²)		0,1928	0,1995	0.2186
Number of obs		970	970	970
legend, ***p<0.01, **p<0.05, *p<0.10				

**Appendix IV: Fixed Effects Regression Model Result for SG&A Ratio in
BIST National Services**

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		0.0071		0.0080
brdsize	+/-	(0.0080)	—	(0.0080)
		0.1072		0.1102
fe dire c	+/-	(0.0868)	—	(0.0860)
		-0.0819		-0.0869
fordire c	+/-	(0.0716)	—	(0.0736)
		0.3076		0.3251
inddire c	-	(0.1179)**	—	(0.1176)***
		0.0574		0.0548
CEOchairdual	+	(0.0305)*	—	(0.0301)*
		-0.0164		-0.0119
AuditQual	-	(0.0277)	—	(0.0275)
			0.2788	0.2653
GrtAssoc	+/-	—	(0.1009)***	(0.1012)***
			0.1135	0.1351
SecGrtAssoc	+/-	—	(0.1190)	(0.1195)
			0.5492	0.5354
ThrdGrtAssoc	+/-	—	(0.2442)**	(0.2435)**
			0.1611	0.1734
Free float	+/-	—	(0.0900)*	(0.0897)*
			0.7291	0.7007
dmind	-	—	(0.5859)	(0.5873)
			0.1942	0.1133
frind	-	—	(0.7608)	(0.7645)
			1.4867	1.5812
dmfund	-	—	(0.7677)*	(0.7656)**
			0.5946	0.5739
dmcorp	-	—	(0.5836)	(0.5847)
			0.6703	0.6441
frfund	-	—	(0.5781)	(0.5796)
			0.5734	0.5514
frcorp	-	—	(0.5836)	(0.5844)
			-0.0396	-0.0335
dumdiv	-	—	(0.0275)	(0.0274)
			0.0738	0.0849
debtr	-	—	(0.0482)	(0.0480)*
		-0.1076	-0.0482	-0.0432
roa	-	(0.0665)	(0.0732)	(0.0733)
		0.0034	-0.0120	-0.0126
lnasset	+/-	(0.0165)	(0.0170)	(0.0172)
		0.0133	0.0132	0.0098
age	+/-	(0.0034)***	(0.0034)***	(0.0036)***
		-0.3966	-0.9476	-0.8974
cons		(0.2814)	(0.6470)	(0.6445)
F test		6.58***	5.11***	4.36***
Goodness of fit (R²)		0.1434	0.1806	0.2113
Number of obs		431	431	431
legend, ***p<0.01, **p<0.05, *p<0.10				

**Appendix V: Fixed Effects Regression Model Result for GA Ratio in BIST
National Industrials**

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		-0.0004		0.0024
brdsize	+/-	(0.0060)	—	(0.0060)
		-0.0342		-0.0271
fe dire c	+/-	(0.0580)	—	(0.0584)
		-0.0016		-0.0068
fordire c	+/-	(0.0485)	—	(0.0507)
		-0.0095		-0.0112
inddire c	-	(0.0946)	—	(0.0947)
		0.0522		0.0465
CEOchairdual	+	(0.0264)**	—	(0.0264)*
		-0.0092		-0.0123
AuditQual	-	(0.0170)	—	(0.0172)
			0.1497	0.1409
GrtAssoc	+/-	—	(0.0670)**	(0.0684)**
			0.3237	0.3068
SecGrtAssoc	+/-	—	(0.1057)***	(0.1073)***
			-0.3684	-0.3880
ThrdGrtAssoc	+/-	—	(0.1444)**	(0.1456)***
			0.0849	0.0726
Freefloat	+/-	—	(0.0834)	(0.0839)
			0.0683	0.0755
dmind	-	—	(0.0868)	(0.0874)
			0.1502	0.1492
frind	-	—	(0.3086)	(0.3095)
			-0.1712	-0.1550
dmfund	-	—	(0.2970)	(0.2993)
			0.1254	0.1284
dmcorp	-	—	(0.0890)	(0.0893)
			0.0747	0.0803
frfund	-	—	(0.0919)	(0.0923)
			0.0790	0.0854
frcorp	-	—	(0.0843)	(0.0850)
			-0.0105	-0.0115
dumdiv	-	—	(0.0131)	(0.0132)
			-0.0459	-0.0428
debtr	-	—	(0.0428)	(0.0429)
		-0.0662	-0.1132	-0.1047
roa	-	(0.0559)	(0.0606)*	(0.0609)*
		0.0273	0.0270	0.0268
lnasset	+/-	(0.0153)*	(0.0157)*	(0.0160)*
		0.0131	0.0115	0.0120
age	+/-	(0.0023)***	(0.0024)***	(0.0025)***
		-0.9591	-1.0732	-1.0979
cons		(0.2567)***	(0.2821)***	(0.2903)***
F test		9.08***	6.84***	5.06***
Goodness of fit (R²)		0.0944	0.1165	0.1209
Number of obs		932	932	932
legend, ***p<0.01, **p<0.05, *p<0.10				

Appendix VI: Fixed Effects Regression Model Result for GA Ratio in BIST
National Services

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		-0.0572		-0.0567
brdsize	+/-	(0.0308)*	—	(0.0315)*
		-0.2909		-0.2940
fe dire c	+/-	(0.3127)	—	(0.3191)
		0.1623		0.2300
fordire c	+/-	(0.2617)	—	(0.2766)
		0.4135		0.4415
inddire c	-	(0.4313)	—	(0.4414)
		-0.2127		-0.2368
CEOchairdual	+	(0.1190)*	—	(0.1202)*
		0.0488		0.0869
AuditQual	-	(0.1020)	—	(0.1058)
			0.2763	0.1572
GrtAssoc	+/-	—	(0.3817)	(0.3846)
			-0.0498	-0.0909
SecGrtAssoc	+/-	—	(0.4544)	(0.4584)
			-0.5509	-0.5379
ThrdGrtAssoc	+/-	—	(0.9232)	(0.9311)
			0.4850	0.4640
Freefloat	+/-	—	(0.3236)	(0.3242)
			2.1310	2.9594
dmind	-	—	(2.2462)	(2.2880)
			-3.0014	-2.1670
frind	-	—	(3.2291)	(3.2760)
			1.0751	1.8097
dmfund	-	—	(2.7230)	(2.7526)
			1.8608	2.6527
dmcorp	-	—	(2.2365)	(2.2760)
			1.9870	2.8138
frfund	-	—	(2.2184)	(2.2642)
			2.1464	2.9537
frcorp	-	—	(2.2415)	(2.2772)
			-0.0410	-0.0450
dumdiv	-	—	(0.1161)	(0.1161)
			-0.0425	-0.0667
debtr	-	—	(0.1778)	(0.1802)
		-0.3393	-0.2887	-0.3438
roa	-	(0.2370)	(0.2611)	(0.2627)
		-0.1843	-0.1617	-0.1669
lnasset	+/-	(0.0605)***	(0.0639)**	(0.0649)**
		0.0709	0.0672	0.0715
age	+/-	(0.0127)***	(0.0125)***	(0.0138)***
		2.1748	-0.8770	-1.2381
cons		(1.0366)**	(2.4632)	(2.4786)
F test		5.21***	3.26***	2.83**
Goodness of fit (R²)		0.1248	0.1314	0.1577
Number of obs		402	402	402

legend, ***p<0.01, **p<0.05, *p<0.10

Appendix VII: Fixed Effects Regression Model Result for Asset Turnover Ratio in BIST National Industrials

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		-0.0129		-0.0119
brdsize	+/-	(0.0091)	—	(0.0092)
		-0.0453		-0.0468
fedirec	+/-	(0.0883)	—	(0.0890)
		0.0353		0.0249
fordirec	+/-	(0.0738)	—	(0.0772)
		-0.3552		-0.3356
inddirec	+	(0.1440)**	—	(0.1443)**
		-0.1249		-0.1258
CEOchairdual	-	(0.0402)***	—	(0.0403)***
		-0.0188		-0.0207
AuditQual	+	(0.0258)	—	(0.0261)
			0.0882	0.0810
GrtAssoc	+/-	—	(0.1029)	(0.1041)
			0.1710	0.2046
SecGrtAssoc	+/-	—	(0.1623)	(0.1634)
			-0.1597	-0.1579
ThrdGrtAssoc	+/-	—	(0.2218)	(0.2218)
			-0.1175	-0.0868
Freefloat	+/-	—	(0.1282)	(0.1278)
			0.1285	0.1301
dmind	+	—	(0.1334)	(0.1331)
			0.7851	0.8312
frind	+	—	(0.4741)*	(0.4714)*
			1.2149	1.2227
dmfund	+	—	(0.4563)	(0.4558)***
			0.2168	0.2288
dmcorp	+	—	(0.1367)	(0.1360)*
			0.1588	0.1642
frfund	+	—	(0.1411)	(0.1406)
			0.1345	0.1412
frcorp	+	—	(0.1295)	(0.1295)
			0.0132	0.0121
dumdiv	+	—	(0.0202)	(0.0201)
			0.1302	0.1180
debtr	+	—	(0.0657)**	(0.0654)*
		0.6337	0.6692	0.6594
roa	+	(0.0850)***	(0.0930)***	(0.0928)***
		-0.2782	-0.3020	-0.2919
lnasset	+/-	(0.0233)***	(0.0241)***	(0.0243)***
		0.0163	0.0125	0.0144
age	+/-	(0.0035)***	(0.0037)***	(0.0038)
		5.7377	5.9838	5.8252
cons		(0.3905)***	(0.4334)***	(0.4421)***
F test		26.38***	6.7***	6.7***
Goodness of fit (R²)		0,2324	0,2366	0,2533
Number of obs		932	932	932

legend, ***p<0.01, **p<0.05, *p<0.10

Appendix VIII: Fixed Effects Regression Model Result for Asset Turnover Ratio in BIST National Services

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		0.0015		0.0024
brdsize	+/-	(0.0175)	—	(0.0176)
		0.0583		0.1345
fe dire c	+/-	(0.1775)	—	(0.1779)
		-0.4330		-0.5706
fordirec	+/-	(0.1485)***	—	(0.1542)***
		-0.3365		-0.2643
inddirec	+	(0.2448)	—	(0.2461)**
		-0.0916		-0.0786
CEOchairdual	-	(0.0675)	—	(0.0670)***
		0.1111		0.1061
AuditQual	+	(0.0579)*	—	(0.0590)*
			-0.1804	-0.0807
GrtAssoc	+/-	—	(0.2160)	(0.2144)
			-0.0142	0.0528
SecGrtAssoc	+/-	—	(0.2572)	(0.2556)
			-0.3789	-0.1707
ThrdGrtAssoc	+/-	—	(0.5225)	(0.5192)
			-0.5985	-0.6638
Freefloat	+/-	—	(0.1831)***	(0.1808)***
			0.7658	0.5832
dmind	+	—	(1.2714)	(1.2758)
			-0.2959	-0.7865
frind	+	—	(1.8277)	(1.8267)
			1.5515	1.5245
dmfund	+	—	(1.5413)	(1.5349)
			0.8199	0.5817
dmcorp	+	—	(1.2659)	(1.2691)
			0.8065	0.6104
frfund	+	—	(1.2557)	(1.2625)
			0.6434	0.5324
frcorp	+	—	(1.2687)	(1.2698)
			0.0724	0.0715
dumdiv	+	—	(0.0657)	(0.0647)
			0.1752	0.1739
debtr	+	—	(0.1006)*	(0.1005)*
		0.3372	0.4916	0.4243
roa	+	(0.1345)**	(0.1478)***	(0.1465)***
		0.0794	0.0411	0.0474
lnasset	+/-	(0.0343)**	(0.0362)	(0.0362)
		-0.0246	-0.0292	-0.0248
age	+/-	(0.0072)***	(0.0070)***	(0.0077)***
		-0.2764	0.0462	-0.0544
cons		(0.5883)	(1.3942)	(1.3821)
F test		5.09***	3.32***	3.42
Goodness of fit (R²)		0.1222	0.1336	0.1845
Number of obs		402	402	402
legend, ***p<0.01, **p<0.05, *p<0.10				

Appendix IX: Fixed Effects Regression Model Result for Operating Expense
between 2008-2011

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		-0.0025		-0.0018
brdsize	+/-	(0.0025)	—	(0.0022)
		0.0608		0.0601
fedirec	+/-	(0.0239)**	—	(0.0322)*
		0.0151		0.0030
fordirec	+/-	(0.0215)	—	(0.0171)
		-0.0064		-0.0058
inddirec	-	(0.0346)	—	(0.0394)
		-0.0223		-0.0177
CEOchairdual	+	(0.0119)*	—	(0.0088)**
		-0.0064		-0.0047
AuditQual	-	(0.0073)	—	(0.0084)
		0.0067		0.0006
lnmngincentr	-	(0.0009)	—	(0.0008)
			-0.0026	0.0024
GrtAssoc	+/-	—	(0.0301)	(0.0281)
			-0.0263	-0.0148
SecGrtAssoc	+/-	—	(0.0358)	(0.0307)
			-0.0559	-0.0449
ThrdGrtAssoc	+/-	—	(0.0566)	(0.4442)
			-0.0119	-0.0086
Freefloat	+/-	—	(0.0358)	(0.0430)
			0.0621	0.0585
dmind	-	—	(0.0592)	(0.0705)
			-0.2242	-0.2405
frind	-	—	(0.2055)	(0.2902)
			0.0404	0.0324
dmfund	-	—	(0.1230)	(0.1040)
			0.0016	-0.0016
dmcorp	-	—	(0.0573)	(0.0719)
			0.0147	0.0099
frfund	-	—	(0.0602)	(0.0738)
			0.0325	0.0331
frcorp	-	—	(0.0617)	(0.0749)
			0.0064	0.0056
dumdiv	-	—	(0.0055)	(0.0037)
			-0.0478	-0.0442
debtr	-	—	(0.0186)**	(0.0263)*
		-0.1217	-0.1418	-0.1398
roa	-	(0.0205)***	(0.0227)***	(0.0255)***
		-0.0435	-0.0399	-0.0394
lnasset	+/-	(0.0075)***	(0.0078)***	(0.0119)***
		0.0009	0.0011	0.0009
age	+/-	(0.0014)	(0.0015)	(0.0018)
		0.9939	0.8842	0.8899
cons		(0.1278)***	(0.1441)***	(0.2060)***
F test		11.16***	7.15***	5.13***
Goodness of fit (R²)		0,1516	0,1708	0,1844
Number of obs		776	776	776
legend, ***p<0.01, **p<0.05, *p<0.10				

**Appendix X: Fixed Effects Regression Model Result for SG&A Ratio
between 2008-2011**

Independent Variables Expected		Model (1)	Model (2)	Model (3)
		0.0013		0.0038
brdsize	+/-	(0.0050)	—	(0.0050)
		0.0207		0.0104
fe dire c	+/-	(0.0477)	—	(0.0485)
		0.0231		0.0269
fordirec	+/-	(0.0444)	—	(0.0478)
		0.1045		0.1076
inddirec	-	(0.0682)	—	(0.0688)
		0.0636		0.0726
CEOchairdual	+	(0.0230)***	—	(0.0232)***
		-0.0202		-0.0182
AuditQual	-	(0.0149)	—	(0.0151)
		0.0075		0.0087
lnmngincentr	-	(0.0068)	—	(0.0069)
			0.0017	0.0027
GrtAssoc	+/-	—	(0.0603)	(0.0611)
			-0.1248	-0.1306
SecGrtAssoc	+/-	—	(0.0728)*	(0.0732)*
			-0.1383	-0.1414
ThrdGrtAssoc	+/-	—	(0.1163)	(0.1165)
			0.0447	0.0398
Free float	+/-	—	(0.0708)	(0.0708)
			0.0354	0.0403
dmind	-	—	(0.1224)	(0.1220)
			-0.2895	-0.4226
frind	-	—	(0.3873)	(0.3915)
			-0.0815	-0.0790
dmfund	-	—	(0.2550)	(0.2542)
			0.0442	0.0329
dmcorp	-	—	(0.1187)	(0.1182)
			0.0216	0.0204
frfund	-	—	(0.1245)	(0.1243)
			-0.0159	-0.0247
frcorp	-	—	(0.1269)	(0.1279)
			0.0020	-0.0052
dumdiv	-	—	(0.0115)	(0.0117)
			0.0724	0.0733
debtr	-	—	(0.0380)*	(0.0382)*
		0.0309	0.0720	0.0804
roa	-	(0.0422)	(0.0467)	(0.0468)*
		-0.0554	-0.0565	-0.0578
lnasset	+/-	(0.0152)***	(0.0149)***	(0.0159)***
		0.0340	0.0342	0.0319
age	+/-	(0.0029)***	(0.0031)***	(0.0032)***
		-0.1419	-0.0648	-0.1141
cons		(0.2538)	(0.2797)	(0.2959)
F test		19.57***	13.13***	9.79***
Goodness of fit (R²)		0.2539	0.2555	0.2766
Number of obs		794	798	794
legend, ***p<0.01, **p<0.05, *p<0.10				

**Appendix XI: Fixed Effects Regression Model Result for GA Ratio between
2008-2011**

Independent Variables Expected		Model (1)	Model (2)	Model (3)
		-0.0007		-0.0004
brdsize	+/-	(0.0012)	—	(0.0019)
		0.0281		0.0285
fedirec	+/-	(0.0241)	—	(0.0189)
		0.0146		0.0021
fordirec	+/-	(0.0082)*	—	(0.0181)
		0.0003		0.0039
inddirec	-	(0.0352)	—	(0.0274)
		-0.0071		-0.0046
CEOchairdual	+	(0.0065)	—	(0.0094)
		-0.0041		-0.0046
AuditQual	-	(0.0051)	—	(0.0058)
		-0.0003		-0.0005
lnmngincentr	-	(0.0007)	—	(0.0007)
			0.0009	0.0039
GrtAssoc	+/-	—	(0.0230)	(0.0240)
			-0.0164	-0.0116
SecGrtAssoc	+/-	—	(0.0228)	(0.0284)
			-0.0330	-0.0319
ThrdGrtAssoc	+/-	—	(0.0426)	(0.4448)
			-0.0100	-0.0110
Freefloat	+/-	—	(0.0323)	(0.0282)
			0.0396	0.0390
dmind	-	—	(0.0460)	(0.0465)
			-0.0856	-0.1158
frind	-	—	(0.1334)	(0.1622)
			-0.0276	-0.0301
dmfund	-	—	(0.0760)	(0.0965)
			0.0050	0.0036
dmcorp	-	—	(0.0439)	(0.0450)
			0.0273	0.0253
frfund	-	—	(0.0498)	(0.0474)
			0.0411	0.0432
frcorp	-	—	(0.0493)	(0.0490)
			0.0009	0.0001
dumdiv	-	—	(0.0030)	(0.0044)
			-0.0202	-0.0172
debtr	-	—	(0.0232)	(0.0146)
		-0.0840	-0.0936	-0.0910
roa	-	(0.0181)***	(0.0220)***	(0.0179)***
		-0.0281	-0.0268	-0.0273
lnasset	+/-	(0.0096)***	(0.0096)***	(0.0062)***
		0.0002	0.0004	0.0005
age	+/-	(0.0012)	(0.0013)	(0.0012)
		0.6325	0.5748	0.5900
cons		(0.1616)***	(0.1599)***	(0.1152)***
F test		7.26***	4.14***	3.73***
Goodness of fit (R²)		0.1149	0.1243	0.1302
Number of obs		776	776	776
legend, ***p<0.01, **p<0.05, *p<0.10				

Appendix XII: Fixed Effects Regression Model Result for Asset Turnover Ratio between 2008-2011

Independent Variables	Expected	Model (1)	Model (2)	Model (3)
		0.0010		0.0044
brdsize	+/-	(0.0116)	—	(0.0191)
		0.0805		0.0758
fedirec	+/-	(0.1152)	—	(0.1068)
		-0.0733		0.0150
fordirec	+/-	(0.1120)	—	(0.1248)
		-0.3694		-0.3686
inddirec	+	(0.1720)**	—	(0.3243)
		-0.0890		-0.0837
CEOchairdual	-	(0.0553)	—	(0.0601)
		-0.0258		-0.0231
AuditQual	+	(0.0361)	—	(0.0352)
		0.0018		0.0013
lnmngincentr	+	(0.0046)	—	(0.0051)
			0.0217	0.0135
GrtAssoc	+/-	—	(0.1528)	(0.1335)
			-0.0228	0.0002
SecGrtAssoc	+/-	—	(0.1900)	(0.2192)
			-0.0039	-0.0214
ThrdGrtAssoc	+/-	—	(0.2861)	(0.1925)
			-0.0678	-0.0514
Free float	+/-	—	(0.1753)	(0.1843)
			0.1728	0.1796
dmind	+	—	(0.2955)	(0.1926)
			0.7741	0.7931
frind	+	—	(1.0169)	(0.9827)
			0.8063	0.7581
dmfund	+	—	(0.5944)	(0.4408)*
			0.3292	0.3392
dmcorp	+	—	(0.2870)	(0.1660)**
			0.2023	0.2031
frfund	+	—	(0.3015)	(0.2042)
			-0.0085	-0.0196
frcorp	+	—	(0.3079)	(0.2032)
			-0.0099	-0.0059
dumdiv	+	—	(0.0290)	(0.0195)
			0.3085	0.3029
debtr	+	—	(0.0858)***	(0.1166)**
		0.3649	0.5019	0.5054
roa	+	(0.0993)***	(0.1077)***	(0.1446)***
		-0.0479	-0.0865	-0.0781
lnasset	+/-	(0.0343)	(0.0356)**	(0.0663)
		0.0124	0.0062	0.0096
age	+/-	(0.0071)*	(0.0077)	(0.0082)
		1.3041	1.8934	1.6052
cons		(0.5842)**	(0.6753)***	(1.2427)
F test		2.88***	2.57***	2.50***
Goodness of fit (R²)		0,0439	0,0688	0,0823
Number of obs		775	775	775

legend, ***p<0.01, **p<0.05, *p<0.10

BIBLIOGRAPHY

Books

- Aguilera, R.V., Kabbach-Castro, L.R., Lee, J.H. and You, J. (2012). Corporate Governance in Emerging Markets. *Capitalisms and Capitalisms in the 21st Century*, Eds. G. Morgan and R. Whitley. Oxford University Press.
- Baltagi, B. H. (2005). *Econometric Analysis of Panel Data*. 3rd Edition. UK: Wiley Higher Education.
- Berle, A. and Means, G. (1932). –electronic book-. *The Modern Corporation and Private Property*. Macmillan, New York.
- Bhagat, S. and Black, B.S. (2002). Independent Directors, *The New Palgrave Dictionary of Economics and Law*. Peter Newman, Ed. 2, 283-287.
- Brigham, E.B. and Daves, P.R. (2009). *Intermediate Financial Management*. 10th Edition. South-Western Cengage Learning.
- Damodaran, A. (2001). *Corporate Finance: Theory and Practice*. 3rd Edition. Wiley International Edition.
- Fabozzi, F.J. and Drake, P.P. (2009). *Finance: Capital Markets, Financial Management, and Investment Management*. The Frank J. Fabozzi Series, Wiley.
- Gujarati, D.N. (2004). *Basic Econometrics*. 3rd Edition. McGraw-Hill/Irwin Publications.
- Kieso, D.E., Weygandt J.J. and Warfield, T.D. (2010). *Intermediate Accounting*. 4th Edition. John Wiley & Sons.
- Ross, S.R., Westerfield, R.W. and Jaffe, J. (2010). *Corporate Finance*. 5th Edition. McGraw-Hill International Edition.
- Schanze, E. (1987). Contract, Agency and the Delegation of Decision Making. *Agency Theory, Information and Incentives*, edited by Günter Bamberg, Klaus Spremann, 461-479.
- Wooldridge, J.M. (2002). *Econometric Analysis of Cross Section and Panel Data*. MIT Press, Cambridge.

Articles

- Agrawal, A. and Knoeber, C. R. (1996). Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders. *Journal of Financial and Quantitative Analysis*. 31.3, 377-397.
- Alchian, A.A. and Demsetz, H. (1972). Production, Information Costs, and Economic Organization. *The American Economic Review*, 777-795.
- Ang, J., Cole, R. and Lin, J. (2000). Agency Costs and Ownership Structure. *The Journal of Finance*. 55.1, 81-106.
- Ararat, M. and Dallas, G. (2011). Corporate Governance in Emerging Markets: Why it Matters to Investors and What They can do about It? *A Global Corporate Governance Forum Publication*, 1-24
- Ararat, M. Orbay, H. and Yurtoglu B.B. (2010). The Effects of Board Independence in Controlled Firms: Evidence from Turkey. *Working Paper Series*, 1-52.
- Aras, G. and Crowther, D. (2008). Governance and Sustainability: An Investigation into the Relationship between Corporate Governance and Corporate Sustainability. *Management Decision*. 46.3, 433-448.
- Atiase, R., Mayew, W.J. and Xue, Y (2006). Institutional Monitoring and Corporate Restructurings. *Working Paper Series*. 1-40.
- Basu, A., Lal, R., Srinivasan, V. and Staelin, R. (1985). Sales-force Compensation Plans: An Agency Theoretic Perspective. *Marketing Science*. 4, 267-291.
- Bathala, C.T., Moon, K.P. and Rao, R.P. (1994). Managerial Ownership, Debt Policy, and the Impact of Institutional Holdings: An Agency Perspective. *Venture Capital Special Issue, Financial Management*. 23.3, 38-50.
- Bhagat, S. and Black, B.S. (2002). The Non-Correlation between Board Independence and Long-Term Firm Performance. *Journal of Corporation Law*. 27, 231-273.
- Boivie, S., Lange, D., McDonald, M.L. and Westphal, J.D. (2011). Me or We: The Effects of CEO Organizational Identification on Agency Costs. *Academy of Management Journal*. 74.3, 551-576.
- Bonazzi, L. and Islam, S.M.N (2005). Agency Theory and Corporate Governance: A Study of the Effectiveness of Board in their Monitoring of the CEO. *Journal of Modeling in Management*. 2.1, 7-23.
- Brooks, R.D. and Davidson, S.C. (2003). R&D, Agency Costs and Capital Structure: International Evidence. *Working Paper Series*. pp.1-47.
- Brown, L.D. and Caylor, M.L. (2006). Corporate Governance and Firm Valuation. *Journal of Accounting and Public Policy*. 25, 409-434.

- Bulan, L., Sanyal, P. and Yan, Z. (2009). Directors, Outsiders and Efficiency: An Analysis of How Board Characteristics Influence Firm Productivity. *Working Paper Series*. 1-39.
- Bushee, B. (1998). The Influence of Institutional Investors on Myopic R&D Investment Behavior. *The Accounting Review*. 73.3, 305–333.
- Byun, H.Y. (2007). The Cost of Debt Capital and Corporate Governance Practices. *Asia-Pacific Journal of Financial Studies*. 36.5, 765-806.
- Chen, X.C. and Yur-Austin, J.Y. (2007). Re-measuring Agency Costs: The Effectiveness of Blockholders. *The Quarterly Review of Economics and Finance*. 47, 588-601.
- Chen, X.C., Lu, H. and Sougiannis, T. (2012). The Agency Problem, Corporate Governance, and the Asymmetrical Behavior of Selling, General, and Administrative Costs. *Contemporary Accounting Research*. 29.1, 252–282.
- Chenchuramaiah T., Bathala, K., Moon, P. and Rao, R.P. (1994). Managerial Ownership, Debt Policy, and The Impact of Institutional Holdings: An Agency Perspective. *Financial Management*. 23.3, 38-50.
- Claessens, S. and Yurtoglu, B. B. (2013). Corporate Governance in Emerging Markets: A Survey. *Emerging Markets Review*. 15, 1-33.
- Claessens, S. and Yurtoglu, B. B. (2012). Corporate Governance and Development: An Update. *A Global Corporate Governance Forum*.
- Collin, S., Snith, E., Broberg, P., Umans, T. and Tagesson, T. (2005). Mechanisms of Corporate Governance going International: Outlining a Theory and an Initial Test of the Performance Effects. Kristianstad University of College, Department of Business Studies. *Working Paper Series*.
- Crutchley, C. E., and Hansen, R. S. (1989). A Test of the Agency Theory of Managerial Ownership, Corporate Leverage, and Corporate Dividends. *Financial Management*. 18, 36–46.
- Crutchley, C.E., Jensen, M.R.H., Jahera, J.S. Jr. and Raymond, J.E. (1999). Agency Problems and the Simultaneity of Financial Decision Making: The Role of Institutional Ownership. *International Review of Financial Analysis*. 8, 177-197.
- Daily, C. M. and Dalton. D. R. (1994). Bankruptcy and Corporate Governance: The Impact of Board Composition and Structure. *Academy of Management Journal*. 37, 1603-1617.
- Davidson, W.N., Bouresli, A.K. and Singh, M. (2006). Agency Costs, Ownership Structure, and Corporate Governance in pre-and post-IPO Firms. *Corporate Ownership and Control*. 3.3, 88-95.

- Davis, G.F. and Cobb, J.A. (2009). Resource Dependence Theory: Past and Future. *Research in the Sociology of Organizations*, 1-31.
- Davis, J. H., Schoorman, F. D. and Donaldson, L. (1997). Toward a Stewardship Theory of Management. *Academy of Management Review*. 22.1, 20–47.
- Demirağ, I. and Serter, M. (2003). Ownership Patterns and Control in Turkish Listed Companies. *Corporate Governance: An International Review*. 11.1, 40- 51.
- Demsetz, H. and Lehn, K. (1985). The Structure of Corporate Ownership: Causes and Consequences. *Journal of Political Economy*. 93, 1155–1177.
- Demski, J.S. and Feltham, G.A. (1978). Economic Incentives in Budgetary Control Mechanisms. *Accounting Review*. 53, 336-359.
- Denis, D. K. and McConnell, J. J. (2003). International Corporate Governance. *Journal of Financial and Quantitative Analysis*. 38.10, 1-36.
- Donaldson, L. and Davis, J. H. (1991). Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns. *Australian Journal of Management*. 16.1, 49–64.
- Doukas, J.A., Kim, C. and Pantzalis, C. (2000). Security Analysis, Agency Costs and Company Characteristics. *Financial Analysts Journal*. 56, 54-63.
- Doukas, J.A., McKnight, P.J. and Pantzalis, C. (2005). Security Analysis, Agency Costs and UK Firm Characteristics. *International Review of Financial Analysis*. 14, 493-507.
- Easterbrook, F. (1984). Two Agency-cost Explanations of Dividends. *American Economic Review*. 74, 650–659.
- Elkin, J. (2007). A Review of the Stakeholder Theory. *Otago University Management Graduate Review*. 5, 17-26.
- Eisenberg, T., Sundgren, S. and Wells, M.T. (1998). Larger Board Size and Decreasing Firm Value in Small Firms. *Journal of Financial Economics*. 48, 35-54.
- Eisenhardt, K.M. (1989). Agency Theory: An Assessment and Review. *The Academy of Management Review*. 14.1, 57-74.
- Ethington, B. (2000). Multicollinearity. University of Memphis, EDPR, *Working Paper Series*. 7/8542.
- Fama, F. (1980). Agency Problems and The Theory of the Firm. *The Journal of Political Economy*. 88.2, 288-307.
- Fama, F. and Jensen, M. (1983). Agency Problems and Residual Claims. *The Journal of Law & Economics*. 26, 1-29.

- Fleming, G., Heaney, R. and McCosker, R. (2005). Agency Costs and Ownership Structure in Australia. *Pacific-Basin Finance Journal*. 13, 29-52.
- Florackis, C. and Ozkan, A. (2004). Agency Costs and Corporate Governance Mechanisms: Evidence for UK Firms. University of York, UK. *Working Paper Series*.
- Gomes, A. Novaes, W. (1999). Multiple Large Shareholders in Corporate Governance. *Wharton School Working Papers*. 1-54.
- Gordon, J. N. (2007). The Rise of Independent Directors in the United States, 1950-2005: Shareholder Value and Stock Market Prices. *Stanford Law Review*. 59, 1465-1568.
- Haat, M.H., Mahenthiran, S., Rahman, A.R. and Humid A.N. (2006). Agency Costs as a Factor in the Suspension of Companies from the Kuala Lumpur Stock Exchange. *Journal of Contemporary Accounting & Economics*. 12.1, 99-121.
- Harris, M. and Raviv, A. (1991). The Theory of Capital Structure. *The Journal of Finance*. 46.1, 297-354.
- Haugen, R.A. and Senbet, L.W. (1981). Resolving the Agency Problems of External Capital through Options. *The Journal of Finance*. 36.3, 629-647.
- Hausman, J. A., (1978). Specification Tests in Econometrics. *Econometrica*. 46.6, 1251-1271.
- Henry (2006). Agency Costs, Corporate Governance and Ownership Structure: Evidence from Australia. *Working Paper Series*.
- Henry (2010). Agency Costs, Ownership Structure and Ownership Governance Compliance: A Private Contracting Perspective. *Pacific-Basin Finance Journal*. 18, 24-46
- Hermalin, B. E. and Weisbach, M. S. (1991). The Effects of Board Composition and Direct Incentives on Firm Performance. *Financial Management*. 20.4, 101-112.
- Hijazi, B.M. and Conover, J.A. (2011). Empirical Performance of Accounting Measures of Direct Agency Costs. *Research in Finance*. 27, 223-272.
- Hossain, M., Prevost, A.K. and Ramesh, P. R. (2001). Corporate Governance in New Zealand: The Effect of the 1993 Companies Act on the Relation between Board Composition and Firm Performance. *Pacific-Basin Finance Journal*. 9, 119-145.
- Jelinek, K. and Stuerke, P.S. (2009). The Nonlinear Relation between Agency Costs and Managerial Equity Ownership: Evidence of Decreasing Benefits of Increasing Ownership. *International Journal of Managerial Finance*. 5.2, 156-178.

- Jensen, M. and Meckling, W. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. *Journal of Financial Economics*. 3, 305–360.
- Jensen M.C., Smith, C.W. (1985). Stockholders, Managers and Creditor Interests: Applications of Agency Theory. *Recent Advances in Corporate Finance*, 1-46
- Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance and Takeovers. *American Economics Review*. 76, 323–339.
- Jensen, G. R., Solberg, D. P. and Zorn, T. S. (1992). Simultaneous Determination of Insider Ownership, Debt, and Dividend Policies. *Journal of Financial and Quantitative Analysis*. 27, 247–263.
- Jensen, M. C. (1993). The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *Journal of Finance*. 43.3, 831–880.
- Junwei, W., Guiqin, L. and Ping, H. (2011). Study on the Relationship between Agency Costs and Governance Mechanisms: Evidence from China's A-share Listed Companies, *M&D Forum Studies*, 258-271.
- Kiel, G. C. and Nicholson, G. J. (2005). Evaluating Boards and Directors. *Corporate Governance: An International Review*. 13.5, 613-631.
- Kim, B. and Lee, I. (2003). Agency Problems and Performance of Korean Companies during the Asian financial crisis: Chaebol vs. non-chaebol Firms, *Pacific-Basin Finance Journal*. 11, 327-348.
- Koerniadi, H. and Tourani-Rad, A. (2012). Does Board Independence Matter? Evidence from New Zealand, Australia. *Asian Accounting Business and Finance Journal*. 6.2, 3-18.
- Kumar, J. (2004). Agency Theory and Firm Value in India, *Indira Gandhi Institute of Development Research*, 1-44.
- La Porta, R. F., Lopez-de-Silanes F., Shleifer A. and Vishny, R. W. (1998). Law and Finance. *The Journal of Political Economy*. 106.6, 1113-1155.
- La Porta, R. F., Lopez-de-Silanes, F., Shleifer A. and Vishny, R.W. (2000). Agency Problems and Dividend Policies around the World. *The Journal of Finance*. 55.1, 1-33.
- Laiho, T. (2011). Agency Theory and Ownership Structure - Estimating the Effect of Ownership Structure on Firm Performance. *Working Paper Series*.
- Lambert, R.A. (2001). Contracting Theory and Accounting. *Journal of Accounting and Economics*. 32, 3-87.

- Lasfer, M. A. (2002). Board Structure and Agency Cost. *City University Business School Working Paper Series*.
- Lei, Q., Lin, B. and Wei, M. (2011). Types of Agency Costs, Corporate Governance and Liquidity. *Working Paper Series*.
- Loderer, C. and Waelchli, U. (2010). Protecting Minority Shareholders: Listed versus Unlisted Firms. *Financial Management*, 33-57.
- McColgan, P. (2001). Agency Theory and Corporate Governance: A Review of the Literature from a UK Perspective. *Working Paper Series*.
- McKnight, P.J. and Weir, C. (2009). Agency Costs, Corporate Governance Mechanisms and Ownership Structure in large UK Publicly Quoted Companies: A Panel Data Analysis. *Quarterly Review of Economics and Finance*. 49, 139–158.
- Miletkov, M., Poulsen, A. and Wintoki, M.B. (2011). A Multinational Study of the Determinants and Effects of Having Foreign Independent Directors, *Financial Management Association (FMA) Working Paper*.
- Miller, S.E. (2009). Governance Mechanisms as Moderators of Agency Costs in a Pre-SOX Environment. *Journal of Business & Economics Research*.
- Miozzo, M. and Dewick. (2002). Building Competitive Advantage: Innovation and Corporate Governance in European Construction. *Research Policy*. 31, 989-1008.
- Mitchell, R. K., Agle, B. R. and Wood, D. J. (1997). Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What really Counts. *Academy of Management Review*. 22.4, 853-886.
- Modigliani, F. and Miller, M. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *American Economic Review*. 48.3, 261-297.
- Modigliani, F, and Miller, M. (1961). Dividend Policy, Growth and the Valuation of Shares. *The Journal of Business*. 34.4, 411-433.
- Moh'd, M.A., Perry, L.G. and Rimbey, J.N. (1995). An Investigation of the Dynamic Relationship between Agency Theory and Dividend Policy. *The Financial Review*. 3.2, 367-385.
- Morck, R. (2008). Behavioral Finance in Corporate Governance: Economics and Ethics of the Devil's Advocate. *Journal of Management and Governance*. 12, 179-200
- Muth, M. and Donaldson, L. (1998). Stewardship Theory and Board Structure: A Contingency Approach. *Corporate Governance: An International Review*. 6.1, 5-28.

- Nofsinger, J.R. and Sias, R.W. (1999). Herding and Feedback Trading by Institutional and Individual Investors. *The Journal of Finance*. 54.6, 2263- 2295.
- Pearce J. A. and Zahra, S. A. (1991). The Relative Power of CEOs and Boards of Directors: Associations with Corporate Performance. *Strategic Management Journal*.12, 135-153.
- Ramakrishnan R.T.S and Thakor, A.V. (1982). Moral Hazard, Agency Costs and Prices in a Competitive Equilibrium. *Journal of Financial and Quantitative Analysis*. 17.4, 503-532.
- Reyna, O.T. (2009). Panel Data Analysis, Fixed & Random Effects using Stata, *Princeton University Working Papers*.
- Ross, S. (1973). The Economic Theory of Agency: The Principal's Problem. *American Economic Review*. 63, 134-139.
- Rozeff, M. (1982). Growth, Beta and Agency Costs as Determinants of Dividend Payout Ratios. *Journal of Financial Research*. 3, 249-259.
- Sajid G., Razzaq, N. and Afzal, F. (2012). Agency Cost, Corporate Governance and Ownership Structure: The Case of Pakistan. *International Journal of Business and Social Science*. 3.9, 268-277.
- Sappideen, R. (1991). Fiduciary Obligations to Corporate Creditors. *Journal of Business Law*, 365-397.
- Shapiro, S. (2005). Agency Theory. *Annual Review of Sociology*. 31, 263-284.
- Shleifer, A. and Vishny R. W. (1986). Large Shareholders and Corporate Control. *Journal of Political Economy*. 94, 461-488.
- Shleifer, A. and Vishny, R.W. (1997). A Survey of Corporate Governance. *Journal of Finance*. 52, 737-783.
- Singh, M. and Davidson,W. A. (2003). Agency Costs, Ownership Structures and Corporate Governance Mechanisms. *Journal of Banking and Finance*. 27, 793–816.
- Smith, A. (1776). The Wealth of Nations. cited by Jensen and Meckling 1976. Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. *Journal of Financial Economics*. 3, 305–360.
- Smith, C.W. and Watts, R. (1982). Incentive and Tax Effects of Executive Compensation Plans. *Australian Journal of Management*. 7, 139-157.
- Smith, C.W. and Watts, R. (1983). The Structure of Executive Compensation Contracts and the Control of Management. *University of Rochester Working Papers*.

- Spence, M. and Zeckhauser, R. (1971). Insurance, Information and Individual Action. *American Economic Review*. 2, 380-387.
- Stearns, L. B. and Mizruchi, M., S. (1993). Board Composition and Corporate Financing: The Impact of Financial Institution Representation on Borrowing. *Academy of Management Journal*. 36.3, 603-618.
- Wang J., Lu G. and He P. (2010). Study on the Relationship between Agency Costs and Governance Mechanisms: Evidence from China's A-share Listed Companies. *M&D Forum Research Paper*.
- Wellalage, N.H. and Locke, S. (2011). Agency Costs, Ownership Structure and Corporate Governance Mechanisms: A Case Study in New Zealand Unlisted Small Companies. *International Research Journal of Finance and Economics*. 78, 178-192.
- Westphal, J. D. (1999). Collaboration in the Boardroom: Behavioral and Performance Consequences of CEO-board ties. *Academy of Management Journal*. 42.1, 7-24.
- Truong, T. (2006). Corporate Boards, Ownership and Agency Costs: Evidence from Australia. *The Business Review*. 5.2, 163-167.
- Yermack, D. (1996). Higher Market Valuation of Companies with a Small Board of Directors. *Journal of Financial Economics*. 40, 185-211.
- Zhang, H. and Li, S. (2008). The Impact of Capital Structure on Agency Costs: Evidence from UK Public Companies. *South Australia Center Research Papers*, 1-18.

Other Publications

- Akyol, E. (2007). Temsil Sorunu ve Temettü Politikası Arasındaki İlişkiyi Test Etmeye Yönelik Olarak Türkiye Üzerine Bir Araştırma. Unpublished PhD Thesis. Istanbul: Istanbul University Institute of Social Sciences.
- Berezneak, E. (2007) Bankalarda Kurumsal Yönetim Çerçevesinde Sahiplik Yapısı ve Performans İlişkisi: Türkiye Uygulaması. Unpublished Master Thesis. Istanbul: Yıldız Technical University Institute of Social Sciences.
- CMB Communique Serial: IV, No. 56, (2011) on Corporate Governance Principles, Official Gazette, numbered 28158
- CMB Communique Serial: IV, No. 57, (2012), Amending the Communique Serial: IV, No.56 on Corporate Governance Principles, Official Gazette, numbered 28201
- CMB Communique Serial: XI, No. 29, (2008), Financial Reporting on Capital Markets, Gazette, numbered 26842.
- CMB Investor's Analysis Report (2011).
- Deloitte. Women in the Board: A Global Perspective Report 2013, Third Edition.
- Ertuğrul, M. (2005). Essays on Agency Problems and Corporate Governance. Unpublished PhD Thesis. The University of Connecticut, USA.
- Gasaway, J.W. (2000). An Agency Theory Based Analysis of Management Ownership and Firm Financial Performance in High Technology Firms. Unpublished PhD Dissertation. The State University of New Jersey.
- Güvençer, Ü.C. (2008). Vekalet Teorisi: Firma Performansına Etkisi. Unpublished Master Thesis. Uludag University Institute of Social Sciences.
- Hijazi, B. (2006). Bank Loans as a Financial Discipline: A Direct Agency Cost of Equity Perspective. Unpublished PhD Dissertation. University of North Texas.
- Mourier, M. (2010). Multiple Blockholder Ownership and Performance of Companies: An Empirical Analysis. Unpublished Master Thesis. Copenhagen Business School, Finance and Strategic Management.
- OECD (1999), OECD Principles of Corporate Governance, Paris, OECD.
- OECD (2004), OECD Principles of Corporate Governance, Paris, OECD.
- Rozeik, H. (2008). Changes in Ownership Structures, their Determinants and Role in the Restructuring of Enterprises during Transition: Evidence from Estonia. Unpublished PhD Thesis, University of Tartu.

- Soylemez, C. (2007). İşletmelerde Temsil Maliyetlerinin Test Edilmesi: Türk İmalat Sektörü Üzerine Amprik Bir Uygulama. Unpublished Master Thesis. Ankara University Institute of Social Sciences.
- Turaboğlu, T.T. (2002), Vekalet Teorisi: Firma Sahiplik Yapısı ve Performans İlişkisi Türkiye Uygulaması. Unpublished PhD Thesis. Cukurova University Institute of Social Sciences.