Corporate Governance

– An Empirical Analysis of the Relationship between SAHA’s Corporate Governance Rating Scores and Firm Performance at Istanbul Stock Exchange

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Master of Thesis

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Abstract

This study examines the relationship between SAHA’s corporate governance rating score and firm performance in Turkey for the period between 2008, 2009 and 2010. The purpose of study is to analyze whether there is a relationship between Saha’s corporate governance score which is based on the principles of Capital Market Board of Turkey and firm performance for 16 companies listed in corporate governance index Istanbul Stock Exchange (ISE) by using Saha’s Corporate Governance. It also aims to determine this relationship by attempting to answer the question of whether better governed firms as measured by high corporate governance score have higher firm performance in Turkey. With this purpose three analyses were conducted and random effect model, one type of panel data, is used to analyze whether there is a relationship between corporate governance and firm performance. The conceptual framework for this study is a combination of approaches to agency, stakeholder and stewardship theory. Panel data is created as unbalanced data and random effect model is used. Accounting based performance measures of firms: return on asset, return on equity and return on sales were used to compare with Saha’s Corporate Governance Rating Score based on four sub-indices: 1) shareholder rights, 2) public disclosure and transparency, 3) stakeholders and 4) board of directors. The results based on Saha’s Corporate Governance Score show that corporate governance does matter in Turkey. The study shows that better governed firms measured by high corporate governance score have better performance in Turkey. The result
of regressing return on asset, return on equity against Saha’s corporate governance rating score indicates that there is a significantly relationship between corporate governance and firm performance. However, the result of regressing return on sales indicates that there is no statistically significant relation between Saha’s corporate governance score and return on sales.

Key Words: Corporate Governance, Firm Performance, Saha Corporate Governance Ratings

LIST OF ABBREVIATIONS

BIS Bank for International Settlements
CEO Chief Executive Office
CFA Centre for Financial Integrity
CGI Corporate Governance Index
CGS Corporate Governance Score
CMB Capital Market Board of Turkey
DY Dividend Yield
ECGF European Corporate Governance Forum
EU European Union
FEM Fixed Effect Model
GCGF Global Corporate Governance Forum
Gov-Score Overall Governance Score
HAC Heteroskedasticity-Autocorrelation
IFC International Finance Corporation
<table>
<thead>
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<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>IRRC</td>
<td>Investor Responsibility Research Centre</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<td>ISE</td>
<td>Istanbul Stock Exchange</td>
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<td>ISS</td>
<td>Institutional Shareholder Services</td>
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<td>LBOs</td>
<td>Leveraged Buy-Outs</td>
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<td>MBOs</td>
<td>Management Buy-Outs</td>
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<td>NGO</td>
<td>Non-governmental organization</td>
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<td>NPM</td>
<td>Net Profit Margin</td>
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<td>OECD</td>
<td>The Organization for Economic Co-operation and Development</td>
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<td>OLS</td>
<td>Ordinary Least Squares</td>
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<td>REM</td>
<td>Random Effect Model</td>
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<td>ROA</td>
<td>Return on Asset</td>
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<td>ROS</td>
<td>Return on Sales</td>
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<td>ROE</td>
<td>Return on Equity</td>
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<td>SAHA</td>
<td>Saha Corporate Governance Rating Company</td>
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<td>Saha_Governance</td>
<td>Saha Corporate Governance Rating Score</td>
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<tr>
<td>SEC</td>
<td>Securities and Exchange Commission</td>
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<td>TUSIAD</td>
<td>Turkish Industrialists’ and Businessmen’s Association</td>
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<td>US</td>
<td>United States</td>
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<td>UK</td>
<td>United Kingdom</td>
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INTRODUCTION

Corporate governance is a system concerning with how company is controlled and directed by its owners and managers. It is a service on the behalf of individuals, corporations and society. Corporate governance has been an essential component in the market economy, especially after corporate scandals around the world. Corporate scandals catch the glances on the importance of corporate governance in business life.

Corporate failures prompted interest in the link between corporate governance and firm performance. The relation between corporate governance and firm performance has been the subject for many extensive studies in the last decade. Corporate governance is more broadly defined as a set of relationships between a company’s management, its board, its shareholders and other stakeholders. It is an instrument to obtain business collectivity and transparency and to promote economic growth. It especially protects investors due to well functioning financial markets. With the globalization, mobilization of capital, and integration of financial markets forced countries for effective corporate governance standards.

“Defining good governance is precisely difficult since there is no one-size-fits all system for all countries and corporations as depicted in the Survey of Corporate Governance Developments in The Organization for Economic Co-Operation and Development (OECD) Countries. On the other hand, there are many strucutres policies, and mechanisms which are essential to good corporate governance” (2002).

Main principles for corporate governance is “OECD Corporate Governance Principles” acknowledged by OECD in 1999 which is widely accepted around the world by regulators and policymakers. In Turkey, SAHA Rating Company issues their methods by using Capital Market Board Principles which is based on OECD Corporate Governance Principles.

In the literature, there are many studies in corporate governance field investigating the relationship between firm performance and corporate governance. The studies in literature show us better governed firms have higher firm performance measured by different variables.
This study aims to self-construct a corporate governance score for firms listed at ISE Corporate Governance index based on the Corporate Governance Principles issued by Turkish Capital Market Board (CMB) and then test whether there is a relationship between corporate governance and firm performance. It also aims to determine the direction of this relationship by attempting to answer the question of whether better governed firms as measured by high corporate governance score have higher firm performance. The study examines the relationship between SAHA’s corporate governance rating scores and firm performance in Turkey for the period between 2008, 2009 and 2010. The purpose of study is to analyze whether there is a relationship between corporate governance and firm performance or not for firms listed in corporate governance index of corporate governance at Istanbul Stock Exchange (ISE) by using Saha’s Corporate Governance Rating Score.

With this purpose three analyses were conducted. As corporate financial performances, accounting based performance measures of firms such as return on asset, return on equity and return on sales were used to compare with Corporate Governance Rating Score Index based on four sub-indices: 1) shareholder rights, 2) public disclosure and transparency, 3) stakeholders and 4) board of directors. These ratings were provided by SAHA who acquired its Corporate Governance Rating license from the Turkish Capital Markets Board (CMB). 16 companies in corporate governance index were analyzed.

The regression analysis is conducted for hypothesis testing and both fixed effect model and random effect model were tested in the study. With the help of The Hausman specification test, model selecting process suggests that random effect model should be used to analyze whether there is a relationship between corporate governance and firm performance. Panel data is created as unbalanced data.

The study is structured as follows. In the first chapter, corporate governance is defined with narrow and broad definitions. The importance of corporate governance is discussed with reasons.

In Chapter 2, the development of corporate governance is explained and corporate governance scandals around the world are showed. The principles of corporate governance are discussed under the sections which are shareholder, disclosure and transparency, stakeholders and board of directors focusing OECD principles and CMB principles in Turkey.
Theoretical perspectives of corporate governance and firm performance are given in the third chapter. Empirical studies on the corporate governance using a composite corporate governance score or index against firm performance measures are reviewed and discussed in detail. In the fourth chapter, research design is given. Construction of Saha corporate governance score and firm performance measures as accounting-based is defined and given. The sample is defined and the methodology and the hypothesis of the study are conducted.

Finally, the results of the study are given and interpreted in order to find evidence for the relationship between corporate governance and firm performance in Chapter 5. The last parts concludes the study by identifying the limitations and achievements.
CHAPTER 1
CORPORATE GOVERNANCE

1. Corporate Governance

Corporate failures prompted interest in the link between corporate governance and firm performance. The relation between corporate governance and firm performance has been the subject for many extensive studies in the last decade.

Corporate governance term has many theoretical and empirical definitions in the literature. There is no universally accepted definition of corporate governance since it can be seen as a narrow or broad subject (Solomon, 2004).

In order to show the definitions of corporate governance I divide them to two categories:

1.1. Narrow Definitions

According to La Porta et al. (1999), corporate governance refers to “a set of mechanisms through which outside investors protect themselves against expropriation by the Insiders”.

Shleifer and Vishny (1997) defines that “corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment”.

Another definition of corporate governance by Parkinson (1994) is that “corporate governance is the process of supervision and control intended to ensure that company’s management acts in accordance with the interests of shareholders”.

1.2. Broad Definitions

Siebens (2002) defines “corporate governance as both the knowledge and the art of weighting divided interests of all the stakeholders. In other words, it is the effort of balancing the relationships of power. The importance of corporate governance has been realized all over the world with the integration and liberalization of financial markets”.
As Gregory (2000) discusses, “demand for investment capital is increasing throughout both developed and developing countries. With the free flow of capital, policy makers have recognized that quality of corporate governance is relevant to capital formation”.

Solomon (2004) defines that “the term should be distinguished from management. Management is related to the daily operations of business like production, while on the other hand, corporate governance refers to rules, regulations and best practices for securing shareholder claims, enhancing competitive power and reaching capital within the global environment”.

“Corporate governance is concerned with holding balances between economic and social goals between individual and between individual and communal goals…the aim is to align as nearly as possible the interests of individuals, corporations and society” (Cadbury, 1999).

Another view by Tricker (1984) “the governance role is not concerned with the running of the business of the company per se, but with giving overall direction to the enterprise, with overseeing and controlling the executive actions of management and with satisfying legitimate expectations of accountability and regulation by interests beyond the corporate boundaries”.

One of the most used definitions was defined by Organizational for Development Co-Operation and Development (OECD) in 1999. Corporate governance is “set of relationship between company’s board, its shareholders and other stakeholders. It also provides the structure through which objectives of the company are set, and the means of attaining those objectives, and monitoring performance, are determined.”(OECD, 2004).

In this study, it is referred to the definition stated by OECD, since corporate governance compliance study is done through Capital Market Board of Turkey (CMB)’s and Saha Corporate Governance Rating Institution’s Corporate Governance Principles which are mainly based on OECD Principles of Corporate Governance.
1.3. Why Has Corporate Governance Received More Attention Lately?

One of the main reasons is the increasing of financial scandals and crises such as Maxell Corporation (1991), Barings Bank (1995), Enron (2001), WorldCom (2002), and Parmalat (2003) that are examples of high profile corporate corruption scandals. These scandals and crises attract attention of the reasons why corporate governance has become more important for economic development and policy issue in many countries.

First, “the private, market-based investment process—underpinned by good corporate governance—is now much more important for most economies than it used to be. Privatization has raised corporate governance issues in sectors that were previously in the hands of the state. Firms have gone to public markets to seek capital, and mutual societies and partnerships have converted themselves into listed corporations” (Claessens, 2003)

Second, “due to technological progress, liberalization and opening up of financial markets, trade liberalization, and other structural reforms—notably, price deregulation and the removal of restrictions on products and ownership—the allocation within and across countries of capital among competing purposes has become more complex, as has monitoring of the use of capital. This makes good governance more important, but also more difficult” (Claessens, 2003).

Third, “the mobilization of capital is increasingly one step removed from the principal-owner, given the increasing size of firms and the growing role of financial intermediaries. The role of institutional investors is growing in many countries, with many economies moving away from “pay as you go” retirement systems. This increased delegation of investment has raised the need for good corporate governance arrangements” (Claessens, 2003).

Fourth, “programs of deregulation and reform have reshaped the local and global financial landscape. Long-standing institutional corporate governance arrangements are being replaced with new institutional arrangements, but in the meantime, inconsistencies and gaps have emerged” (Claessens, 2003).
1.4. Importance of Corporate Governance

Importance of corporate governance relies on its contribution to economic growth. Effective corporate governance promotes the efficient use of resources both within the firm and country (Gregory and Simms, 1999). Both domestic and foreign investors place an ever greater emphasis on the way that corporations are operated and how they respond to their needs and demands. Investors are increasingly willing to pay a premium for well-governed companies that adhere to good board practices, provide for information disclosure and financial transparency, and respect shareholder rights. Well-governed companies are also better positioned to fulfill their economic, environmental, and social responsibilities, and contribute to sustainable growth.

“Improvement in corporate governance practices can improve the decisionmaking process within and between a company’s governing bodies, and should thus enhance the efficiency of the financial and business operations. Better corporate governance also leads to an improvement in the accountability system, minimizing the risk of fraud or self-dealing by company officers. An effective system of governance should help ensure compliance with applicable laws and regulations, and further, allow companies to avoid costly litigation” (IFC, 2004).

Claessens (2003) stated that there are several channels through which corporate governance affects growth and development:

- **Increased access to financing**: The first is the increased access to external financing by firms. “Better creditor rights and shareholder rights have been shown to be associated with deeper and more developed banking and capital markets” (Claessens, 2003). This in turn can lead to larger investment, higher growth, and greater employment creation.

- **Higher firm valuation**: The second channel is a lowering of the cost of capital and associated higher firm valuation. The firm value is affected positively from the quality of the corporate governance framework through lowering the cost of capital. “This makes more investments attractive to investors, also leading to growth and more employment” (Claessens, 2003).
• **Better operational performance:** The third channel is better operational performance through better allocation of resources and better management. (Claessens, 2003) Corporate governance adds more value through efficient management. It provides better labor policies, asset allocation and other sufficiency improvements. This creates wealth more generally. Many studies in the past such as Aggarwal and Williamson (2006), Brown and Caylor (2004), Gompers, Ishii, and Metrick (2003), Black, Jang and Kim (2003) and elsewhere show that better governed companies have higher sales profits and sales growth.

• **Reduced risk of financial crises:** “Good corporate governance can be associated with a reduced risk of financial crises. The quality of corporate governance can also affect firms’ behavior in times of economic shocks and actually contribute to the occurrence of financial distress, with economywide impacts. This is particularly important, as financial crises can have large economic and social costs.” (Claessens, 2003)

• **Better relations with other stakeholders:** One of the main principle corporate governance, firm’s management should be really in a good relationship with all stakeholders. All kind of corporations must deal with all their participants such as stakeholders, stakeholder representatives, financiers other than stakeholders (debt holders, bondholders, creditors), government, regulators and policymakers. “Each of these monitor, discipline, motivate, and affect the management and the firm in various ways. This helps improve social and labor relationships and aspects such as environmental protection.” (Claessens, 2003)

Gregory (2000) outlined the importance of corporate governance:

• Promotes the efficient use of resources both within the company and the larger economy,
• Helps ensure that the company is in compliance with the laws, regulations, and expectations of society,
• Provides managers with oversight of their use of corporate assets,
• Supports efforts to reduce corruption in business dealings, and
• Assists companies in attracting lower-cost investment capital.
The conclusion is that better corporate governance, in addition to improved economic performance, allows companies to reduce their financial and operational risks, and significantly raises their attractiveness to investors and results in economic growth and development.
CHAPTER II

DEVELOPMENT OF CORPORATE GOVERNANCE

2.1. Corporate Governance around the World

Corporate governance as a term first evolved in the mid-1980s; however, questioning governance of corporations in modern perception has its roots in 1840s (Steger & Amann, 2008).

Family business and public companies were only the performer of the business environment in the US before industrialization. With starting industrialization, US and UK started to have massive problems in the economy as stock market crash in 1856. Europe was not affected by this tragedy due to its not sufficiently developed as US and the UK (Steger & Amann, 2008).

In the next 150 years, asset price inflation has always been an important problem in the economic arena which was revealed “dot.com bubble” which refers to Information Technology Bubble and attraction of many “hit-and-run” investors who aim to get rich in a short period of time. When the speculative bubble blasts, only small investors suffer from losing large amounts of money (Steger & Amann, 2008).

<table>
<thead>
<tr>
<th>Company</th>
<th>Year</th>
<th>Country</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daewoo</td>
<td>1998</td>
<td>South Korea</td>
<td>Accounting fraud embezzlement by former CEO</td>
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<tr>
<td>Flowtex</td>
<td>1999</td>
<td>Germany</td>
<td>Insolvency after exaggerating sales figures</td>
</tr>
<tr>
<td>Enron</td>
<td>2001</td>
<td>USA</td>
<td>Bankruptcy of the seventh largest US company due to accounting fraud</td>
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<tr>
<td>Marconi</td>
<td>2001</td>
<td>UK</td>
<td>Bankruptcy due to overpriced acquisitions and to neglecting of controls</td>
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<td>Swissair</td>
<td>2001</td>
<td>Switzerland</td>
<td>Insolvency due to wrong strategy, inefficiencies of the board</td>
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<tr>
<td>Company</td>
<td>Year</td>
<td>Country</td>
<td>Cause</td>
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<td>HIH</td>
<td>2001</td>
<td>Australia</td>
<td>Stock market manipulation</td>
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<tr>
<td>One Tel</td>
<td>2001</td>
<td>Australia</td>
<td>Overstretching of budget for overambitious acquisitions</td>
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<tr>
<td>Allied Irish Bank (AIB)</td>
<td>2002</td>
<td>Ireland</td>
<td>Loss of $961m in unauthorized trading</td>
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<tr>
<td>Worldcom</td>
<td>2002</td>
<td>USA</td>
<td>Company collapses with $41bn debt due to fraudulent accounting</td>
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<tr>
<td>Tyco</td>
<td>2002</td>
<td>USA</td>
<td>Overstretching of budget for overambitious acquisitions leading to bankruptcy</td>
</tr>
<tr>
<td>Vivendi</td>
<td>2002</td>
<td>France</td>
<td>Overstretching of budget for overambitious acquisitions leading to losses of $23.3bn</td>
</tr>
<tr>
<td>Royal Ahold</td>
<td>2003</td>
<td>Netherlands</td>
<td>$500m accounting fraud</td>
</tr>
<tr>
<td>Parmalat</td>
<td>2003</td>
<td>Italy</td>
<td>Undisclosed debts of €14.3 bn</td>
</tr>
<tr>
<td>Volkswagen</td>
<td>2005</td>
<td>Germany</td>
<td>Abuse of corporate funds to provide inappropriate benefits</td>
</tr>
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</table>

Source: Corporate governance scandals (Steger & Amann, 2008, p.6)

Following these events, as a reaction, governments amended new regulations for corporate governance among which Sarbanes-Oxley of the US legislated on 30 July 2002 is the most considerable one (Steger & Amann, 2008). The Sarbanes-Oxley Act has offered three important changes to corporate governance practices. First, Sarbanes Oxley brought changes on processes of auditing and presenting financial data which are audit-related changes. Second, with Sarbanes Oxley, in order to reduce conflicts of interest or individual pressures, board of directors should be redesigned. So, executives and managers will be able to monitor the business judicially.

The act requires directors to involve in processes that may provide more self-awareness and diligence. Third, Sarbanes Oxley also made some changes on disclosure and transparency. Some change disclosure and transparency requirements directly while some others bring forth more influential reaction (Clark, 2005).
2.2. Principles of Corporate Governance

“Regulations of many countries have been examined, and generally accepted and recommended principles; primarily the “OECD Corporate Governance Principles” of 1999 together with the particular conditions of our country have been taken into consideration during the preparation of these Principles” (CMB, 2003).

Many studies have been done in the area of corporate governance by researchers. “These studies emphasize the fact that no single corporate governance model is valid for every country. Accordingly, the model to be established should be compatible with the conditions peculiar to each country” (CMB, 2003). That is to say, corporate governance practices are affected from cultural and legal influences (Solomon, 2004).

As CFA Institute (2005) states that corporate governance practises try to make certain of following steps.

- *Board members act in the best interest of shareholders;*
- *The company acts in a lawful and ethical manner in its dealings with all stakeholders and their representatives;*
- *All shareholders have the same right to participate in the governance of the company and receive fair treatment from the board and management, and all rights of shareholders and other stakeholders are clearly delineated and communicated;*
- *The board and its committees are structured to act independently from management, individuals or entities that have control over management, and other non-shareholder groups;*
- *Appropriate controls and procedures are in place covering management’s activities in running the day-to-day operations of the company; and*
- *The company’s operating and financial activities, as well as its governance activities, are consistently reported to shareholders in a fair, accurate, timely, reliable, relevant, complete and verifiable manner.*

The main concepts of all international corporate governance approaches are the concepts of equality, transparency, accountability and responsibility
2.2.1. Equality

CMB (2003) stated that “equality means the equal treatment of share and stakeholders by the management in all activities of the company and thus aims to prevent all possible conflicts of interest.”

All shareholders are equal in terms of right. They have right to register their shares, sell their shares, participate and vote in general shareholders’ meeting, elect members of board of directors, have information from the company regularly and share the profit of the company (Darman, 2010).

2.2.2. Transparency

“Transparency aims to disclose company related financial and non-financial information to the public in a timely, accurate, complete, clear, construable manner and easy to reach at low cost, excluding the trade secrets and undisclosed information” (CMB, 2003). Disclosure and transparency are the partners of good governance. “They demonstrate the quality and reliability of information -- financial and non-financial-- provided by management to lenders, shareholders, and the public” (International Chamber of Commerce, 2002).

International Chamber of Commerce (2002) defines why transparency and disclosure matter:

- **Empirical evidence indicates that high standards of transparency and disclosure can have a material impact on the cost of capital.**
- **Reliable and timely information increases confidence among decision-makers within the organization and enables them to make good business decisions directly affecting growth and profitability.**
- **Information also affects decision makers outside the entity--shareholders, investors and lenders-- who must decide where and at what risk to place their money.**
- **The information a company provides should show decision-makers and outside interests whether and to what extent corporations meet legal requirements.**
Disclosure helps public understanding of a company's activities, policies and performance with regard to environmental and ethical standards, as well as its relationship with the communities where the company operates.

Disclosure and transparency, as well as proper auditing, serve as a deterrent to fraud and corruption, allowing firms to compete on the basis of their best offerings and to differentiate themselves from firms who do not practice good governance.

Research has demonstrated that disclosure and transparency also enhance stock market liquidity.

2.2.3. Accountability

“Accountability means the obligation of the board of directors to account to the company as a corporate body and to the shareholders” (CMB, 2003). It is usually used with concepts answerability, blameworthiness, liability, and other terms which are associated with account-giving.

THE Economist states that “Everywhere shareholders are re-examining their relationships with company bosses – what is known as their system of corporate governance. Every country has its own, distinct brand of corporate governance, reflecting its legal, regulatory and tax regimes… The problem of how to make bosses accountable has been around ever since the public limited company was invented in the 19th century, for the first time separating the owners of firms from the managers who run them….” (THE ECONOMIST 3, 1994).

OECD expert Christiansen (2010) explained that transparency and accountability are crucial:

- Gives substance to shareholders rights
- Choice remedy for fraud and manipulation
- Prerequisite to public trust
2.2.4. Responsibility

“Responsibility defines the conformity of all operations carried out on behalf of the company with the legislation, articles of association and in-house regulations together with the audit thereof.” (CMB, 2003)

2.3. OECD

After Article 1 of the Convention came into force on 30th September 1961, the Organisation for Economic Co-operation and Development (OECD) shall actualise policies designed:

- to achieve the highest sustainable economic growth and employment and a rising standard of living in member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;
- to contribute to sound economic expansion in member as well as non-member countries in the process of economic development; and
- to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations (“OECD Principles of Corporate Governance”, 2004, p.2).

The original members of OECD are Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the UK and the US. In 1964 Japan, in 1969 Finland, in 1971 Australia, in 1973 New Zealand, in 1994 Mexico, in 1995 Czech Republic, in 1996 Hungary, Poland and Korea, in 2000 Slovak Republic joined the organization as member countries (OECD Principles of Corporate Governance, 2004).

2.4. OECD Principles of Corporate Governance

“The OECD Principles of Corporate Governance were endorsed by OECD Ministers in 1999 and have since become the international benchmark for policy makers, investors, corporations and stakeholders worldwide. The principles are intended to assist OECD and non-OECD governments in their efforts to evaluate and improve the legal, institutional and regulatory framework for corporate governance in their countries” (OECD, 2004).
“The Principles represent a common basis that OECD member countries consider essential for the development of good governance practices. They are intended to be concise, understandable and accessible to the international community” (OECD, 2004).

OECD defines principles of corporate governance for effective corporate governance framework. These principles cover the following areas:

- **Ensuring the basis for an effective corporate governance framework;**
- **The rights of shareholders and key ownership functions;**
- **The equitable treatment of shareholders;**
- **The role of stakeholders;**
- **Disclosure and transparency;**
- **The responsibilities of the board.** (OECD, 2004).

**Ensuring the Basis for an Effective Corporate Governance Framework**

“The corporate governance framework should promote transparent and efficient markets, be consistent with the rule of law and clearly articulate the division of responsibilities among different supervisory, regulatory and enforcement authorities” (OECD, 2004).

**The Rights of Shareholders and Key Ownership Functions**

“The corporate governance framework should protect and facilitate the exercise of shareholders’ rights” (OECD, 2004).

**The Equitable Treatment of Shareholders**

“The corporate governance framework should ensure the equitable treatment of all shareholders, including minority and foreign shareholders. All shareholders should have the opportunity to obtain effective redress for violation of their right” (OECD, 2004).

**The Role of Stakeholders**

“The corporate governance framework should recognise the rights of stakeholders established by law or through mutual agreements and encourage active co-operation between corporations and stakeholders in creating wealth, jobs, and the sustainability of financially sound enterprises” (OECD, 2004).
• Disclosure and Transparency

“The corporate governance framework should ensure that timely and accurate disclosure is made on all material matters regarding the corporation, including the financial situation, performance, ownership, and governance of the company” (OECD, 2004).

• The Responsibilities of the Board

“The corporate governance framework should ensure the strategic guidance of the company, the effective monitoring of management by the board, and the board’s accountability to the company and the shareholders” (OECD, 2004).

2.5. Corporate Governance Principles in Turkey

Turkey started to implement corporate governance in the early 2000s. First, the Turkish Industrialists’ and Businessmen’s Association (TUSIAD) introduced Turkey’s first code of best practice in December 2002. In July 2003, the Capital Markets Board of Turkey (CMB) issued comprehensive corporate governance principles which became the source of (non-binding) corporate governance standards for publicly held companies. In 2005, CMB amended the principles taking into account revisions made to the Organisation for Economic Co-Operation and Development (OECD) Principles in 2004. Finally in August 2007, the Istanbul Stock Exchange (ISE) launched the Corporate Governance Index, an index of companies that comply with the corporate governance principles of CMB (Heidrick & Struggles, 2009).

The mission of CMB is:

“to make innovative regulations, and perform supervision with the aim of ensuring fairness, efficiency and transparency in Turkish capital markets, and improving their international competitiveness (“CMB Our Mission”, 2010)
“In parallel with the current practices worldwide, the CMB has established its own corporate governance Principles (the Principles). Distinguished experts and representatives from the CMB, the Istanbul Securities Exchange and the Turkish Corporate Governance Forum have participated in the committee that was established by the CMB for this purpose; additionally many qualified academicians, private sector representatives as well as various professional organizations and NGOs have stated their views and opinions, which were added to the Principles after the required evaluations. Accordingly, these Principles have been established as a product of contributions of all high-level bodies” (CMB, 2003).

The Principles especially address publicly held joint stock companies. However, the other joint stock companies active in private and public sector may also implement these principles. “But, the implementation of the Principles is optional. However, the explanation concerning the implementation status of the Principles, if not detailed reasoning thereof, conflicts arising from inadequate implementation of these Principles, and explanation on whether there is a plan for change in the company’s governance practices in the future should all be included in the annual report and disclosed to public. Within these regulations to be enforced by the CMB, the rating institutions conducting rating of corporate governance will determine the implementation status of the Principles.” (CMB, 2003).

OECD (2006) stated that significant changes to the corporate governance framework have been introduced in Turkey in the past few years and further important reforms are contemplated. The CMB has played a very important role in identifying areas where reform is needed and then developing or adopting the key standards.

CMB prepared these principles in order to fill the gaps in corporate governance practices. Therefore, the Principles of CMB also aim to play a guiding role for future regulations. These Principles will be periodically controlled in order to ensure that they stay up-to-date (CMB, 2003).

The Principles contain 4 main sections. These are:

1. Shareholders
2. Disclosure and Transparency
3. Stakeholders
4. Board of Directors
Table 2: The Summary of CMB Corporate Governance Principles

<table>
<thead>
<tr>
<th>A - Shareholders</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Facilitating the Exercise of Shareholders’ Statutory Rights</td>
<td></td>
</tr>
<tr>
<td>2. Shareholders Right to Obtain and Evaluate Information</td>
<td></td>
</tr>
<tr>
<td>3. The Right to Participate in the General Shareholders’ Meeting</td>
<td></td>
</tr>
<tr>
<td>4. Voting Rights</td>
<td></td>
</tr>
<tr>
<td>5. Minority Rights</td>
<td></td>
</tr>
<tr>
<td>6. Dividend Rights</td>
<td></td>
</tr>
<tr>
<td>7. Transfer of Shares</td>
<td></td>
</tr>
<tr>
<td>8. Equal Treatment of Shareholders</td>
<td></td>
</tr>
</tbody>
</table>

| B – Public Disclosure and Transparency                        |                                                                 |
| 1. Principles and Means for Public Disclosure                |                                                                 |
| 2. Public Disclosure of Relations between the Company and Its Shareholders, The Board of Directors and Executives |                                                                 |
| 4. Functions of External Audit                               |                                                                 |
| 5. The Concept of Trade Secret and Insider Trading           |                                                                 |
| 6. Significant Events and Developments That Must Be Disclosed to the Public |                                                                 |

<table>
<thead>
<tr>
<th>C - Stakeholders</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Company Policy Regarding Stakeholders</td>
<td></td>
</tr>
<tr>
<td>2. Stakeholders’ Participation in the Company Management</td>
<td></td>
</tr>
<tr>
<td>3. Protection of Company Assets</td>
<td></td>
</tr>
<tr>
<td>4. Company Policy on Human Resources</td>
<td></td>
</tr>
<tr>
<td>5. Relations with Customers and Suppliers</td>
<td></td>
</tr>
<tr>
<td>6. Ethical Rules</td>
<td></td>
</tr>
<tr>
<td>7. Social Responsibility</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D – Board of Directors</th>
<th></th>
</tr>
</thead>
</table>


| 1. Fundamental Functions of the Board of Directors |
| 2. Principles of Activity and Duties and Responsibilities of the Board of Directors |
| 3. Formation and Election of the Board of Directors |
| 4. Remuneration of the Board of Directors |
| 5. Number, Structure and Independence of the Committees Established by the Board of Directors |
| 6. Executives |

As we see, CMB’s Corporate Governance Principles are in line with OECD Principles of Corporate Governance. By using OECD corporate governance principles as a comparison for CMB Principles, CMB’s and OECD’s principles are summarized.
CHAPTER III

CORPORATE GOVERNANCE AND FIRM PERFORMANCE

3.1. Theoretical Perspectives

The conceptual framework for this study is a combination of approaches to agency theory which is based on the interests of shareholders and stakeholder theory which is based on the profits of all the stakeholders and stewardship theory which is based on any individual who is affected by the achievement of the organization’s objectives.

3.1.1. Agency Theory

In the past, classical economics considered that corporations were not only owned but also managed and controlled by the shareholders. With the industrialization and development of markets, the ownership and control of corporations has been started to separate. Agency relationship was first pointed out by M. Jensen and W. Meckling in 1976.

Jensen and Meckling (1976) define that “an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent”. They also add that “If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal”.

In this theory, shareholders (owners or principals) of the company hires the agents to perform the company. Principals charge the running of the business to the managers (Clarke, 2004). Managers might have more information about the company than the principles and they might not be controlled. In this situation, managers might be hard-nosed or self interested and only think their utility while managing company. The goals or expect of agency and principal might be different and this conflict brings to agency problem.
Smith stated (2005) that “The directors of such companies; however, being the managers rather of other people’s money than of their own, it cannot well be expected that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own” (p.606).

In their study, Jensen and Meckling (1976) assumes that agents do not generally decide for welfare maximization of company shareholders referred as “principals”. Moreover, agency problem rises either when the principle can not control or know what the agent is doing in details. So, agency theory aims to prevent and provide necessary monitoring to reduce agency problems between agent and principle.

**Figure 1: Agency Theory (Abdullah and Valentine, 2009)**

![Agency Theory Diagram](image)

### 3.1.2. Stakeholder Theory

Stakeholder theory was first introduced in Strategic Management: A Stakeholder Approach (Freeman, 1984) states that a company holds corporate accountability to a wide range of stakeholders.

The basic definition of stakeholder theory is “any group or individual who can affect or is affected by the achievement of the organization’s objectives” (Freeman 1984).

The general perspective of this theory is that the big companies which can affect the society pervasively should be accountable to all parts of society, not only to their shareholders. Stakeholders are not only being affected by companies but also they are effective on companies by holding a “stake” in the company rather than simply a “share”. Friedman states that main groups of stakeholders are customers, employees, local communities, suppliers and distributors, shareholders. In addition other individuals are also considered to be stakeholders in the literature of Friedman (2006): media, the public in general, business partners, future generations, past generations, academics, competitors,
NGOs or activists – considered individually, stakeholder representatives, financiers other than stakeholders (debt holders, bondholders, creditors), government, regulators and policymakers.

The analysts of the theory state that all parties with legitimate interests in the company shall get benefits and there is no priority in terms of these interests and benefits (Donalds & Preston, 1995).

**Figure 2:** The Stakeholder Model (Donaldson and Preston, 1995)

All participants who share the risk and make profits for the firms are stakeholders and they should obtain a balance share of the riches created by joint efforts (Clarkson 2002).

According to Donna Card Charron (2007), it is compulsory for managers to observe following principles:

- **Monitor and respond to concerns and interests of all legitimate stakeholders.**
- **Communicate with stakeholders about their concerns, contributions, and risks.**
- **Act with sensitivity to each stakeholder group.**
- **Attempt to achieve a fair distribution of benefits and burdens.**
- **“Insure” that risks are minimized and harms are compensated.**
- **Never jeopardize “inalienable human rights” or deceive concerning risks.**
- **Deal with the conflicts of its self-interest and the interest of stakeholders through public institutions, public reports, incentive systems, and third-party review.**

The difference between agency and stakeholder theory is that stakeholder theory focuses on the interest of all parties in corporation, agency theory only focuses on the interests of shareholders. Stakeholder theory is a theory of organizational management and ethics.
Under this theory, managers should care not only shareholders value, but also benefit the profits of stakeholders.

**Table 3: A Comparison Between Shareholder and Stakeholder Management (Vilanova, 2007)**

<table>
<thead>
<tr>
<th>Representation of firms</th>
<th>Shareholder management</th>
<th>Stakeholder Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of firms</td>
<td>Nexus of contracts or relationships between groups with conflicting objectives</td>
<td>Managers are key actors because they have residual control rights</td>
</tr>
<tr>
<td>Importance of management</td>
<td>Managers are viewed as “hired” agents of shareholders and are in charge of day-to-day management in an incomplete contract framework. Managers can destroy shareholder value.</td>
<td>Managers are viewed as referees between groups with conflicting objectives. Managers can increase the aggregate value of the firm.</td>
</tr>
<tr>
<td>Role of management</td>
<td>Self-interested and opportunistic agents.</td>
<td>The assumption of self-interested and opportunistic agents is overly simplistic. Agents can be organization-centered and altruistic.</td>
</tr>
<tr>
<td>Behavioral assumptions</td>
<td>Control should be concentrated in the hands of shareholders.</td>
<td>Control should be divided between the different (legitimate) stakeholders.</td>
</tr>
<tr>
<td>Optimal governance system</td>
<td>Control mechanisms limiting managerial discretion</td>
<td>The ones that increase the democratic representation of non-controlling stakeholders</td>
</tr>
<tr>
<td>Good governance practices</td>
<td>Incentive mechanisms aligning managers’ objectives with those of shareholders</td>
<td></td>
</tr>
<tr>
<td>The “perfect” firm</td>
<td>LBO and project company</td>
<td>German co-determination</td>
</tr>
</tbody>
</table>

### 3.1.3. Stewardship Theory

Stewardship theory is defined by Davis, Schoorman & Donaldson (1997) as “a steward protects and maximises shareholders wealth through firm performance, because by so doing, the steward’s utility functions are maximised”. In this theory, company executives and managers working for shareholders are called as stewards. Unlike agency theory, stewards protect company and make profit for the shareholders. It is not on the perspective of individualism as agency theory (Donaldson & Davis, 1991), they aim to achieve firms’ targets and integrate their goals as the top of management. Stewardship perspective comes up with that steward are satisfied and motivated when organization achieves its targets.
“The executive manager, under this theory, far from being an opportunistic shirker, essentially wants to do a good job, to be a good steward of the corporate assets. Thus, stewardship theory holds that there is no inherent, general problem of executive motivation. Given the absence of an inner motivational problem among executives, there is the question of how far executives can achieve the good corporate performance to which they aspire. Thus, stewardship theory holds that performance variations arise from whether the structural situation in which the executive is located facilitates effective action by the executive. The issue becomes whether or not the organisation structure helps the executive to formulate and implement plans for high corporate performance” (Donaldson, 1995)

According to the theory, managers have propensity and devotion for success of firm. Thus, managers perform the company under company goals and satisfaction of shareholders and other participants. It is apperceived by the theory that managers perform actions as stewards for the shareholders’ benefits (Tricker, 2009).

**Figure 3:** The Stewardship Model

![Stewardship Model](image)

3.2 Related Literature

There are a lot of empirical researches that has investigated the impact of corporate governance and firm performance for developed markets. Many of them show that having good corporate governance practices provides the significant increase in economic value, firm value, higher productivity, and lower risk of systematic financial failure for countries. The studies by Shleifer and Vishny (1997), John and Senbet (1998), Hermelin and Weisbach (2003), Brown and Caylor (2004), Aggarwal and Williamson (2006) and Gompers, Ishii, and Metrick (2003) provide excellent literature review in this area. It has now become an interesting point of research in emerging markets.
Most of the studies showing on possible relationship between corporate governance and firm performance usually focus on a specific market or country.

Brown and Caylor (2004) examine corporate governance score with 51 factors, 8 sub categories for 2327 firms based on dataset of Institutional Shareholder Service (ISS) for the US firms. They found that better governed firms are relatively more profitable, more valuable, pay more cash to their shareholders.

Another study is made by Gompers, Ishii, and Metrick (2003). They use Investor Responsibility Research Centre (IRRC) data. They find that firms with fewer shareholder rights have lower firm valuation and lower stock returns. The study is classified 24 governance factors into five groups: tactics for delaying hostile takeover, voting rights, director/officer protection, other takeover defenses, and state laws. Their finding show that firms which have stronger shareholder rights have higher firm value, high profits and high sales growth. By identifying categories and factors representing good governance that are mostly concerned with good performance.

Khatab et al (2011) investigate the relationship between corporate governance and firm’s performance of twenty firms listed at Karachi Stock Exchange. Their objective is to investigate whether ROA and ROE affect the performance of firm with using Tobin’s q for the year 2005-2009. The result shows that that leverage and growth has positive and significant impact on Tobin’s Q and ROA. However, growth has a negative and significant impact on ROE. It means that firms with having good corporate governance measures perform well as compared to the firms having no or less corporate governance practices.

Javed and Iqbal (2007) investigate the relationship between corporate governance indicators and firm value in a cross-section of 50 companies listed at Karachi Stock Exchange. They analyzed the relationship between firm value as measured by Tobin’s Q and total Corporate Governance Index (CGI) and three sub-indices: Board, Shareholdings and Ownership, and Disclosures and Transparency. Their results indicate that corporate governance does matter in Pakistan. However, board composition and ownership and shareholdings make positive effect to firm performance, whereas disclosure and transparency has no significant effect on firm performance.
Sencitak (2007) analyzes corporate governance and its effects on firm performance. The paper also aims to analyze whether there is a relationship between corporate governance and firm performance or not for firms quoted at Istanbul Stock Exchange (ISE) using 45 manufacturing firms in the ISE 100 Index. The results show that there is a relationship between corporate governance and firm performance.

CHAPTER 4

DATA AND RESEARCH

4.1. Research Design

This study aims to self-construct a corporate governance score for firms listed at ISE Corporate Governance index based on the Corporate Governance Principles issued by Turkish Capital Market Board (CMB) and then test whether there is a relationship between corporate governance and firm performance. It also aims to determine the direction of this relationship by attempting to answer the question of whether better governed firms as measured by high corporate governance score have higher firm performance. In the overall research design, the firm performance is the dependent variable whereas a composite corporate governance score is the independent variable. Research design is structured in four sections including the data description, the sample selection, measuring firm performance and the construction of corporate governance score denoted as Saha Corporate Governance Score.

ISE Corporate Governance Index is the index in which companies applying Corporate Governance Principles are included. The corporate governance rating is determined by the rating institutions incorporated by CMB in its list of rating agencies as a result of their assessment of the company's compliance with the corporate governance principles as a whole. Even there are many rating institutions, Saha Corporate Ratings were only used to get better and straight result. The population of this study consists 16 companies investigated by Saha Rating and quoted at ISE Corporate Governance index for the years 2008, 2009 and 2010. Data consists 45 observations since there is no Saha corporate governance data for 3 firms concerning the year 2008.

Financial firms including insurance companies and banks and non-manufacturing firms are excluded from the study since those have specific characteristics of corporate governance structure and financial ratios.
This study utilizes the data corporate governance score and performance measures in the model. Data for the corporate governance score were obtained from Saha Rating Institution. Performance measure data were obtained from the website and annual reports of each firm and Public Disclosure Platform. In general, each firm’s websites include investor relation section in where all financial information and corporate governance scores are stated.

Table 4: Data Information of Firms

<table>
<thead>
<tr>
<th>Firm</th>
<th>Year</th>
<th>Saha Corporate Governance Score</th>
<th>Return on Asset</th>
<th>Return on Equity</th>
<th>Return on Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGO YAZILIM SANAYİ VE TİCARET A.Ş.</td>
<td>2008</td>
<td>80,53</td>
<td>0,0275293</td>
<td>0,0319695</td>
<td>-0,052695</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>81,71</td>
<td>0,1115563</td>
<td>0,1386406</td>
<td>0,3154421</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>82,61</td>
<td>0,0112952</td>
<td>0,0134241</td>
<td>0,0202913</td>
</tr>
<tr>
<td>DOĞAN ŞİRKETLER GRUBU HOLDİNG A.Ş.</td>
<td>2008</td>
<td>82,64</td>
<td>0,0066565</td>
<td>0,0183249</td>
<td>0,0056472</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>84,2</td>
<td>0,0119555</td>
<td>0,0328467</td>
<td>0,0110612</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>85,87</td>
<td>0,0816852</td>
<td>0,1420035</td>
<td>0,230209</td>
</tr>
<tr>
<td>DENTAŞ AMBALAJ VE KAĞIT SANAYİ A.Ş.</td>
<td>2008</td>
<td>78,18</td>
<td>0,1755894</td>
<td>0,6070753</td>
<td>0,2585767</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>80,29</td>
<td>0,019039</td>
<td>0,06843</td>
<td>0,025835</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>80,6</td>
<td>0,0739092</td>
<td>0,2149392</td>
<td>0,0828945</td>
</tr>
<tr>
<td>ANADOLU EFES BİRACILIK VE MALT SANAYİİ A.Ş.</td>
<td>2008</td>
<td>82,71</td>
<td>0,0604423</td>
<td>0,1437591</td>
<td>0,0844058</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>84</td>
<td>0,0778241</td>
<td>0,1741254</td>
<td>0,1108844</td>
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<tr>
<td></td>
<td>2010</td>
<td>85,46</td>
<td>0,0901154</td>
<td>0,1820109</td>
<td>0,1208119</td>
</tr>
<tr>
<td>COCA-COLA İÇECEK A.Ş.</td>
<td>2008</td>
<td>83,04</td>
<td>0,0332499</td>
<td>0,0741469</td>
<td>0,0360366</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>84,34</td>
<td>0,0592209</td>
<td>0,1352939</td>
<td>0,0704391</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>84,96</td>
<td>0,0655787</td>
<td>0,1394495</td>
<td>0,0717928</td>
</tr>
<tr>
<td>TÜPRAŞ-TÜRKİYE PETROL RAFİNERİLERİ A.Ş.</td>
<td>2008</td>
<td>83,41</td>
<td>0,0500442</td>
<td>0,1228539</td>
<td>0,014216</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>85,58</td>
<td>0,0793577</td>
<td>0,2163059</td>
<td>0,0399052</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>86,2</td>
<td>0,0529761</td>
<td>0,1906078</td>
<td>0,0281788</td>
</tr>
<tr>
<td>TOFAŞ TÜRK OTOMOBİL FABRİKASI A.Ş.</td>
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<td>82,37</td>
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<td>0,1569988</td>
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</tr>
<tr>
<td></td>
<td>2009</td>
<td>84,17</td>
<td>0,0825134</td>
<td>0,253369</td>
<td>0,0706743</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>85,83</td>
<td>0,072712</td>
<td>0,2252334</td>
<td>0,0599387</td>
</tr>
<tr>
<td>Company</td>
<td>2008</td>
<td>2009</td>
<td>2010</td>
<td>2011</td>
<td>2012</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>TÜRK TRAKTÖR VE ZİRAAT MAKİNELERİ A.Ş.</td>
<td>81,21</td>
<td>83,02</td>
<td>85,04</td>
<td>85,81</td>
<td>86,61</td>
</tr>
<tr>
<td>ARÇELİK A.Ş.</td>
<td>82,09</td>
<td>85,53</td>
<td>85,91</td>
<td>85,55</td>
<td>82,66</td>
</tr>
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<td>Y VE Y GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş.</td>
<td>81,55</td>
<td>82,66</td>
<td>85,58</td>
<td>81,2</td>
<td>83,18</td>
</tr>
<tr>
<td>OTOCAR OTOBÜS KAROSERİ SANAYİ A.Ş.</td>
<td>81,2</td>
<td>83,18</td>
<td>84,68</td>
<td>77,59</td>
<td>80,79</td>
</tr>
<tr>
<td>TÜRK PRYSMIAN KABLO VE SİSTEMLERİ A.Ş.</td>
<td>80,11</td>
<td>82,66</td>
<td>83,73</td>
<td>80,11</td>
<td>82,66</td>
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<tr>
<td>YAZICILAR HOLDİNG A.Ş.</td>
<td>NA</td>
<td>80,44</td>
<td>83</td>
<td>83,73</td>
<td>NA</td>
</tr>
<tr>
<td>PARK ELEKTRİK ÜRETİM MADENCİLİK SANAYİ VE TİCARET A.Ş.</td>
<td>NA</td>
<td>86,45</td>
<td>86,66</td>
<td>86,45</td>
<td>NA</td>
</tr>
<tr>
<td>AYGAZ A.Ş.</td>
<td>NA</td>
<td>84,61</td>
<td>84,95</td>
<td>84,61</td>
<td>NA</td>
</tr>
</tbody>
</table>

4.1.1. Measuring Firm Performance

There are three different firm performance measures which will be used for this study. First one is the return on assets (ROA). It is financial ratio used to measure the relationship of profits or earnings and total assets. (ROA) measure assesses the profitability performance of total assets, and could be treated as measure of financial performance. As it is known, this
measure contains two elements, efficiency (total assets turnover), and effectiveness (profit margin). As mentioned earlier, ROA reflects the bank management ability to generate profits by using the available financial and real assets. (Ahmed Arif Almazari, 2011)

ROA is calculated as follows:

\[
\text{ROA} = \frac{\text{Net Profit}}{\text{Total Asset}} = \frac{\text{Net Profit}}{\text{Total Revenue}} \times \frac{\text{Total Revenue}}{\text{Total Asset}}
\]

Another performance measure is the return on equity (ROE). “It, along with return on assets (ROA), is one of the all-time favorites and perhaps most widely used overall measure of corporate financial performance” (Rappaport, 1986) This was confirmed by Monteiro (2006) who stated that ROE is perhaps the most important ratio an investor should consider. ROE is calculated by taking the profit after tax and preference dividends of a given year and dividing it by the book value of equity (ordinary shares) at the beginning of the year.

ROE is calculated as follows:

\[
\text{ROE} = \frac{\text{Net Profit}}{\text{Equity}} = \frac{\text{Net Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}
\]
The last performance measure is return on sales. “This measure is helpful to management, providing insight into how much profit is being produced per sales. An increasing ROS indicates the company is growing more efficient, while a decreasing ROS could signal looming financial troubles” (Investopedia, 2012).

ROS is calculated as follows:

\[
\text{ROS} = \frac{\text{Net Income}}{\text{Total Sales}}
\]

4.1.2. Construction of Corporate Governance Score: Saha Corporate Governance Score

In order to measure corporate governance score, Saha Corporate Governance Rating Scores were used. Corporate Governance Rating Scores have been prepared by SAHA Corporate Governance and Credit Rating Services, Inc. based on information made available by all firms of this study and according to the Corporate Governance Principles issued by the Turkish Capital Markets Board as amended on 2005.

Saha’s methodology for corporate governance is based upon the CMB’s Corporate Governance Principles released on July 2003, as revised on February 2005. (Saha Rating, 2009)

“The CMB based these principles on the leading work of The World Bank, Organization of Economic Cooperation and Development (OECD) and the Global Corporate Governance Forum (GCGF), which has been established in cooperation with the representatives of these two organizations and private sector. Experts and representatives from the CMB, the Istanbul Securities Exchange and the Turkish Corporate Governance Forum have participated in the committee that was established by the CMB for this purpose; additionally many qualified Academicians, private sector representatives as well as various professional organizations and NGOs have stated their views and opinions, which were added
to the Principles after the required evaluations. Accordingly, these Principles have been established as a product of contributions of all high-level bodies. Within the Principles, “comply or explain” approach is valid. The implementation of the Principles is optional. However, the explanation concerning the implementation status of the Principles, if not detailed reasoning thereof, conflicts arising from inadequate implementation of these Principles, and explanation on whether there is a plan for change in the company’s governance practices in the future should all be included in the annual report and disclosed to public” (Saha Rating, 2009).

Below, you may see that corporate governance principles originate in four main sections: shareholders, public disclosure and transparency, stakeholders and board of directors.

SAHA’s methodology has the characteristics of 400+ different code criteria. They evaluate each criterion with the help of financial information provided by the companies. SAHA scores ratings between 1 (weakest) and 10 (strongest). SAHA assigns 10 points for each governance attribute if the company meets fully acceptable standard on this attribute. These ratings are allocated the following weights to the four main sub-categories of the principle.

1. Shareholders: %25
2. Disclosure and Transparency: %35
3. Stakeholders: %15
4. Board of Directors: %25

A rating between 1-10 is assigned to the overall level of compliance with the principles of corporate governance as well as to the four main sectors of corporate governance, namely, shareholders, public disclosure and transparency, stakeholders, board of directors.

A rating of 1 (one) represents the weakest profile. A rating of 10 (ten) represents the highest quality.

In order to be included in the Istanbul Stock Exchange (ISE) Corporate Governance Index, a rating of 6 or more is required.
Table 5: The overall rating as well as the ratings for the four main sections are disclosed to the public (Saha Rating, 2012).

<table>
<thead>
<tr>
<th>Rating</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 – 10</td>
<td>The company performs <strong>very good</strong> in terms of Capital Markets Board’s corporate governance principles. It has, to varying degrees, identified and actively managed all significant corporate governance risks through comprehensive internal controls and management systems. The company’s performance is considered to represent best practice, and it had almost no deficiencies in any of the areas rated.</td>
</tr>
<tr>
<td>7 – 8</td>
<td>The company performs <strong>good</strong> in terms of Capital Markets Board’s corporate governance principles. It has, to varying degrees, identified all its material corporate governance risks and is actively managing the majority of them through internal controls and management systems. During the rating process, minor deficiencies were found in one or two of the areas rated.</td>
</tr>
<tr>
<td>6</td>
<td>The company performs <strong>fair</strong> in terms of Capital Markets Board’s corporate governance principles. It has, to varying degrees, identified the majority of its material corporate governance risks and is beginning to actively manage them. Management accountability is considered in accordance with national standards but may be lagging behind international best practice. During the rating process, minor deficiencies were identified in more than two of the areas rated.</td>
</tr>
<tr>
<td>4 – 5</td>
<td>The company performs <strong>weakly</strong> as a result of poor corporate governance policies and practices. The company has, to varying degrees, identified its minimum obligations but does not demonstrate an effective, integrated system of controls for managing related risks. Assurance mechanisms are weak. The rating has identified significant deficiencies in a number (but not the majority) of areas rated.</td>
</tr>
<tr>
<td>&lt;4</td>
<td>The company performs <strong>very weakly</strong> and its corporate governance policies and practices are overall very poor. The company shows limited awareness of corporate governance risks, and internal controls are almost non-existent. Significant deficiencies are apparent in the majority of areas rated and have led to significant material loss and investor concern.</td>
</tr>
</tbody>
</table>

Source: Saha Rating 2012, [www.saharating.com](http://www.saharating.com)
Total corporate governance score is calculated from four main sub-sections. Four main sections of the score are denoted as follows:

\[
\text{Total corporate governance score} = (\text{Shareholders} \times 25\%) + (\text{Public Disclosure and Transparency} \times 35\%) + (\text{Stakeholders} \times 15\%) + (\text{Board of Directors} \times 25\%)
\]

For example, one firm gets 7 points from shareholder section which is computed as the sum of its sub-sections. Total maximum score for this section is 8 points cause there are 8 subsections for shareholder section. Then, corporate governance score is: \(\text{Shareholder} = (7/8) \times 100 = 87.5\)

Three dependent variables used for the regression analysis were the (1) return on asset, (2) return on equity and (3) return on sales. Return on asset was defined as the net income (profit) divided by total asset, return on equity was defined as the net income (profit) divided by equity and return on sales was defined the net income divided by total sales. The data to calculate ROA, ROE and ROS were obtained from Public Disclosure Platform of Turkey. As independent variables, corporate governance score was used. The data were obtained from SAHA Rating who acquired its Corporate Governance Rating license from the Turkish Capital Markets Board (CMB).

4.2. Methodology

Due to the combination of cross-sectional data and time-series data, the OLS regression technique is unsuitable for the analysis (Leamer, 1978). Panel data regression technique, involving the combination of cross-sectional and time series data, was used in this study.

Panel regression models are based on panel data. “Panel data consist of observations on the same cross-sectional, or individual, units over several time periods. Panel data have both cross-sectional and time series dimensions, the application of regression models to fit econometric models are more complex than those for simple cross-sectional data sets. Nevertheless, they are increasingly being used in applied work” (Dougherty, 2011).
There are several reasons for the increasing interest in panel data sets. An important one is that their use may offer a solution to the problem of bias caused by unobserved heterogeneity, a common problem in the fitting of models with cross-sectional data sets.

“If the same units of observation in a cross-sectional sample are surveyed two or more times, the resulting observations are described as forming a panel data” (Dougherty, 2011).

“Panel data or longitudinal data typically refer to data containing time series observations of a number of individuals. Therefore, observations in panel data involve at least two dimensions; a cross-sectional dimension, indicated by subscript \( i \), and a time series dimension, indicated by subscript \( t \)” (Hsiao, 2005)

Panel data sometimes may have group effects, time effects, or both. These effects can be seen fixed effect or random effect. A fixed effect model (FEM) assumes differences in intercepts across groups or time periods, whereas a random effect model (REM) explores differences in error variances.

Park (2005) stated that panel data models estimate fixed or random effects using dummy variables. The main difference between fixed and random models lies in the role of dummies. If dummies are considered as a part of intercept, it is a fixed effect model. In a random effect model, dummies act as an error term.

The fixed effect model examines group differences in intercepts, assuming the slopes and constant variance across groups. By contrast, random effect model estimates variance components for groups and error assuming the same intercept and slope. The difference among groups or time periods lies in the variance of the error term (Park, 2005).

In REM it is assumed that the intercept of an individual unit is a random drawing from a much larger population with a constant mean value. The individual intercept is then expressed as a deviation from this constant mean value. One advantage of REM over FEM is that it is economical in degrees of freedom, as we do not have to estimate N cross-sectional intercepts. We need only to estimate the mean value of the intercept and its variance. REM is appropriate in situations where the (random) intercept of each cross-sectional unit is
uncorrelated with the regressors. The Hausman, a model specification test, can be used to decide about which models will be used.

The random effect model is formulated as:

\[ Y_{it} = \alpha + X_{it}' \beta + u_i + v_{it}, \]

\[ w_{it} = u_i + v_{it} \]

where \( u_i \sim IID (0, \sigma_u^2) \) and \( v_{it} \sim IID (0, \sigma_v^2) \). The \( u_i \) are assumed independent of \( v_{it} \) and \( X_{it} \), which are also independent of each other for all \( i \) and \( t \). The components of \( Cov(w_{it}, w_{js}) = E(w_{it}, w_{js}) \) are \( \sigma_u^2 + \sigma_v^2 \) if \( i=j \) and \( t=s \) and \( \sigma_u^2 \) if \( i=j \) and \( t=s \). (This implies that \( Corr(w_{it}, w_{js}) \) is 1 if \( i=j \) and \( t=s \), and \( \sigma_u^2 / (\sigma_u^2 + \sigma_v^2) \) if \( i=j \) and \( t=s \).)

4.3. Hypothesis

This study develops the following hypotheses:

\( H_0: \) There is no relationship between corporate governance and firm performance

\( H_1: \) There is a relationship between corporate governance and firm performance

Three models were formulated in this study. Random effect model, one type of panel data, is used to analyze whether the relationship between corporate governance and firm performance. Panel data is created as unbalanced data. In equation form, the empirical model can be expressed as follows:

\[ ROA_{it} = \beta_1 + \beta_2 CorporateGovernanceScore_{it} + w_{it} \quad (1) \]

\[ ROE_{it} = \beta_1 + \beta_2 CorporateGovernanceScore_{it} + w_{it} \quad (2) \]
\[ ROS_{it} = \beta_1 + \beta_2 \text{CorporateGovernanceScore}_{it} + w_{it} \quad (3) \]

\( \beta_1 \) : Sixteen companies included in our sample are a drawing from a much larger universe of such companies and they have a common value for the intercept.

\( w_{it} \) : The composite error term consists of two components: \( \varepsilon_i \), which is the cross-section, or individual-specific, error component, and \( u_{it} \), which is the combined time series and cross-section error component.

\( \varepsilon_i \) : is a random error term with a mean value of zero and a variance of \( \sigma^2 \). Individual references in the intercept values of each company are reflected in the error term.

**Performance measures are:**

\( ROA_{it} \) is the value of return on asset as a dependent variable,

\( ROE_{it} \) is the value of return on asset as a dependent variable,

\( ROS_{it} \) is the value of return on asset as a dependent variable.

\( \text{CorporateGovernanceScore}_{it} \) is the value of corporate governance score of companies as an independent variable.

The data is unbalanced data involving \( N \) cross-sectional units, \( i = 1, \ldots, N \), over \( T \) time periods,

\( t = 1, \ldots, T \).
CHAPTER 5

REGRESSION ANALYSIS

5.1. Empirical Results

The results for analysing the effect between Saha’s Corporate Governance Rating Score and firm performance are provided in Table 4, Table 5, Table 6. Saha’s Corporate Governance Rating Score is the total score of four sub-indices which are shareholders, public disclosure and transparency, stakeholders and board of directors. The results of Table 4 and Appendix Table 7 present summary statistics about effect of Saha corporate governance rating score on return on asset.

Table 6: Regression results: Return on Asset as the Dependent Variable and Saha Corporate Governance Rating Score as the Independent Variable

<table>
<thead>
<tr>
<th>Pooled OLS, using 45 observations and included 16 cross-sectional units, Robust (HAC) standard errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA = -1.07798 + 0.0134801*Saha_Governance + ( w )</td>
</tr>
<tr>
<td>P values</td>
</tr>
<tr>
<td>R squared</td>
</tr>
<tr>
<td>N</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fixed Effects Estimator</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA = -1.047 + 0.013108*Saha_Governance + ( w )</td>
</tr>
<tr>
<td>P values</td>
</tr>
</tbody>
</table>
F(15, 28) = 3.31695 with p-value 0.00298847

Breusch-Pagan test statistic:
LM = 9.76456 with p-value 0.00177908

<table>
<thead>
<tr>
<th>Random Effects Estimator</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA = -1.0638 + 0.013316*Saha_Governance + w</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P values</th>
<th>0.00540</th>
<th>0.00386</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hausman test statistic:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H = 0.00437661 with p-value 0.947254</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tables 4 provides a summary of the results of the estimation of regressions for the dependent variable return on asset (ROA), respectively. This pooled OLS has a low p value so, it means that this would serve as evidence to against to null hypothesis that this pooled OLS is adequate. Therefore, fixed effect model should be used instead. However as we can see p value in fixed effect model is also very low. So, it means that Hausman test statistic should be used to decide whether we should use fixed effect or random effect model. Hausman Test shows that p value for random effect model has greater value which means that random model is suitable. The Hausman specification test confirmed the superiority of the random effect model over the fixed effect model for ROA which is dependent variable. Hence, for further interpretative discussion, the results of the random effects model will be discussed. The summary of the results of the estimation of regressions for the dependent variable return on asset (ROA) based on random effect model shows that Saha Corporate governance score is highly significant. It means that there is highly significant relation between Saha corporate governance score and return on asset.
The results of Table 5 and Appendix Table 8 present summary statistics about the effect of Saha corporate governance rating score on return on equity.

Table 7: Regression results: Return on Equity as the Dependent Variable and Saha Corporate Governance Rating Score as the Independent Variable

<table>
<thead>
<tr>
<th>Pooled OLS, using 45 observations and included 16 cross-sectional units, Robust (HAC) standard errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE = -2.10195 + 0.026587*Saha_Governance + w</td>
</tr>
<tr>
<td>P values</td>
</tr>
<tr>
<td>R squared</td>
</tr>
<tr>
<td>N</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fixed Effects Estimator</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE = -2.0646 + 0.026138*Saha_Governance + w</td>
</tr>
<tr>
<td>P values</td>
</tr>
<tr>
<td>F(15, 28) = 2.35833 with p-value</td>
</tr>
<tr>
<td>Breusch-Pagan test statistic: LM = 4.97049 with p-value</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Random Effects Estimator</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE = -2.0314 + 0.025732*Saha_Governance + w</td>
</tr>
<tr>
<td>P values</td>
</tr>
</tbody>
</table>
Tables 5 provides a summary of the results of the estimation of regressions for the dependent variable return on equity (ROE). The same steps which were used for ROA dependent variable are also implemented on this regression results. P value of Pooled OLS is very low means that a low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative. However, when fixed effect model is implemented, it shows that p value for fixed effect model has also low p value. Hence, we should test Hausman Test Statistic to decide which model is suitable for this model. In table 5, Hausman test shows that p value is really big for random effect model. This test confirmed that random effect model should be used to interpret for regression results. The summary of the results of the estimation of regressions for the dependent variable return on equity (ROE) shows that Saha corporate governance score is highly significant based on random effect model. In addition, random effect model in this regression improves the significant level of coefficients from 10 % to 5 %. All these results show that there is highly significant relation between Saha corporate governance score and return on equity.

The results of Table 6 and Appendix Table 9 present summary statistics about effect of Saha corporate governance rating score on return on sales.

**Table 8: Regression results: Return on Sales as the Dependent Variable and Saha Corporate Governance Rating Score as the Independent Variable**

<table>
<thead>
<tr>
<th>Pooled OLS, using 45 observations and included 16 cross-sectional units, Robust (HAC) standard errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\text{ROS} = -2.58158 + 0.0307342 \times \text{Saha_Governance} + w$</td>
</tr>
<tr>
<td>P values</td>
</tr>
</tbody>
</table>
Table 6 provides a summary of the results of the estimation of regressions for the dependent variable return on sales (ROS). Pooled OLS results show that p value is low and it counts against the null hypothesis that the pooled OLS model is adequate, in favor of the random effects alternative. Therefore, it requires to apply to fixed effect model instead. However, when fixed effect model is implemented, it shows that p value for fixed effect model has also low p value. With this reason, we implement the Hausman test statistic and Hausman test shows that p value is high. Therefore, results of regression should be interpreted
based on random effect model. According to random effect model, Saha corporate governance score is not statistically significant and it has not really impact on return on sales. But, according to pooled OLS results, there would be a relation between Saha corporate governance score and return on sales. However, model selecting process suggests that the results should be based on random effect model. Therefore, there is no statistically significant relation between Saha’s corporate governance score and return on sales.

5.2. Summary of Findings

The result of regressing return on asset, return on equity against Saha’s corporate governance rating score indicates that there is a significantly relationship between corporate governance and firm performance. The result of regressing return on sales indicates that there is no statistically significant relation between Saha’s corporate governance score and return on sales.

The results based on Saha Corporate Governance Rating Score suggests that corporate governance does matter stock market in Turkey. It suggests that better governed firms measured by high corporate governance score have better performance. These findings are consistent with result of Brown and Caylor (2004), Gompers, Ishii and Metrick (2003), Aggarwal and Williamson (2006), Black, Jang, and Kim (2003).

For further studies sample can be increased cause I have only investigated 16 companies. Another thing to mention for this study is that all sub indices which are shareholders, public disclosure and transparency, stakeholders and board of directors in Saha’s corporate governance score are not measured individually. So, each sub indice constructed in total corporate governance rating score might have different effect on firm performance. Lastly, findings are only related with Turkey, thus, the results for one country may not be applicable to other countries.
6. Conclusion

Corporate governance has played a very important role in the last decades. Scandals and Crises such as Maxell Corporation (1991), Barings Bank (1995), Enron (2001), WorldCom (2002), and Parmalat (2003) that are examples of high profile corporate corruption scandal showed that why corporate governance has become more important for economic development and a more important policy issue in many countries.

Most of empirical studies for exploring possible relationship between corporate governance and firm performance have focused on developed markets but very little work has been done on how corporate governance affects the firm performance in emerging markets.

The main purpose of this study is to corporate investigate the relationship between Saha’s corporate governance rating score which is acquired our Corporate Governance Rating license from the Turkish Capital Markets Board (CMB), and firm performance measured by return on asset, return equity and return on sales. It also attempts to determine whether better governed firms measured by high corporate governance score have better firm performance.

In the first chapter, corporate governance is defined with narrow and broad definitions. The importance of corporate governance is discussed with with reasons.

In Chapter 2 , development of corporate governance is explained and corporate governance scandals around the world are showed. The principles of corporate governance are discussed under the sections which are shareholder, disclosure and transparency, stakholders and board of directors focusing OECD principles and CMB principles in Turkey.

Theoretical perspectives and related literature of corporate governance and firm performance is given in the third chapter. Empirical studies on the corporate governance using a composite corporate governance score or index against firm performance measures are reviewed and discussed in detail. Chapter 4 presents data and methodology. Empirical results and summary of findings are presented in Chapter 5.

The regression analysis is conducted for hypothesis testing. With the help of The Hausman specification test, model selecting process suggests that random effect model should
be used instead of fixed effect model. Return on asset, return on equity and return on sales are regressed against Saha corporate governance score based on random effect model. The summary of the results of the estimation of regressions for the dependent variable return on asset (ROA) based on random effect model shows that Saha corporate governance score is highly significant. It means that there is highly significant relation between Saha corporate governance score and return on asset.

The summary of the results of the estimation of regressions for the dependent variable return on equity (ROE) shows that Saha corporate governance score is highly significant based on random effect model. In addition, random effect model in this regression improves the significant level of coefficients from 10% to 5%. All these results show that there is highly significant relation between Saha corporate governance score and return on asset.

However, according to random effect model, Saha corporate governance score is not statistically significant and it has not really impact on return on sales.

To summarize, The result of regressing return on asset, return on equity against Saha’s corporate governance rating score indicates that there is a significantly relationship between corporate governance and firm performance. The result of regressing return on sales indicates that there is no statistically significant relation between Saha’s corporate governance score and return on sales. The results based on Saha Corporate Governance Rating Score suggests that corporate governance does matter stock market in Turkey. It suggests that better governed firms measured by high corporate governance score have better performance.

For further studies, It can be better to conduct the analysis with greater sample sizes which are gathered throughout many years cause I have only investigated 16 companies. Another thing to mention for this study is that all sub indices which are shareholders, public disclosure and transparency, stakeholders and board of directors in Saha’s corporate governance score are not regressed individually. So, each sub indice constructed in total corporate governance rating score might have different effect on firm performance. Lastly, findings are only related with Turkey, thus, the results for one country may not be applicable to other countries.
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Parkinson, J., (1994), Creating Corporate Social Responsibility Orientation through Strategic Change and Organization, Benedictine University, Missouri


**APPENDIX**

Table 9: Regression results: Return on Asset as the Dependent Variable and Saha Corporate Governance Rating Score as the Independent Variable

Model 1: Pooled OLS, using 45 observations

Included 16 cross-sectional units

Time-series length: minimum 2, maximum 3

Dependent variable: ROA

Robust (HAC) standard errors

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>const</td>
<td>-1.07798</td>
<td>0.35156</td>
<td>-3.0663</td>
</tr>
<tr>
<td>Saha_Governance</td>
<td>0.0134801</td>
<td>0.00415369</td>
<td>3.2453</td>
</tr>
</tbody>
</table>

Mean dependent var 0.043216 S.D. dependent var 0.070245

Sum squared resid 0.178227 S.E. of regression 0.064380

R-squared 0.179100 Adjusted R-squared 0.160009

F(1, 43) 9.381525 P-value(F) 0.003773

Log-likelihood 60.60342 Akaike criterion -117.2068

Schwarz criterion -113.5935 Hannan-Quinn -115.8598

rho 0.495124 Durbin-Watson 0.592719

---

Fixed effects estimator

allows for differing intercepts by cross-sectional unit

slope standard errors in parentheses, p-values in brackets

| const:         | -1.047      | (0.45457)  | [0.02890] |
| Saha_Governance: | 0.013108   | (0.0054646) | [0.02336] |

16 group means were subtracted from the data

Residual variance: 0.064181/(45 - 17) = 0.00229218

Joint significance of differing group means:

F(15, 28) = 3.31695 with p-value 0.00298847
(A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative.)

Breusch-Pagan test statistic:
LM = 9.76456 with p-value = prob(chi-square(1) > 9.76456) = 0.00177908
(A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the random effects alternative.)

Variance estimators:
between = 0.00275537
within = 0.00229218
Panel is unbalanced: theta varies across units

**Random effects estimator**
allows for a unit-specific component to the error term
(standard errors in parentheses, p-values in brackets)

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>const</td>
<td>-1.0638</td>
<td>(0.36299)</td>
<td>[0.00540]</td>
</tr>
<tr>
<td>Saha_Governance</td>
<td>0.013316</td>
<td>(0.004389)</td>
<td>[0.00386]</td>
</tr>
</tbody>
</table>

**Hausman test statistic:**
H = 0.00437661 with p-value = prob(chi-square(1) > 0.00437661) = 0.947254
(A low p-value counts against the null hypothesis that the random effects model is consistent, in favor of the fixed effects model.)

**Table 10: Regression results: Return on Equity as the Dependent Variable and Saha Corporate Governance Rating Score as the Independent Variable**

Model 2: Pooled OLS, using 45 observations
Included 16 cross-sectional units
Time-series length: minimum 2, maximum 3
Dependent variable: ROE
Robust (HAC) standard errors

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>const</td>
<td>-2.10195</td>
<td>1.11405</td>
<td>-1.8868</td>
</tr>
<tr>
<td>Saha_Governance</td>
<td>0.026587</td>
<td>0.0132382</td>
<td>2.0084</td>
</tr>
</tbody>
</table>

Mean dependent var 0.109406 S.D. dependent var 0.164658
<table>
<thead>
<tr>
<th>Sum squared resid</th>
<th>1.041677</th>
<th>S.E. of regression</th>
<th>0.155644</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-squared</td>
<td>0.126798</td>
<td>Adjusted R-squared</td>
<td>0.106491</td>
</tr>
<tr>
<td>F(1, 43)</td>
<td>6.244061</td>
<td>P-value(F)</td>
<td>0.016361</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>20.87896</td>
<td>Akaike criterion</td>
<td>-37.75793</td>
</tr>
<tr>
<td>Schwarz criterion</td>
<td>-34.14460</td>
<td>Hannan-Quinn</td>
<td>-36.41092</td>
</tr>
<tr>
<td>rho</td>
<td>0.351776</td>
<td>Durbin-Watson</td>
<td>0.653940</td>
</tr>
</tbody>
</table>

**Fixed effects estimator**

allows for differing intercepts by cross-sectional unit
slope standard errors in parentheses, p-values in brackets

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>const</td>
<td>-2.0646</td>
<td>(1.2173)</td>
<td>[0.10095]</td>
</tr>
<tr>
<td>Saha_Governance</td>
<td>0.026138</td>
<td>(0.014633)</td>
<td>[0.08490]</td>
</tr>
</tbody>
</table>

16 group means were subtracted from the data

Residual variance: \(0.460228/(45 - 17) = 0.0164367\)

Joint significance of differing group means:
\[F(15, 28) = 2.35833\] with p-value 0.0241907
(A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative.)

Breusch-Pagan test statistic:
\[LM = 4.97049\] with p-value = prob(chi-square(1) > 4.97049) = 0.0257833
(A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the random effects alternative.)

Variance estimators:
- between = 0.014214
- within = 0.0164367
Panel is unbalanced: theta varies across units

**Random effects estimator**

allows for a unit-specific component to the error term
(standard errors in parentheses, p-values in brackets)

<p>| | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>const</td>
<td>-2.0314</td>
<td>(0.9122)</td>
<td>[0.03124]</td>
</tr>
<tr>
<td>Saha_Governance</td>
<td>0.025732</td>
<td>(0.010957)</td>
<td>[0.02351]</td>
</tr>
</tbody>
</table>

**Hausman test statistic:**
\[H = 0.00189866\] with p-value = prob(chi-square(1) > 0.00189866) = 0.965244
(A low p-value counts against the null hypothesis that the random effects model is consistent, in favor of the fixed effects model.)

Table 11: Regression results: Return on Sales as the Dependent Variable and Saha Corporate Governance Rating Score as the Independent Variable

Model 3: Pooled OLS, using 45 observations
Included 16 cross-sectional units
Time-series length: minimum 2, maximum 3
Dependent variable: ROS
Robust (HAC) standard errors

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>const</td>
<td>-2.58158</td>
<td>1.28191</td>
<td>-2.0139</td>
</tr>
<tr>
<td>Saha_Governance</td>
<td>0.0307342</td>
<td>0.0148363</td>
<td>2.0715</td>
</tr>
</tbody>
</table>

Mean dependent var | -0.025279 | S.D. dependent var | 0.429020
Sum squared resid  | 7.896429  | S.E. of regression | 0.428530
R-squared          | 0.024959  | Adjusted R-squared | 0.002284
F(1, 43)           | 1.100716  | P-value(F)         | 0.299970
Log-likelihood     | -24.69657 | Akaike criterion   | 53.39313
Schwarz criterion  | 57.00646  | Hannan-Quinn       | 54.74014
rho                 | 0.297362  | Durbin-Watson      | 0.564387

Fixed effects estimator
allows for differing intercepts by cross-sectional unit
slope standard errors in parentheses, p-values in brackets

| const: | -3.6088 | (2.5469) | [0.16753] |
| Saha_Governance: | 0.043085 | (0.030618) | [0.17038] |

16 group means were subtracted from the data

Residual variance: 2.01483/(45 - 17) = 0.0719583
Joint significance of differing group means:
F(15, 28) = 5.44908 with p-value 5.7962e-005
(A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative.)

Breusch-Pagan test statistic:
\[ LM = 17.117 \text{ with } p\text{-value } = \text{prob}(\chi^2(1) > 17.117) = 3.51455\times10^{-05} \]
(A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the random effects alternative.)

Variance estimators:
\text{between } = 0.143168 \\
\text{within } = 0.0719583 \\
Panel is unbalanced: theta varies across units

Random effects estimator
allows for a unit-specific component to the error term
(standard errors in parentheses, p-values in brackets)

\[ \begin{align*}
\text{const:} & \quad -3.2688 \quad (2.1903) \quad [0.14289] \\
\text{Saha_Governance:} & \quad 0.039106 \quad (0.026292) \quad [0.14421]
\end{align*} \]

Hausman test statistic:
\[ H = 0.0724605 \text{ with } p\text{-value } = \text{prob}(\chi^2(1) > 0.0724605) = 0.787787 \]
(A low p-value counts against the null hypothesis that the random effects model is consistent, in favor of the fixed effects model.)