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**MASTER'S THESIS**

**THE EFFECT OF GENDER DIVERSITY  
ON FIRM PERFORMANCE**

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## ABSTRACT

### THE EFFECT OF GENDER DIVERSITY ON FIRM PERFORMANCE

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The board gender diversity of firms and the effect of this diversity on performance has become a remarkable issue in recent years. Thanks to the rapidly increasing efforts in the field of corporate governance, many studies have been carried out around the world on the effects of gender diversity in firms' boards of directors on performance. In this thesis, we investigate the relationship between board gender diversity and firm performance on firms included in the Borsa Istanbul (BIST) 100 index for the period between 2016 and 2019. To measure firm performance both accounting-based measures; return on assets (ROA), return on equity (ROE) and market-based measure; Tobin's Q were used. We find that board gender diversity negatively effects firm performance.

**Keywords:** Gender Diversity, Women Directors, Firm Performance, Corporate Governance, Borsa Istanbul (BIST) 100.

## ÖZET

### CİNSİYET ÇEŞİTLİLİĞİNİN FİRMA PERFORMANSI ÜZERİNDEKİ ETKİSİ

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Şirketlerin yönetim kurulu cinsiyet çeşitliliği ve bu çeşitliliğin performansa etkisi son yıllarda dikkat çekici bir konu haline gelmiştir. Kurumsal yönetim alanında hızla artan çalışmalar sayesinde dünya genelinde şirketlerin yönetim kurullarında cinsiyet çeşitliliğinin performansa etkileri konusunda pek çok çalışma gerçekleştirilmiştir. Bu çalışmada, 2016-2019 yılları arasında Borsa İstanbul (BIST) 100 endeksinde yer alan şirketlerin yönetim kurullarındaki cinsiyet çeşitliliği ile firma performansı arasındaki ilişki incelenmiştir. Şirket performansını ölçmek için hem muhasebe tabanlı aktif karlılık oranları (ROA), özkaynak karlılık oranı (ROE) hem de piyasa tabanlı Tobin's Q kullanılmıştır. Sonuç olarak yönetim kurulundaki cinsiyet çeşitliliğinin şirketlerin performansını negatif yönde etkilediği tespit edilmiştir.

**Anahtar Kelimeler:** Cinsiyet Çeşitliliği, Kadın Yöneticiler, Firma Performansı, Kurumsal Yönetim, Borsa İstanbul (BIST) 100.

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## **LIST OF ABBREVIATIONS**

BIST	: Borsa Istanbul
CAC	: Corporate Affairs Commission
CRSP	: Center for Research in Security Price
DAX	: Deutscher Aktienindex
EBITDA	: Earnings Before Interests, Taxes, Depreciation and Amortization
FTSE	: Financial Times Stock Exchange
ISE	: Istanbul Stock Exchange
NPM	: Net Profit Margin
OECD	: Organisation for Economic Cooperation and Development
OPM	: Operating Profit Margin
ROA	: Return on Assets
ROE	: Return on Equity
ROI	: Return on Investment
ROS	: Return on Sales
ROIC	: Return on Invested Capital
SPK	: Sermaye Piyasası Kurulu – Capital Market Board
S&P	: Standard and Poor's
UK	: United Kingdom
USA	: United States of America



## CHAPTER 1

### CORPORATE GOVERNANCE

#### 1.1 Concept of Corporate Governance

Corporate governance is the obligation that firms are responsible for implementing in the interests of both themselves and their investors (Kılıç & Benligiray, 2012). The reason why the concept of corporate governance is given importance in many countries today is to prevent the recurrence of the crises that occurred in the past and deeply affected the economy (Çonkar, Elitaş, & Atar, 2011). Corporate governance is to provide the level of trust required for the efficient functioning of capital markets (Yusoff & Alhaji, 2012). Corporate governance aims to use the assets that invested by the shareholders in the firm by the managers for the purposes of the firm and to make accurate and reliable explanations to the shareholders about the results of these assets (Aysan, 2007). The concept of corporate governance started to be mentioned for the first time in 1978 with the corporate management code published in the USA (Aguilera & Cuervo-Cazurra, 2009). The Cadbury Report, prepared by the London Stock Exchange in 1992, is regarded as the first study that pioneered the emergence and development of corporate governance (Arslantaş & Fındıklı, 2010).

The management of firms of various sizes in the world affects many areas, especially the country's economies. Investors and shareholders lose their trust in businesses due to financial crises and firm scandals that occurred past years. Market values of firms are also negatively affected by these situations. The concept of globalization, which gained more importance as firms started to compete with each other, caused an increase in the activities of firms. Due to these increases in activities, the need for accountability has also increased (Abdullah & Valentine,

2009). With the Watergate scandal in the 1970s, new regulations were introduced in firm management. After important firm scandals such as WorldCom, Xerox, Enron, Ahold, Parmalat that occurred again in the 1990s, countries started to work more on corporate governance. Thus they introduced different regulations to the boards of directors of firms (Atilgan, 2017).

OECD Corporate Governance Principles which prepared and presented by the OECD to the public in 1999 reports that, corporate governance includes the relationships between all interest groups, defined as "the system that enables the management and control of business processes accordingly" (OECD, 1999). In later studies, this definition has been updated, and in addition to the previous definition, for corporate governance "it regulates the relations between the management of the enterprise, the board of directors, the shareholders and other shareholders, helps to determine the business objectives and reveals how to achieve these goals" description has been made (OECD, 2004).

When the corporate governance models of countries are examined around the world, there are differences according to countries. According to Franks & Mayer (1997), differences in corporate governance models between countries arise not because of differences in firms' financial systems, but because of the way ownership and control is regulated. In the 1950s, the approach to explain the differences in the corporate governance models of the countries according to the differences in the legal systems of the countries emerged. Two basic corporate governance models are created by this approach. They are the Anglo-Saxon Model and the Continental European Model.

According to this approach, shareholder protection is either by partnership concentration or by legal protection. In Continental European Model, countries' legal protection of shareholders is weak. Thus shareholders protect themselves through partnership concentration. In Anglo-Saxon Model countries, legal protection of shareholders is stronger than Continental European Model countries (Kula, 2006). Some of the founding elements that differentiate these corporate governance models are: Ownership structures of businesses, legal and regulatory laws, board structure, firms' obligations to inform the public, etc. Countries which implementing the

Anglo-Saxon Model are: USA, United Kingdom (UK), Canada and Australia. The Continental European Model is implemented by Germany, France, Austria, Italy, and Japan (Yücel, 2015).

With the increasing interest of the concept of corporate governance today, it has become important how the gender diversity in the board of directors has an impact on the managerial issues of the firms. It has been suggested by many theories that a board structure consisting of both men and women will make many contributions to the firms. This contributions are positively affect the performance of the firms compared to a board structure which consisting only of men.

### **1.1.1 Purpose of Corporate Governance**

We can argue that there are two main reasons why corporate governance is important. The first reason is to prevent corruption that may occur in the firm management and to prevent people who have a say in management from acting in line with their own interests. The second reason is to work to increase the firm performance. For this to happen, it is necessary to prepare an opportunity for managers and shareholders to be in a business environment that will satisfy them (Çıtak, 2006).

Corporate governance aims to provide the necessary conditions for organizations to maximize their profits and, consequently, business value (Quere, 2004). In addition to creating value, strengthening the welfare and success of the enterprise also draws attention in the field of corporate governance (Van Der Walt, Ingle, & Diack, 2001).

Corporate governance provides benefits between firm managers and shareholders. The purposes for the implementation of corporate governance activities in firms can be listed as follows (Aktan, 2013):

- To prevent the misuse of resources in line with the interests of those who have a say in the senior management of the firms.

- To protect the rights of short and long term investors who provide financing to the firm.
- To ensure that all firm shareholders are treated fairly and equally.
- To ensure that the interests of shareholders who are in contact with the firm are protected.
- To transparently disclose the activities and financial status of the firm to the public, and to fully announce the information that is important for the investors of publicly held firms.
- To ensure that the duties and responsibilities of the board of directors are clearly determined.
- Disclosing the decisions taken by senior management to the firm's shareholders and investors.
- To reduce the agency cost.
- To ensure that when the firm earns a profit, it is distributed equally to its stakeholders.
- To prevent shareholders with high shares in the firm from taking over the rights of other shareholders.
- To build trust in investors who provide long-term financing to the firm.

### **1.1.2 Benefits of Corporate Governance**

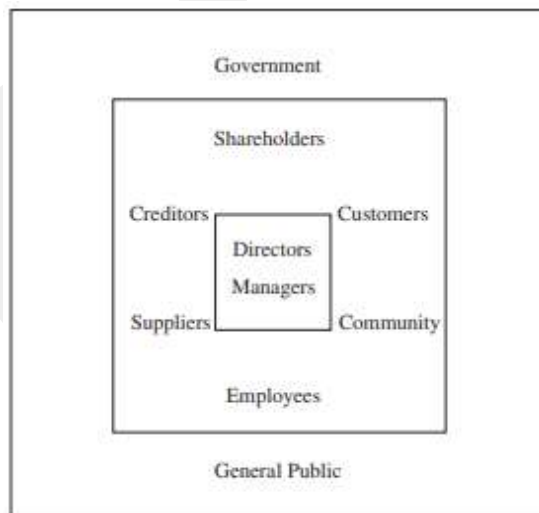
Rapid change in corporate sectors and competition between firms have caused to change the management understanding of enterprises and emerge to corporate governance principles. Factors such as the growth of national economies, the development of inter-country relations, the decrease in the functions of firm shareholders in management and the increase in the importance of the decisions made by senior executives have been effective in the emergence of the concept of corporate governance in the world (Engin & Abdioğlu, 2009).

Incidents such as fraudulent transactions, corruption and violations of rights in the management of firms have led to a decrease in investors' trust in firms. Thus, corporate governance principles have been established in order to prevent these

negativities. Audit activities, which can be applied successfully in all units of the firms, contribute to the development of corporate governance understanding and increase the trust of investors in the firm (Sürmen & Abdioğlu, 2020). When corporate governance is implemented effectively and correctly, it ensures beneficial use of the capital that available to investors. It obliges the members of the board of directors to be accountable to both the shareholders and the business in order for the board of directors to take the necessary responsibility in decisions taken within the firm. In this way, it is ensured that the shareholders protect their own benefits during the operations of the firms. Successfully and correctly implemented corporate governance plays an effective role in gaining the trust of foreign and domestic funding sources and finding long-term investors (Solomon, 2007).

Firms must have an audit mechanism in order for corporate governance to be carried out effectively. This control mechanism may be those who have direct interests in the firm, but also those who do not have any connection with the firm (Letza, Sun, & Kirkbride, 2004). Participants who are effective in auditing firms are given in the figure below.

*Figure 1: Relationship in Corporate Governance*

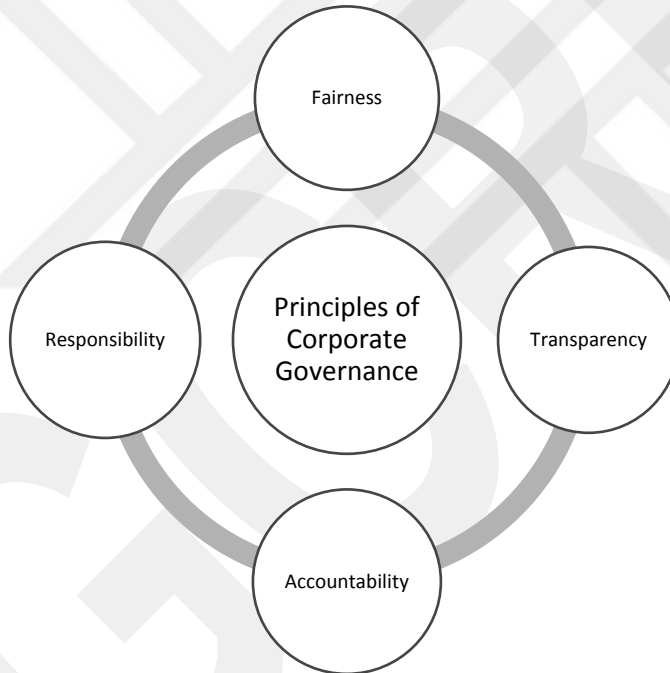


Source: (Letza, Sun, & Kirkbride, 2004)

## 1.2 Principles of Corporate Governance

Corporate governance has four main principles which are accepted all over the world. These are; fairness, transparency, accountability and responsibility (Çalışkan & İçke, 2009). The basic foundations of corporate governance are to treat all interest groups equally, to account for the activities carried out, to share all information equally and accurately with firms' owners and shareholders, and to act in a manner that reflects the values of the society and respects the specified rules (Öztürk & Demirgüneş, 2008). It is essential that these four principles can be applied in order to ensure corporate governance within the firm.

*Figure 2: Principles of Corporate Governance*



### 1.2.1 Fairness

Fairness refers to the equal treatment of all beneficiaries and stakeholders, both domestic and foreign, in all activities carried out by the firm and to protect the rights of investors. According to the fairness principle, all shareholders including minority and foreign shareholders should be treated equally. In this context; shareholders of the same type should be treated equally, all types of shareholders

should have the same voting rights. All changes in voting should be submitted to the shareholder's vote, and procedures of the general shareholder meeting should ensure that all shareholders are treated fairly, insider trading should be prohibited. This principle states that firm executives should be at an equal distance from all parties that will be affected by the decisions to be taken, and that the rights of all parties necessary for the existence of the should be respected, not just a certain segment (Doğan , 2007).

### **1.2.2 Transparency**

Transparency refers to the disclosure of all kinds of financial and non-financial information belonging to the firm in an accurate, reliable and understandable manner. With the implementation of the principle of transparency, shareholders and potential investors will feel safe and thus the possibility of the enterprise to provide capital to itself and the partnership benefit to be provided in the long term will increase. Black (2001) stated that for the formation of strong capital markets, minority shareholders should have sufficient knowledge about the operations of the firm and complex legal and institutional structures that will prevent firm managers and large shareholders from making decisions that will reduce the value of their investments. In order to achieve this, firms must be transparent and they should deliver all kinds of information that may affect the investor's decisions to shareholders and stakeholders in a complete, timely, accurate and reliable manner. Good corporate governance has often meant corporate ethics, and ethical behavior has found an explanation in transparency and public disclosure (Giill, 2008).

### **1.2.3 Accountability**

Accountability refers to the ability of the members of the board of directors to be accountable to the firm and the firm's shareholders in a correct, explanatory and complete manner. It is obligatory for firms to account for entitled shareholders. Accountability provides not only to shareholders, but also to all parties with a relationship with the firm. An investor and a lender who wishes to purchase shares in

the firm takes into account the financial success of the business. For this reason, it is important for firms to be transparent and accountable. Thus, it is possible to manage the business within the framework of the knowledge of all possible and available parties. This ensures that shareholders, other interested parties and potential investors trust the business (Demirbaş & Uyar, 2006).

#### **1.2.4 Responsibility**

Responsibility refers to the audits to be carried out in order to control the compliance of all activities carried out by the firm with the relevant legislation and ethical values. The firm's board of directors is primarily responsible for all activities and decisions of the firm. For this reason, the board of directors must fulfill its responsibilities in order to manage the firm. It is necessary to determine the areas of responsibility of the units by making the necessary distribution of duties within the business, and to reveal the framework of the relations of these units with the board of directors of the business, and to appoint independent members of the board of directors who can work in favor of the business independently and effectively. Therefore, a healthy division of labor should be made within the enterprise and responsibilities should be distributed within the framework of this division of labor (OECD, 2004).

### **1.3 Fundamental Theories of Corporate Governance**

When the theories that are important in the adoption of corporate governance understanding are examined, there are four important theories related to gender diversity and firm performance. These are Agency Theory, Resource Dependence Theory, Human Capital Theory, and Social Psychological Theory.

### 1.3.1 Agency Theory

Agency theory was developed by Jensen & Meckling (1976). Agency theory is defined as a "contract" between the principal and their agent to enable the proxies to perform services on their behalf (McColgan, 2001). Agency theory has wide application areas such as in finance, management and organization, economics, sociology, public administration, psychology, and law (Çoban, 2018). The monitoring function in the board of directors is important in reducing the disagreement between the principal-agent. In the studies conducted the monitoring functions in the boards with high gender diversity are more developed. Compared to men, female members have characteristics such as being more active on the board, taking more responsibility, being open to questions and discussions, and having more monitoring abilities (Tleubayev, Bobojonov, Gagalyuk, & Glauben, 2020).

According to the agency theory, there should be a balance between dependent and independent members on the board. Independent members who are in this balance can effectively control and supervise the senior management. In addition, board of directors is diverse in terms of gender will make the board of directors more independent and thus the decisions cannot be taken under the influence of any individual or group (Ocak, 2013). In this context, in any conflict of interest that may arise in a board of directors with a large number of independent members, the members will be in favor of protecting the rights of minority shareholders. Otherwise, in a board structure with a large number of dependent members, managers generally consent to the decisions of firm owners (Wagner, Stimpert, & Fubara, 1998). Increasing the number of independent members in the board of directors will prevent shareholders from acting in line with their own interests (Zahra & Pearce, 1989).

Having outside directors on the board prevents collusion within the firm that could occur within the firm and jeopardize the assets of the shareholders. Outside directors bring different perspectives and market knowledge to the firm, positively affecting both the independence of the board of directors and the firm performance (Carter, Simkins, & Simpson, 2003). Anderson & Reeb (2003) stated in the context of agency theory that, the performance of firms with a family-owned structure is

worse compared to other firms. The participation of independent members in the board of directors has significantly increased the performance of family-owned firms. This monitoring for family businesses is especially important for improving the board structures of firms in emerging markets (Unite, Sullivan, & Shi, 2019).

### **1.3.2 Resource Dependence Theory**

Resource dependency theory states that firms need various resources to survive. Therefore, the board of directors must provide the resources it needs by establishing relations with the external environment. Just like agency theory, resource dependency theory states that a higher number of independent members on the board may be more beneficial for the firm. It is claimed that the independent board members will further develop the firm's relations with the external environment. In this context, the resource dependency theory suggests that the resources needed by the firms can be obtained more quickly (Atilgan, 2017). Resource dependency theory argues that board diversity in firms (gender, race, education, etc.) ensures that the resources that are vital to the firm are preserved to minimize potential risks and optimize operational outcomes (Taljaard, Ward, & Muller, 2015)

Gender diversity in the board of directors enables the firm to further develop its relations with the external environment. In this way, it becomes easier for the firm to access the external resources it needs, because female directors can contribute to the board of directors by giving the firm different perspectives. Women also know more about the consumer market, because many of the purchasing decisions in household are made by women. In this way, it is more likely for women to understand customers by empathizing with them in business life compared to men (Tleubayev, Bobojonov, Gagalyuk, & Glauben, 2020).

### **1.3.3 Human Capital Theory**

Human capital theory claims that a board of directors structure consisting of different knowledge, skills, work experience, and other various characteristics

provides a positive impact on firm performance by providing management with different knowledge and perspectives in the decision-making process (Song, Yoon, & Kang, 2020). Based on human capital theory, Becker (1964) states that the knowledge and experiences of individuals can be useful in being more productive in the organization. According to human capital theory, the decisions to be taken in the board of directors will differ depending on gender diversity. However, the decisions taken as a result of this difference may have a positive or negative effect on the firm performance (Carter, D'Souza, Simkin, & Simpson, 2010).

#### **1.3.4 Social Psychological Theory**

Social psychological theory states that the majority of people within a given group have a high power to influence the decisions to be taken by the group, while those who are in the minority cannot be influential enough in group decisions. In this context, the diversity created in the board of directors will cause the emergence of different opinions and making it difficult to take decisions and prolong the decision-making process. Although social psychological theory states that the diversity in the board of directors will cause negative effects, it also suggests that the emerging different ideas will lead to the emergence of creative opinions and ideas (Otluoğlu, Sari, & Otluoğlu, 2016). According to some research results, it is argued that members of the minority within the group can help the emergence of different opinions in the process of making important decisions (Westphal & Milton, 2000). Palvia, Vähämaa, & Vähämaa (2015) state that behavioral differences between men and women will have many positive benefits for the boards of directors of firms.

#### **1.4 The Emergence of Corporate Governance and Development Process**

In this section, the concepts leading to the emergence of corporate governance are discussed.

### **1.4.1 Firm Scandals**

There are many factors that affect the development of corporate governance in the world. One of them is firm scandals in the USA and European countries. In order to prevent these scandals, countries have established corporate governance principles. Major firm scandals experienced; Enron, WorldCom, Parmalat, and Royal Ahold scandals.

#### **1.4.1.1 Enron Scandal**

Enron is one of the largest firms in the USA energy industry. Its shares increased from \$ 20 in mid-1999 to \$ 90 in a year. In 2001, it was revealed in the accounting records of Enron that the business actually made a loss, but this loss was hidden with the fluctuations in share prices. At the beginning of 2002, the firm's share value decreased to \$ 0.20. Investors were seriously negatively affected by the sudden drop in the share price. As a result of all these events, it has been revealed that the firm does not have a transparent management structure. It was unable to fulfill its responsibilities to investors and the society, and therefore, various legal arrangements had to be made. Enron's bankruptcy is known as the biggest bankruptcy in American history (Sagner , 2002).

#### **1.4.1.2 WorldCom Scandal**

The reasons behind the scandal experienced in the WorldCom firm are as follows: The firm focused on continuous income increase to ensure rapid growth in the 1990s, and accepted all kinds of business, even if short-term earnings are lower than long-term costs. As a result of the decrease in the demand for communication services, the firm's line expenses have become higher than the line revenues. The firm has found it appropriate to rent a network in order to respond to its customers instantly. In the contracts made, there is a serious compensation obligation in case of termination. The firm has started to resort to accounting tricks in order to reach the targeted performance level. In this process, the firm underestimated its expense

accruals, recorded non-real income, and acted optimistically in calculating its doubtful receivables. The scandal was inevitable when the faulty practices of the independent audit firm Arthur Andersen were added to all this (Uyar, 2015).

#### **1.4.1.3 Parmalat Scandal**

Another of the biggest corporate scandals ever after Enron and WorldCom is the Parmalat scandal. When the struggle of the firm to pay its debts occurred in late 2003, these problems experienced in the firm attracted the attention of the society and the media. During this period, the firm could not pay its debts and this caused the share prices to decrease due to the decrease in investors' confidence in the firm. Another reason why Parmalat went bankrupt is the firm's board of directors. Although the board of directors consisted of 13 members, only 3 of these members were independent members. There was uncertainty about the distribution of tasks among managers and nobody was interfering with someone else's business. The scandal broke out after Parmalat's failure to pay the 500 million euro bill. In the collapse of Parmalat; The inability of the credit rating agency to recognize the current situation, the billions of Euro bonds that the firm put into the market, and the carelessness of the audit institutions are among the major factors in the emergence of this collapse (Wearing , 2005).

#### **1.4.1.4 Royal Ahold Scandal**

Royal Ahold ranks as the third largest retail food group firm in the world. In early 2003, the firm declared US-based revenue of \$ 500 million. During this period, Royal Ahold's financial affairs officer and board director have directly resigned. The new head of the board of directors was in full control of the firm. Having signed a long-term contract with the firm, the new chairman of the board was also constantly increasing the salary that managers should receive. The firm's managerial prestige was low profile among investors because the board members acted in their own interests in the management of the firm. In 2001, the firm made a vote stating that the firm's shareholders could not oppose the decisions taken by the board of directors,

and this voting was accepted by the board. This management order, which the managers put into practice, has caused many wrong decisions by the firm to the detriment of its shareholders. Due to this mismanagement strategy, Royal Ahold lost its prestige against those who invested in the firm (Mallin, 2007).

## **1.5 Developments in the World in the Field of Corporate Governance**

Many activities have been carried out to improve corporate governance in the world. The most important activities are the reports published to bring corporate governance understanding to countries. In this section, these reports published for the adoption of corporate governance understanding are explained.

### **1.5.1 Cadbury Committee Report**

The Cadbury Report was published in 1992 with the recommendations of the Cadbury Committee. In this published report, the framework of corporate governance principles has been determined in general and the recommendations made in this field have become a globally accepted model. The report, chaired by Sir Adrian Cadbury, is the first practice that publicly traded firms should follow within the framework of the principle of "apply or explain if you cannot apply" in order to raise corporate governance standards and increase confidence in financial reporting and auditing.

The first draft report that came out of the committee's work attracted considerable attention when it was announced in order to obtain the opinions of experts. The report evaluated by experts in the field of corporate governance was generally supported by many people despite various negative criticisms. It has been recognized that the Cadbury Committee's work is progressing correctly, and that the results are attracted by many communities (Committee on the Financial Aspects of Corporate Governance, 1992). The Cadbury Report briefly consists of the following recommendations (Jones & Pollitt, 2004):

- Single person should not in a decision-making position on the board. Thus authorities and responsibilities should be shared in the management of the firm.
- Most of the members of the board of directors should be independent members.
- There must be at least three independent members on the supervisory boards of firms.
- The majority of the remuneration committee should consist of independent members.
- Independent members should be elected by the board of directors.

### **1.5.2 Greenbury Report**

The purpose of the Greenbury Report was to study the arrangements to be made regarding salaries paid to senior management of businesses. The most fundamental factor in the emergence of this study is that the salaries of the managers of the firms in England have increased gradually over the years. The Greenbury Report was conducted on 17 July 1995, chaired by Sir Riichard Greenbury. In the report, it is mandatory that the earnings of senior executives in public firms are disclosed in detail and the payments made to the board of directors are shown in a transparent manner. The Greenbury Report briefly consists of the following recommendations (Karayel, 2006):

- The remuneration committee supervises and regulates the revenues of senior management and the general manager.
- Ensuring the level of clarity to meet the shareholders' needs regarding the remuneration of senior executives and whether these fees have been approved by the shareholders.
- Regulation of the basic elements in determining the salaries of senior managers.

- To assist the executives in arranging the necessary contract for compensation that will arise as a result of the termination of their duties in case of an unsuccessful management performance.

### **1.5.3 Hampel Report**

The Hamper Report is obtained as a result of updating and combining the Greenbury and Cadbury reports. It has the feature of a report that enables the elimination of some problems and the clarification of the issues that are not clearly expressed. The Hampel Report focuses on good governance principles. The reason for this is to create flexible rules by reducing the burden on firms and to make them suitable for all firms (Owen & Kirchmaier, 2008). It is stated in the report that the managers are responsible for the relations with the stakeholders, but they also have to be accountable to the shareholders. In addition, the report discusses the role of institutional investors in the business in which they invest (Mallin, 2007). The Hampel Report briefly consists of the following recommendations (Pulaşlı, 2003):

- All investors, including individual and corporate, control each other and are in a competitive market.
- Shareholders have the right to buy and sell stocks and cannot give up these rights.
- Shareholders are obliged to account and report for activities carried out on the board of directors.
- Shareholders and managers will not be able to perform the same task due to their different positions in the firm.

### **1.5.4 Sarbanes-Oxley Act**

The Sarbanes-Oxley Act was enacted in the US in 2002 after the Enron crisis. With this law, new regulations were introduced to firms in the fields of financial reporting, corporate governance and auditing. With these regulations made in the

field of corporate governance, firms were asked to explain and develop their own corporate governance principles (Neal & Cochran, 2008). According to the Sarbanes-Oxley law, businesses had to declare all their practices, especially off-balance sheet activities, in more detail. This report has increased the penalties for business managers to prevent firms from reporting incorrectly. The Sarbanes-Oxley Act briefly consists of the following recommendations (Güngör, 2003):

- Criminal law has been introduced within the scope of corporate governance practice.
- Public Firms Accounting Oversight Board (PCAOB) was established.
- New rules were introduced for financial reporting.
- The role and independence of audit committees has been strengthened.

#### **1.5.5 OECD Corporate Governance Principles**

The OECD Corporate Governance Principles were approved by the OECD Council of Ministers in 1999 and have become an international reference source for decision makers, firms, stakeholders and investors all over the world. The OECD Corporate Governance Principles are important in the development of international common awareness of the good corporate governance system. The principles established by these elements are important in the establishment, evaluation and development of regulations regarding corporate governance in terms of laws, regulations and practices for OECD member or non-member countries. OECD Corporate Governance Principles consist of the following headings (OECD, 2004):

- Establishing an Effective Corporate Governance Framework
- Shareholders' Rights and Basic Ownership Functions
- Fair Treatment of Shareholders
- The Role of Stakeholders in Corporate Governance
- Public Announcement and Transparency
- Responsibilities of the Board of Directors

## **1.6 Developments in Corporate Governance in Turkey**

Due to the large number of small-scale firms, state-owned firms and family businesses corporate governance practices has lagged behind the developed countries in Turkey. The provisions of financial information disclosures, which form the basis of corporate management systems, stipulated in the Turkish Commercial Code, Capital Market Law, and Banking Law are mostly related to the information needs of the partners. These provisions are not designed to meet the information needs of information users other than partners. However, after international accounting scandals such as Enron, Parmalat and others, measures have been taken to develop corporate management systems and techniques for businesses around the world. Turkey also received the corporate governance measures in the field of corporate governance and may be associated in this area there have been improvements in many areas (Yenigün , 2008).

Studies in the field of corporate governance in Turkey has started late when compared to many European countries. The concept of corporate governance, which emerged in the USA and UK, gained importance as a result of the emergence of financial crises. This case studies in the field of corporate governance in Turkey has gained momentum as a result of the 2001 economic crisis. Although work in this area has started late, rapid progress has been made in the field of corporate governance (Doğan , 2007).

Capital Markets Board is making efforts to adopt the corporate governance understanding of public firms in Turkey. For this reason, it has been asking firms to prepare a "Corporate Governance Compliance Report" since the 2003 (Akdoğan & Boyacıoğlu, 2010). It has been aimed that firms adopt the corporate governance approach since the publication of the corporate governance compliance report until 2011, and no obligation has been imposed on the firms. However, since 2011, firms have been required to comply with some principles in this report. Since the aim is to increase the efficiency of the board of directors, firms are obliged to comply with the principles prepared in this regard (Atılğan, 2017).

In Turkey, with " Concerning the Determination of Corporate Governance Principles and Implementation Communiqué Amending the Communiqué " the principle of having at least one female member in the board of directors is regulated (SPK, 2013).



## CHAPTER 2

### BOARD OF DIRECTORS

#### 2.1 Concept of Board of Directors

With the inclusion of corporate governance in different economies and literature around the world, firms attach more importance to the boards of directors. As stated in the concept of corporate governance, board of directors is a firm structure that prioritizes the interests of shareholders. The main purpose of the board of directors is to follow the decisions made by the firm and to prevent problems that may arise between the firm owner and the managers (Jensen & Meckling, 1976). The board of directors is an effective decision-making mechanism in changing the direction of the firm, as it has important duties such as protecting the interests of the right holders and making strategic decisions (Triana, Miller, & Trzebiatowski, 2014).

According to Baranchuk & Dybvig (2009), the board of directors has the authority to supervise and independently direct the managers in the firm rather than the firm shareholders within the scope of agency theory. In other words, it provides the control of the behaviors made to the detriment of the firm owners and the decisions taken. The board of directors has duties such as preventing agreements that would put the firm at risk in line with their own interests and protecting the rights of shareholders who cannot have a say in the management of the firm (Atilgan, 2017). In addition, the board of directors has many duties such as advising firm executives, providing information transmission between the business and its external environment, and supporting the business in various matters (Ocak, 2013).

Members of the board of directors are responsible for achieving the targets set for the firm to which they are affiliated. The members of the board of directors elected by the firm partners manage and represent the firm, convene the general assembly, implement the general assembly resolutions, and hold meetings and make important decisions about the firm. Selecting the managers in the firm, determining the wages of the managers, making decisions and taking measures regarding the financial situation of the firm, etc. are the duties of the board of directors (Taşkın & Mandacı, 2017).

Board of directors is the highest level decision-making department of firms. The board also has executive and representation features. It plays an important role in determining the vision and mission of the firms and making them public. It examines the extent to which firms have achieved their goals, past and current activities. It pays attention to comply with international standards while making these examinations. It takes measures, if necessary, for problems and delays in firms (SPK, 2005).

## **2.2 Duties and Responsibilities of the Board of Directors**

Every firm should be led by an effective board of directors that is responsible for its own success. The role of the board of directors is to provide entrepreneurial leadership for the firm. While performing this role, it should establish a prudent and effective control system infrastructure that enables the assessment and management of potential risks. The board of directors should determine the strategic goals of the firm, provide the required financial resources and manage the required human resources in order to achieve its goals. While doing all this, it should also fulfill the duty of reviewing the management. The board of directors should also establish firm values and standards in order to fulfill its obligations. In addition, all directors should make decisions for the firm's interests and act accordingly (Knell, 2006).

The main duties and responsibilities that the board of directors should fulfill in the committees formed under the board of directors, in addition to their main functions, by taking their opinions, can be listed as follows (SPK, 2005):

- The board of directors approves the firm's annual budget and business plans.
- Prepares the firm's annual activity reports and presents them to the general assembly.
- Ensures that the general assembly meetings are held in accordance with the legislation and the firm's articles of association and fulfills the decisions taken from the general assembly.
- Checks the purpose of the expenditures made over 10% of the total assets in the firm's final balance sheet.
- Approves the career plans and rewards of managers.
- Determines the policies regarding the firm's shareholders, stakeholders and public relations.
- Determines the information policy of the firm in line with the information to be made public.
- Determines ethical rules for the firm and its employees.
- Determines the working principles for the established committees to work effectively and efficiently.
- Takes the necessary measures to ensure that the organizational structure of the firm responds to the current conditions.
- The current board of directors examines the activities of the previous board of directors in line with the change in the process.

### **2.3 Board of Directors Structure**

The board of directors structure serves as a mechanism that contributes to the supervision and control of top executives in firms. In terms of management systems, boards of directors have led to the emergence of different structures among countries.

Basically, two types of board of directors can be mentioned in firm structuring. These are a one-tier board structure and a two-tier board structure. In one-tier board of directors, executive board members and non-executive board members come together to form a single management system. In the system created in this way, the executive board members have two functions. First of all, they are

responsible for the board of directors as they are members of the board of directors. On the other hand, as executives, they are responsible for internal operations and the daily practice of the board of directors. In the two-tier board structure, only non-executive board members are included in the "top-level" board of directors. The main duties of the board of directors formed in this structure are audit, strategic consultancy and control. The other structure of the board of directors in the two-tier management system consists of only executive members. This board is responsible for the implementation of strategic decisions that are important for the firm. (Van den Berghe , Elst, Carchon, & Levrau, 2002).

#### **2.4 Board of Directors and Gender Diversity Relationship**

The relationship between the board of directors and gender diversity has become the most interesting issue in the field of corporate governance in recent years. Many researchers argue that having more women in corporate leadership positions will bring many benefits both socially and economically. In addition, the increase in the number of female members on corporate boards helps women to be more successful in corporate life by helping to eliminate the "glass ceiling" effect, while also helping to eliminate the situations that prevent their career development (Unite, Sullivan, & Shi, 2019).

On the other hand, the fact that the more diverse board structure helps to increase the performance of the firm by increasing the diversity of the resources used by the enterprises (Ayuso & Argandoña, 2007). The reason why gender diversity has become such an important issue in business life may be related to the difficulties women experience in recruitment and promotion (Passaribu, Masripah, & Mindosa, 2019).

Singh & Zammit (2000) stated in their study that the presence of female members in the board of directors reveals different ways of thinking within the firm. It also shows that women are more successful than men in matters such as communication, problem solving and decision making (Karayel & Doğan, 2014). Therefore, the increase in gender diversity in the board of directors contributes to the

emergence of different perspectives in the firm, helping the decisions taken in management to be more effective, making more strategic planning, and easier adaptation to the changes in the market (Wiersema & Bantel, 1992; Perryman, Fernando, & Tripathy, 2016). In studies conducted on this subject, it is stated that female board members act more cautiously than male managers when making important decisions about the firm (Levi, Li, & Zhang, 2014).

The heterogeneous structure of the board of directors improves the performance of the firm by increasing the workforce diversity (Rose, 2007; Song, Yoon, & Kang, 2020). Having female managers on the board of directors contributes to the emergence of more creative ideas (Triana, Miller, & Trzebiatowski, 2014). Female managers have a different mentality than male managers thanks to their different experiences in both business and social life. In this way, they have the ability to better understand the firm's marketplace (Smith, Smith, & Verner, 2006).

Gender diversity in the board of directors makes many contributions to the firm. A heterogeneous board of directors structure is an important factor for the firm to be more successful in external relations and to provide the resources it needs. Women are more capable of collaborating and working in teams, acting emotionally and intuitively in decision making, and sharing information, while men are more successful in competing, analytical thinking, and less emphasis on decision making. Considering the different characteristics of both women and men, the heterogeneous structure of the board of directors helps to create different and innovative ideas in the board and ensures that the right decisions are made at the right time (Ataünal & Aybars, 2018). In addition, since the presence of female members on the board of directors can also serve as a role model for female employees in the firm, it can increase the work motivation of the employees and affect their performance positively (Smith, Smith, & Verner, 2006).

In the world, there is an increase in the number of female members in the boards of directors of firms due to both social pressure and regulations made by governments in corporate governance principles. However, this increase is still considered by researchers to be insufficient (Taşkın & Mandacı, 2017). It has been supported by many European countries that gender diversity positively affects the

performance of the board. In order to prove the effectiveness of this idea, various obligations have been imposed for firms to have female board members (Liu, Wei, & Xie, 2014). These obligations, enacted by many countries to support women in taking roles in senior management, also supported the development of corporate governance in firms.

Norway encouraged an increase in the proportion of women on boards of directors by passing a law in 2007 stated that the proportion of women on boards of public firms should not be less than 40%. (Ahern & Dittmar, 2012). The French government stipulated that at least 40% of the board of directors in large firms should be made up of women (Nekhili & Gatfaoui , 2013). The Italian government, on the other hand, stated that the proportion of female managers in firms should be at least 33%, otherwise firms could be fined 1 million euros (Chapple & Humphrey, 2014). The German government has made it mandatory that the proportion of female board members in firms should be at least 30% (Dauer, 2014). In Japan and Malaysia, the rate of female members on the board is determined to be at least 30%, while the Brazilian government has determined this rate as at least 40% (Passaribu, Masripah, & Mindosa, 2019). The Spanish government has stated that the proportion of female members on the boards of directors of firms should be at least 40% as of 2015. It has been reported that the ratio of female members on the board of directors should be 30% in the Netherlands as of 2013 (Taşkın & Mandacı, 2017).

The dominant thought in a part of the literature as a result of corporate governance theories and practice is that gender diversity in the board of directors for social and ethical reasons will positively affect its relationship with its stakeholders and business strategies (Harjoto, Laksmana, & Lee, 2015). Although it is argued that a heterogeneous board of directors will be more productive compared to a homogeneous board, this productivity may make it difficult or even prolonged for the firm to make a sudden decision to compete (Smith, Smith, & Verner, 2006). The heterogeneous structure of the board of directors sometimes brings with it many problems. The board of directors, which has many different perspectives, may occasionally cause differences of opinion and even the emergence of trust problems among managers (Song, Yoon, & Kang, 2020).

## CHAPTER 3

### LITERATURE REVIEW

#### **3.1 Worldwide Studies on Board Gender Diversity and Firm Performance**

In this part of the study, worldwide studies on the effect of board gender diversity and firm financial performance are included. These studies are divided into three sections; studies on positive relationship, studies on negative relationship and studies without any relationship.

##### **3.1.1 Worldwide Studies with a Positive Relationship Between Board Gender Diversity and Firm Financial Performance**

Erhardt, Werbel, & Shrader (2003) use 127 US firms for the period between 1993-1998 to analyze the effect of gender diversity on firm performance. They use ROI and ROA to measure financial performance and find a positive and significant relationship. Smith, Smith & Verner (2006) also find a positive and significant relationship. In their study, they analyze 2500 firms listed in Denmark for the years between 1993 and 2001. Financial performance is measured by Gross Profit/ Net Sales, Contribution Margin/ Net Sales, Operating Income/ Net Assets and Net Income After Tax/ Net Assets. Using Tobin's Q as a measure of firm performance, Campbell & Minguez-Vera (2008) finds that gender diversity in the board of directors has a positive effect on the firm performance. This study focuses on non-financial firms traded in Spanish Stock Exchange years between 1995-2000.

Julizaerma & Sori (2012) conclude that increase in the ratio of female members in the firms' board of directors increase the firms' Tobin's Q ratio. In other

words, gender diversity in the board of directors has a positive effect on firm performance. They use firms data listed in Bursa Malaysia Stock Exchange for the years between 2008 and 2009. Lückerath-Rover (2013) finds that firms with female board members performs high financial performance. The study examines 99 firms listed in Amsterdam Euronext Stock Exchange for the years between 2005 and 2007. Financial performance in this study is measured by ROE, ROS, and ROIC.

Joecks, Pull, & Vetter (2013) utilize data for 151 firms listed in DAX, MDAX, SDAX and TecDAX indices in Germany for the years between 2000 and 2005. They use ROE to measure the financial performance. They find negative relationship between the presence of female members in the board of directors and firm financial performance. However if the female board member ratio is over 30%, the board performs better than the performance of the board consisting of all male board members. Triana, Miller, & Trzebiatowski (2014) find that there are more women board members in firms with high financial performance compared to other firms. They used as a sample of 462 firms traded in the Fortune 500 index in the USA for the years between 2002 and 2004. Financial performance of the firms are measured by ROA.

Liu, Wei, & Xie (2014) used more than 2.000 firms listed on Shanghai and Shenzhen Stock Exchanges for the period between 1999 and 2011 to analyze the effects of gender diversity on firm performance. When ROA and ROS were used as a performance measure, they reports that gender diversity in legal person-controlled firms has a higher and positive effect on firm performance compared to state-controlled firms. Low, Roberts, & Whiting (2015) also find a positive and significant relationship between gender diversity and firm performance. They use as a sample of 308 Hong Kong, 2941 South Korea, 1241 Malaysia and 1013 Singapore firms for the period between 2012 and 2013. In their study, firm performance is measured by ROE. They reports that gender diversity in the board of directors has a positive effect on the firm performance.

Using ROA, ROE, and Tobin's Q as a performance measures, Sabatier (2015) collected data from 200 firms listed in French CAC40 index for the period between 2008 and 2012. Analysis results indicate that, presence of female members

on board have positive effect on firm financial performance. Perryman, Fernando, & Tripathy (2016) use as a research sample of 2,566 firms in ExecuComp, CRSP and Compustat datasets for the period between 1992 and 2012. They use Tobin's Q to measure firm performance and find that more diverse firms in the board of directors have better financial performance than others. Hassan, Marimuth, Tariq, & Aqeel (2017) investigate the relationship between board gender diversity and firm performance and they find a positive relationship. They gathered data from 84 non-financial firms for the years between 2008 and 2012 in Malaysia and financial performance is measured by ROE.

Appiadjei, Ampong, & Nsiah (2017) also find that as the number of female members on the board of directors increases, the performance of the firm also increases. They use as a research sample of 34 firms listed in Ghana Stock Exchange for the period between 2010 and 2014 and firm performance is measured by ROE and NPM. Khan, Hassan, & Marimuthu (2017) report that board gender diversity has a significantly positive effect on firms ROE ratio in Malaysian publicly listed firms. They gathered data from 100 non-financial firms listed in Malaysia Stock Exchange for the years between 2009 and 2013. Passaribu, Masripah, & Mindosa (2019) use non-financial firms listed in Indonesian Stock Exchange for the years between 2011 and 2016. They use ROA and OPM ratios to measure firm performance and conclude that female board members are effective in increasing the performance of the firm.

Song, Yoon, & Kang (2020) investigate the relationship between board gender diversity and firm performance in 320 lodging firms listed in USA for the years between 1993 and 2018. Tobin's Q was used to measure firm financial performance. According to the analysis they find a positive relationship between board gender diversity and firm financial performance. Tleubayev, Bobojonov, Gagalyuk, & Glauben (2020) also find a statistically positive relationship between board gender diversity and firm performance. They use as a research sample of 261 randomly selected agri-food firms in 2016 and the firm performance is measured by ROA and ROS. Brahma, Nwafor, & Boateng (2020) utilize data for firms traded in FTSE 100 index for the years between 2005 and 2016. Tobin's Q and ROA is used to measure firm financial performance and they find that female board members have a

positive effect on firm financial performance. Additionally firms with minimum 3 female board members have better performance than others firms.

### **3.1.2 Worldwide Studies with a Negative Relationship Between Board Gender Diversity and Firm Financial Performance**

Adams & Ferreira (2009) find that board gender diversity is not positively effect firm financial performance when Tobin's Q used as a performance measure. The data for this research is gathered from 1.939 USA firms listed in S&P 500, S&P MidCaps, and S&P SmallCap indices for the years between 1996 and 2003. Mirza, Andeleeb, & Ramzan (2012) also find that gender diversity on board of directors negatively effects firms performance when ROA and ROE used as a measure. This research consist of 395 non-financial firms traded in Karachi Stock Exchange in Pakistan for the period between 2004 and 2009.

Adnan, Sabli, & Abdullah (2013) use as a sample of 26 government-linked and 26 non-government-linked firms in Malaysia for the period between 2007 and 2010. When ROA and ROE used to measure firm performance, they find negative relationship between board gender diversity and firm financial performance. Shehata, Salhin, & El-Helaly (2017) find that board gender diversity has a negative effect on firm financial performance in 34.798 small and medium sized U.K. firms that used as a research sample for the period between 2005 and 2013. In their research, they use Tobin's Q ratio to analyze firm performance.

Using ROE as a performance measure Endraswati (2018) finds negative effects of board gender diversity on firm performance. This study focuses on 11 firms listed in Indonesia for the years between 2011 and 2015. Kompa & Witkowska (2018) used firms traded in Warsaw Stock Exchange in Poland for the period between 2010 and 2016 to analyze the effects of board gender diversity and firm performance. ROE and ROA is used to measure firm financial performance. As a result of the analysis they find negative relationship.

### **3.1.3 Worldwide Studies without any Relationship Between Board Gender Diversity and Firm Financial Performance**

Shrader, Blackburn, & Iles (1997) find that gender diversity on board of directors do not effect firm financial performance either positive nor negative. The research sample consist of 200 publicly traded firms in the United States for the period between 1992 and 1994 and financial performance mesured by ROA, ROE, ROI, ROS. Randøy, Thomsen, & Oxelheim (2006) investigate the relationship between board gender diversity and firm financial performance. They use as a research sample of 100 Danish, 86 Norwegian and 157 Swedish firms that publicly traded in 2005. Firm financial performance is measured by ROA and they find that gender diversity on the board of directors statistically has no effect on firm performance.

Rose (2007) executed a research consists of firms traded in Copenhagen Stock Exchange in Denmark for the years between 1998-2001. In the study, the number of firms that have at least one female board member is determined as 22%. This result reveals that the board of directors of firms in Denmark is male-dominated. In the study, no relationship found between firm performance and board gender diversity when Tobin's Q used as a performance measure. Marimuthu & Kolandaisamy (2009) utilize data from 100 firms traded in Malaysia Stock Exchange for the period between 2000 and 2006. ROA and ROE is used to measure firm financial performance and they report that gender diversity does not effect firm performance. Carter, D'Souza, Simkin, & Simpson (2010) reports that gender diversity have no effect on firm financial performace when ROA and Tobin's Q used as a performance measure. The data of this study is gathered from firms traded in the S&P 500 index for the period between 1998 and 2002.

Shukeri, Shin, & Shaari (2012) also reports that board gender diversity does not effect firm performance when ROE used as a performance measure. In their study, they analyze randomly selected 300 firms traded in Bursa Malaysia index in 2011. Agyapong & Appiah (2015) use non-financial firms traded in Ghana Stock Exchange for the period between 2007 and 2011 to analyze the effects of board gender diversity and firm performance. Financial performance is measured by ROA

and Tobin's Q. They declare that gender diversity does not effect firm financial performance. Marinova, Plantenga, & Remery (2016) also reports that gender diversity does not effect firm financial performance neither positive nor negative when Tobin's Q used as a performance measure. They gathered data from 102 Dutch and 84 Danish firms listed in 2007. Iren (2016) use as a research sample of 60 firms traded on Dubai Stock Exchange for the period between 2005 and 2012. Tobin's Q and ROA used to measure firm financial performance. Analysis results reports that presence of female board members have no effect on firm performance.

Using Tobin's Q as a performance measure, Charles, Dang, & Redor (2018) report that board gender diversity does not effect firm financial performance. The data of this research is gathered from S&P 100 index for the years between 1995 and 2010. Unite, Sullivan, & Shi (2019) executed a research consist of 200 firms traded in Philippine Stock Exchange for the years between 2003 and 2014. Financial performance was measured by ROA, ROE and Tobin's Q. As a result of the analysis they report that gender diversity have no effect on firm financial performance. Ben Slama, Ajina, & Lakhali (2019) also reports that board gender diversity does not effect firm financial performance neither positive nor negative when Tobin's Q and ROA used as a performance measure. The research sample consist of 89 firms traded in CAC All-Tradable index in France for the period between 2008 and 2011.

### **3.2 Studies on Board Gender Diversity on Firm Performance in Turkey**

In this part of the study, local studies conducted in Turkey about the effect of board gender diversity and firm financial performance are included. These studies are divided into three sections; studies on positive relationship, studies on negative relationship and studies without any relationship.

### **3.2.1 Studies with a Positive Relationship Between Board Gender Diversity and Firm Performance in Turkey**

Ararat, Aksu, & Tansel (2010) utilize data from firms traded in ISE 100 index in 2006. Financial performance is measured by ROE and Tobin's Q. Analysis results show that, female board members have significantly positive effect on firm financial performance. Solakoğlu (2013) use firms listed in National 100 index for the years between 2005 and 2006 to analyze the effect of gender diversity on firm performance. According to the analysis results, the effect of gender diversity on firm performance varies according to conditional distributions when ROA and ROI used as a accounting-based performance measure. It also conclude that there is no significant relationship between gender diversity and firm performance for non-production firms.

Ocak (2013) find that when the number of female board member is increase, firms' financial performances are also increases. The data of this research consists of 505 public firms listed in Turkey for the period between 2008 and 2012. Financial performance was measured by ROA. Karayel & Doğan (2014) gathered data from firms traded in BIST 100 index for the period between 2009-2012 and financial performance measured by ROA, ROE and Tobin's Q. They report positive association between board gender diversity and firm financial performance when ROA used to measure firm performance.

Solakoğlu & Demir (2016) collect data from firms traded in BIST 100 index for the period between 2002 and 2006. Financial performance is measured by ROA and ROE. They reports that gender diversity has a positive effect on the firm's return on assets. Additionally, gender diversity have a positive impact on local market firms, financial firms and family firms. Kılıç & Kuzey (2016) gathered data from 149 firms traded in BIST index for the years between 2008 and 2012. Financial performance was measured by ROA, ROE and ROS. Analysis findings show that, board gender diversity positively effect firm performance.

### **3.2.2 Studies with a Negative Relationship Between Board Gender Diversity and Firm Performance in Turkey**

Menteş (2011) utilize data from 123 firms traded in ISE Industrial Index for the period between 2004 and 2009. Tobin's Q and ROA is used to measure firm financial performance. They find a negative relationship when Tobin's Q used as a performance measure. Atılğan (2017) reports that there is a negative relationship between the presence of female members on board and firm financial performance. The research sample consist of 293 non-financial firms traded in BIST for the years between 2011 and 2016. Financial performance was measured by ROA, ROE, ROS, EBITDA and EBIDTA Margin.

Ataünal & Aybars (2018) also examine the relationship between board gender diversity and firm performance and they report that female board members have significantly negative effect on firm financial performance. The data of this study is gathered from 151 non-financial firms traded in Borsa Isanbul (Istanbul Stock Exchange) for the period between 2008 and 2015 and financial performance is measured by ROA, ROE, and Tobin's Q.

### **3.2.3 Studies without any Relationship Between Board Gender Diversity and Firm Performance in Turkey**

Kurtaran & Eker (2017) gathered data from 46 banks listed in Turkey for the period between between 2011 and 2013. Financial performance is measured by ROE. As a result of the analysis, it has been determined that gender diversity on board of directors does not effect firm financial performance. Using ROA and ROE as a performance measure, Yurt (2020) also could not find any relationship between board gender diversity and firm performance. The research sample consist of firms listed in BIST for the years between 2012 and 2017.

The studies described in this section are briefly summarized in the table below:

*Table 1: Summary of the Literature Review*

Authors	Year	Country	Period	Performance Measure	Result
Shrader et al.	1997	USA	1992-1994	ROA, ROE, ROI, and ROS	-*
Erhardt et al.	2003	USA	1993-1998	ROI and ROA	Positive
Randøy et al.	2006	Denmark, Norway, Sweden	2005	ROA	-*
Rose	2007	Denmark	1998-2001	Tobin's Q	-*
Campbell & Minguez-Vera	2008	Spain	1995-2000	Tobin's Q	Positive
Adams & Ferreira	2009	USA	1996-2003	Tobin's Q	Negative
Marimuthu et al.	2009	Malaysia	2000-2006	ROA and ROE	-*
Ararat et al.	2010	Turkey	2006	ROE and Tobin's Q	Positive
Carter et al.	2010	USA	1998-2002	ROA and Tobin's Q	-*
Menteş	2011	Turkey	2004-2009	Tobin's Q and ROA	Negative
Mirza et al.	2012	Pakistan	2004-2009	ROA and ROE	Negative
Shukeri et al.	2012	Malaysia	2011	ROE	-*
Julizaerna & Sori	2012	Malaysia	2008-2009	Tobin's Q	Positive
Lückerath-Rover	2013	Netherlands	2005-2007	ROE, ROS, and ROIC	Positive
Joecks et al.	2013	Germany	2000-2005	ROE	Positive
Adnan et al.	2013	Malaysia	2007-2010	ROA and ROE	Negative
Solakoğlu	2013	Turkey	2005-2006	ROA and ROI	Positive
Ocak	2013	Turkey	2008-2012	ROA	Positive
Triana et al.	2014	USA	2002-2004	ROA	Positive
Liu et al.	2014	China	1999-2011	ROA and ROS	Positive
Karayel & Doğan	2014	Turkey	2009-2012	ROA, ROE, and Tobin's Q	Positive
Agyapong & Appiah	2015	Ghana	2007-2011	ROA and Tobin's Q	-*
Low et al.	2015	H. Kong, S. Korea, Malaysia, Singapore	2012-2013	ROE	Positive
Sabatier	2015	France	2008-2012	Tobin's Q	Positive
Iren	2016	Dubai	2005-2012	Tobin's Q and ROA	-*
Perryman et al.	2016	USA	1992-2012	Tobin's Q	Positive
Marinova et al.	2016	Holland and Denmark	2007	Tobin's Q	-*
Solakoğlu & Demir	2016	Turkey	2002-2006	ROA and ROE	Positive
Kuzey	2016	Turkey	2008-2012	ROA, ROE, and ROS	Positive
Marimuthu et al.	2017	Malaysia	2008-2012	ROE	Positive
Shehata et al.	2017	U.K.	2005-2013	Tobin's Q	Negative
Atilgan	2017	Turkey	2011-2016	ROA, ROE, and ROS	Negative
Appiadjei et al.	2017	Ghana	2010-2014	ROE and NPM	Positive
Khan et al.	2017	Malaysia	2009-2013	ROE	Positive
Kurtaran & Eker	2017	Turkey	2011-2013	ROE	-*
Endraswati	2018	Indonesia	2011-2015	ROE	Negative
Ataunal & Aybars	2018	Turkey	200-2015	ROA, ROE, and Tobin's Q	Negative
Charles et al.	2018	USA	1995-2010	Tobin's Q	-*
Kompa & Witkowska	2018	Poland	2010-2016	ROE and ROA	Negative
Passaribu et al.	2019	Indonesia	2011-2016	ROA and OPM	Positive
Unite et al.	2019	Philippines	2003-2014	ROA, ROE, and Tobin's Q	-*
Ben Slama et al.	2019	France	2008-2011	Tobin's Q and ROA	-*
Soon et al.	2020	USA	1993-2018	Tobin's Q	Positive
Tleubayev et al.	2020	Russia	2016	ROA and ROS	Positive
Brahma et al.	2020	U.K.	2005-2016	Tobin's Q and ROA	Positive
Yurt	2020	Turkey	2012-2017	ROA and ROE	-*

\* Studies without any relationship between board gender diversity and firm performance

## **CHAPTER FOUR**

### **THE EFFECT OF BOARD GENDER DIVERSITY ON FIRM PERFORMANCE**

#### **4.1. Purpose of the Research**

Both the number and the proportion of female directors in the board of directors appears to be lower in firms with headquarters in emerging countries relative to developed countries. However, the importance of gender diversity is increasing over time, as evidenced by higher proportion of female directors over time in emerging countries and also by the increased amount of research on this subject. This thesis investigates the role of female board members in firms' financial performance within the framework of statistical analysis. The existing literature uses many different proxies for gender diversity. The most common measure is the proportion of female directors in the board of directors, and findings of empirical studies indicate no clear effect: some indicate positive, some negative and some no effect.

#### **4.2. Research Data**

In this thesis, firms included in Borsa Istanbul (BIST) 100 index for the period between 2016-2019 were used as a research sample in order to analyze the relationship between board gender diversity and firm performance. These firms are listed as in Table 1.

Table 2: Firms Used in Research

No	Code	Firms Title
1	AGHOL	AG ANADOLU GRUBU HOLDİNG A.Ş.
2	AKBNK	AKBANK T.A.Ş.
3	AKCNS	AKÇANSA ÇİMENTO SANAYİ VE TİCARET A.Ş.
4	AKSA	AKSA AKRİLİK KİMYA SANAYİİ A.Ş.
5	AKSEN	AKSA ENERJİ ÜRETİM A.Ş.
6	AKGRT	AKSİGORTA A.Ş.
7	ALGYO	ALARKO G.Y.O. A.Ş.
8	ALARK	ALARKO HOLDİNG A.Ş.
9	ALBRK	ALBARAKA TÜRK KATILIM BANKASI A.Ş.
10	ALKIM	ALKİM ALKALİ KİMYA A.Ş.
11	ANACM	ANADOLU CAM SANAYİİ A.Ş.
12	AEFES	ANADOLU EFES BİRACILIK VE MALT SANAYİİ A.Ş.
13	ARCLK	ARÇELİK A.Ş.
14	ASELS	ASELSAN ELEKTRONİK SANAYİ VE TİCARET A.Ş.
15	AYGAZ	AYGAZ A.Ş.
16	BAGFS	BAGFAŞ BANDIRMA GÜBRE FABRİKALARI A.Ş.
17	BIMAS	BİM BİRLEŞİK MAĞAZALAR A.Ş.
18	BIZIM	BİZİM TOPTAN SATIŞ MAĞAZALARI A.Ş.
19	BRSAN	BORUSAN BORU SANAYİ VE TİCARET A.Ş.
20	BRISA	BRİSA SABANCI LASTİK SANAYİ VE TİCARET A.Ş.
21	BUCIM	BURSA ÇİMENTO FABRİKASI A.Ş.
22	CCOLA	COCA-COLA İÇECEK A.Ş.
23	CLEBI	ÇELEBİ HAVA SERVİSİ A.Ş.
24	CEMTS	ÇEMTAŞ ÇELİK MAKİNA SANAYİ VE TİCARET A.Ş.
25	CIMSA	ÇİMSA ÇİMENTO SANAYİ VE TİCARET A.Ş.
26	DEVA	DEVA HOLDİNG A.Ş.
27	DOCO	DO & CO AKTIENGESELLSCHAFT
28	DOHOL	DOĞAN ŞİRKETLER GRUBU HOLDİNG A.Ş.
29	DOAS	DOĞUŞ OTOMOTİV SERVİS VE TİCARET A.Ş.
30	EGEEN	EGE ENDÜSTRİ VE TİCARET A.Ş.
31	ECILC	EİS ECZACIBAŞI SANAYİ VE TİCARET A.Ş.
32	EKGYO	EMLAK KONUT GYO A.Ş.
33	ENJSA	ENERJİSA ENERJİ A.Ş.
34	ENKAI	ENKA İNŞAAT VE SANAYİ A.Ş.
35	EREGL	EREĞLİ DEMİR VE ÇELİK FABRİKALARI A.Ş.
36	FROTO	FORD OTOMOTİV SANAYİ A.Ş.
37	GLYHO	GLOBAL YATIRIM HOLDİNG A.Ş.
38	GOODY	GOODYEAR LASTİKLERİ T.A.Ş.
39	GOZDE	GÖZDE GİRİŞİM SERMAYESİ YATIRIM ORTAKLIĞI A.Ş.
40	GSDHO	GSD HOLDİNG A.Ş.
41	GUBRF	GÜBRE FABRİKALARI T.A.Ş.
42	GUSGR	GÜNEŞ SİGORTA A.Ş.
43	SAHOL	HACI ÖMER SABANCI HOLDİNG A.Ş.
44	HLGYO	HALK GYO A.Ş.
45	HEKTS	HEKTAŞ TİCARET T.A.Ş.
46	IPEKE	İPEK DOĞAL ENERJİ KAYNAKLARI ÜRETİM A.Ş.
47	ISDMR	İSKENDERUN DEMİR VE ÇELİK A.Ş.
48	ISFIN	İŞ FİNANSAL KİRALAMA A.Ş.
49	ISGYO	İŞ GYO A.Ş.
50	ISMEN	İŞ YATIRIM MENKUL DEĞERLER A.Ş.
51	KRDMD	KARDEMİR DEMİR ÇELİK SANAYİ VE TİCARET A.Ş.

52	KAREL	KAREL ELEKTRONİK SANAYİ VE TİCARET A.Ş.
53	KARSN	KARSAN OTOMOTİV SANAYİİ VE TİCARET A.Ş.
54	KARTN	KARTONSAN KARTON VE SANAYİ VE TİCARET A.Ş.
55	KERTV	KEREVİTAŞ GIDA SANAYİ VE TİCARET A.Ş.
56	KLMSN	KLİMASAN KLİMA SANAYİ VE TİCARET A.Ş.
57	KCHOL	KOÇ HOLDİNG A.Ş.
58	KORDS	KORDSA TEKNİK TEKSTİL A.Ş.
59	KOZAL	KOZA ALTIN İŞLETMELERİ A.Ş.
60	KOZAA	KOZA ANADOLU METAL MADENCİLİK İŞLETMELERİ A.Ş.
61	LOGO	LOGO YAZILIM SANAYİ VE TİCARET A.Ş.
62	MAVI	MAVİ GİYİM SANAYİ VE TİCARET A.Ş.
63	MGROS	MİGROS TİCARET A.Ş.
64	MPARK	MLP SAĞLIK HİZMETLERİ A.Ş.
65	NTHOL	NET HOLDİNG A.Ş.
66	NETAS	NETAŞ TELEKOMÜNİKASYON A.Ş.
67	ODAS	ODAŞ ELEKTRİK ÜRETİM SANAYİ TİCARET A.Ş.
68	OTKAR	OTOKAR OTOMOTİV VE SAVUNMA SANAYİ A.Ş.
69	OYAKC	OYAK ÇİMENTO FABRİKALARI A.Ş.
70	OZKGY	ÖZAK GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş.
71	PGSUS	PEGASUS HAVA TAŞIMACILIĞI A.Ş.
72	PETKM	PETKİM PETROKİMYA HOLDİNG A.Ş.
73	SASA	SASA POLYESTER SANAYİ A.Ş.
74	SELEC	SELÇUK ECZA DEPOSU TİCARET VE SANAYİ A.Ş.
75	SODA	SODA SANAYİİ A.Ş.
76	SKBNK	ŞEKERBANK T.A.Ş.
77	SOKM	ŞOK MARKETLER TİCARET A.Ş.
78	TATGD	TAT GIDA SANAYİ A.Ş.
79	TAVHL	TAV HAVALİMANLARI HOLDİNG A.Ş.
80	TKFEN	TEKFEN HOLDİNG A.Ş.
81	TOASO	TOFAŞ TÜRK OTOMOBİL FABRİKASI A.Ş.
82	TRGYO	TORUNLAR GYO A.Ş.
83	TRKCM	TRAKYA CAM SANAYİİ A.Ş.
84	TCELL	TURKCELL İLETİŞİM HİZMETLERİ A.Ş.
85	TMSN	TÜMOSAN MOTOR VE TRAKTÖR SANAYİ A.Ş.
86	TUPRS	TÜPRAŞ-TÜRKİYE PETROL RAFİNELERİ A.Ş.
87	THYAO	TÜRK HAVA YOLLARI A.O.
88	TTKOM	TÜRK TELEKOMÜNİKASYON A.Ş.
89	TTRAK	TÜRK TRAKTÖR VE ZİRAAT MAKİNELERİ A.Ş.
90	GARAN	TÜRKİYE GARANTİ BANKASI A.Ş.
91	HALKB	TÜRKİYE HALK BANKASI A.Ş.
92	ISCTR	TÜRKİYE İŞ BANKASI A.Ş.
93	TSKB	TÜRKİYE SİNAİ KALKINMA BANKASI A.Ş.
94	SISE	TÜRKİYE ŞİŞE VE CAM FABRİKALARI A.Ş.
95	VAKBN	TÜRKİYE VAKIFLAR BANKASI T.A.O.
96	ULKER	ÜLKER BİSKÜVİ SANAYİ A.Ş.
97	VESTL	VESTEL ELEKTRONİK SANAYİ VE TİCARET A.Ş.
98	YKBNK	YAPI VE KREDİ BANKASI A.Ş.
99	YATAS	YATAŞ YATAK VE YORGAN SANAYİ VE TİCARET A.Ş.
100	ZOREN	ZORLU ENERJİ ELEKTRİK ÜRETİM A.Ş.

The data of the board of directors and financial statements of these 100 firms listed in Table 1 were obtained from [www.kap.gov.tr](http://www.kap.gov.tr). The reason for selecting the BIST 100 index is that, almost all publicly traded firms in Turkey with a corporate structure are take place in this index.

### 4.3. Variables Used in the Research

This section contains explanations of dependent variables, focus variable, and control variables used in the research.

#### 4.3.1. Dependent Variables

In the study, both accounting-based (Return on Assets, Return on Equity) and market-based (Tobin's Q) were used as dependent variables to measure financial performance. ROA is obtained by dividing net income by total assets. This ratio shows how profitably the assets of the business are being used. A high ROA value indicates that the firm is in good condition. The formula used in Return on Assets calculation is as follows:

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}} \quad (1)$$

ROE is obtained by dividing net income by shareholders equity. Also evaluated as a management performance, ROE shows how efficiently the capital provided by the partners to the firm is used. High ROE ratio indicates that resources are used effectively. The formula used in Return on Equity calculation is as follows:

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Shareholders Equity}} \quad (2)$$

Tobin's Q ratio was introduced in 1969 by James Tobin, a Nobel Prize-winning economist. This ratio expresses the ratio of the total market value of the firms to the replacement value of all assets of the firms. Tobin's Q value of 1 indicates that the market value of the firm is equal to the asset replacement value. When it is between 0 and 1, it indicates that the market value of firms is below the replacement cost of assets. This can be a sign that the market price of the firm will

increase, as well as an indication that the business of the firm is not going well. The formula used in Tobin's Q calculation is as follows:

$$\text{Tobin's Q} = \frac{\text{Market Value} + \text{Short-Term Liabilities} + \text{Long-Term Liabilities}}{\text{Total Assets}} \quad (3)$$

#### 4.3.2. Focus Variable

This thesis investigates the whether gender diversity contributes significantly to firm financial performance. Since there is no variable that directly measures gender diversity, there are many different measures are used to proxy gender diversity variable. In this study, the most commonly used measures are selected. These measures, our focus variables, are: (a) proportion of female directors, (b) change in the number of female members of the board of directors, (c) the impact of a new female member on the board, and (d) having two or more female members on the board of directors.

#### 4.3.3. Control Variables

In addition to the dependent variables and focus variable used in the study, three control variables were also used in the analysis. These variables are firm age, board size, and firm size. Explanations on these variables are given in Table 3.

*Table 3: Control Variables*

Variable	Definition
Firm age	Number of years of firm operation
Board size	Number of directors on board
Firm size	Natural logarithm of total assets of the firm

## 4.4. Research Method

### 4.4.1. Descriptive Statistics

Table 4 presents descriptive statistics for some of the variables. On average, over the years and over the firms, 13.4% of the board members were female. For our sample, average board size is 8.4 and average number of female board members is 1.14. The median, not shown in the table, is 1 for female board members.

*Table 4: Descriptive Statistics*

Variables	Observations	Mean	Std. Dev.
Firm age	400	43,0525	20,4446
P_WomBoard	395	13,4168	11,9776
N_BoardMembers	395	8,4431	2,4667
Nwom_Board	395	1,1417	1,0876
ROA	396	0,0579	0,0738
ROE	396	0,1513	0,595
Tobin's Q	389	1,2144	0,5734

Figure 3 shows the annual distribution of the number of female members on the boards of directors of firms by sectors. The sectors that showed a significant increase in the number of female members in the board of directors between 2016 and 2019 are Financial Institutions, Manufacturing, and Wholesale and Retail Trade. The increase rate in the number of female members in the Financial Institutions sector was determined as 41%, 35% in firms operating in the manufacturing sector and 125% in firms operating in the Wholesale and Retail Trade sector.

Figure 3: The Number of Female Board Members in Sectors

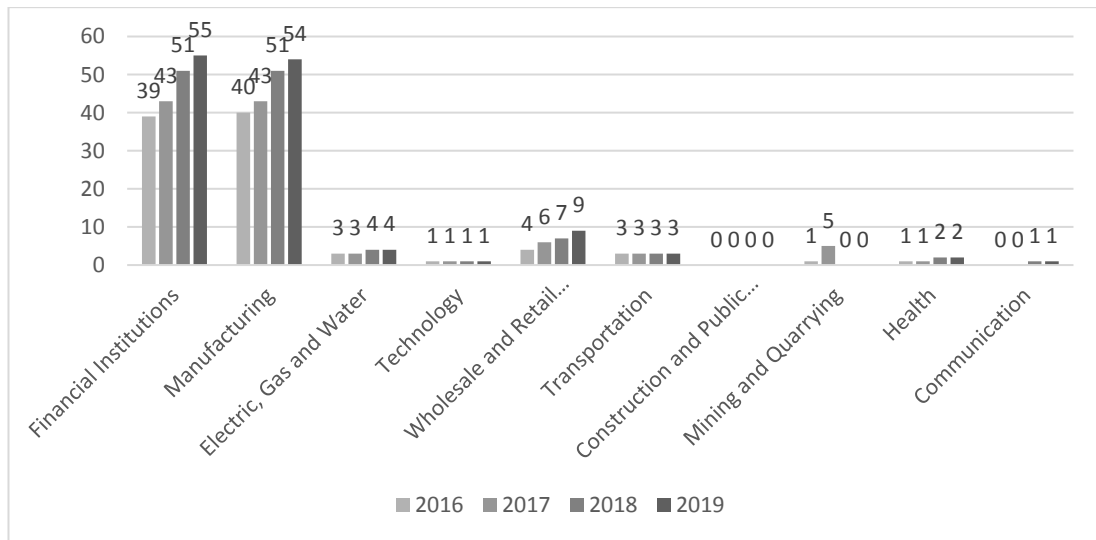


Figure 4 shows the distribution of the firms used in the research sample according to the sectors in which they operate. The sectors with the highest number of firms are Manufacturing, Financial Institutions, and Wholesale and Retail Trade, respectively. These sectors, which are among the top 3 in terms of the number of female board members, constitute 81% of the firms in the BIST 100 index.

Figure 4: The Number of Firms in Sectors

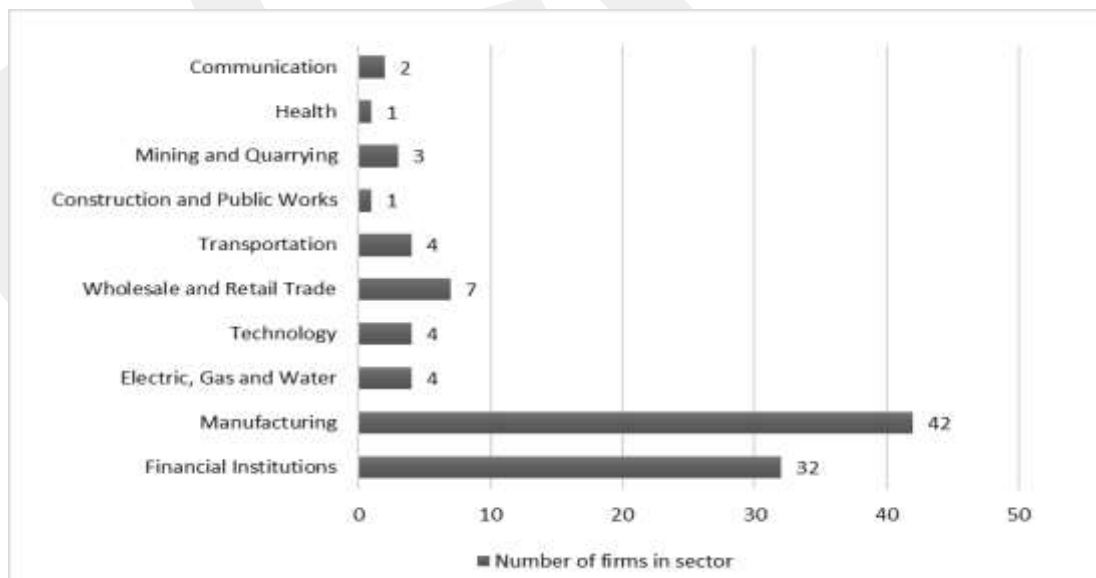


Figure 5 shows the number of female members on the boards of directors of firms and the number of firms with female chairmen. When we look at the chart, it is

seen that there is a 40% increase in the number of female members on the boards of directors of firms between 2016 and 2019. While the number of female chairmen in firms selected as the research sample was 5 for 2016, this number changed to 4 in 2017, 5 in 2018, and 6 in 2019. When we examine the gender diversity in the board of directors, these numbers are very low compared to the number of female board members.

*Figure 5: Changes in the Number of Female Members of the Board of Directors*

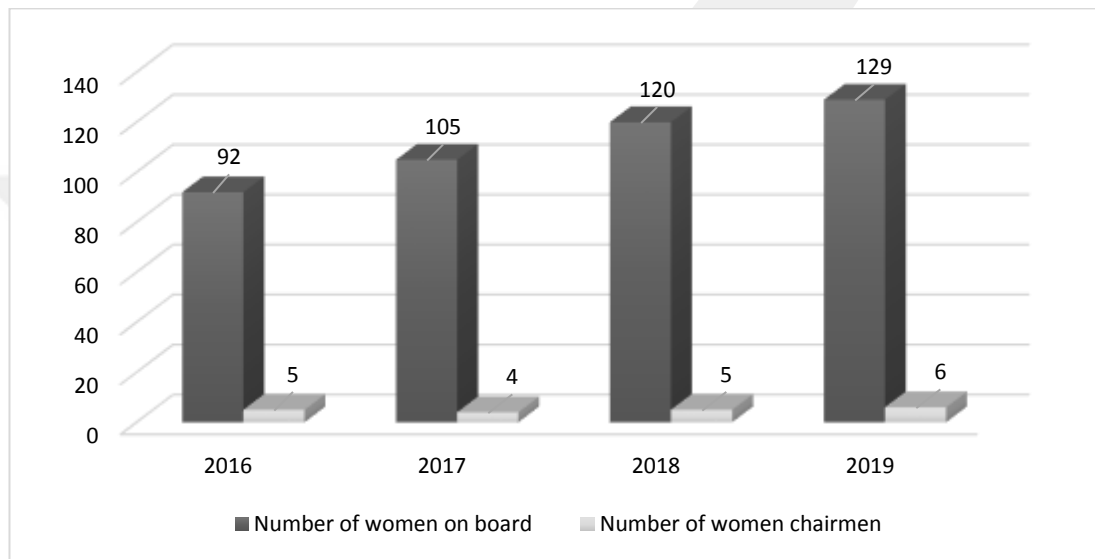
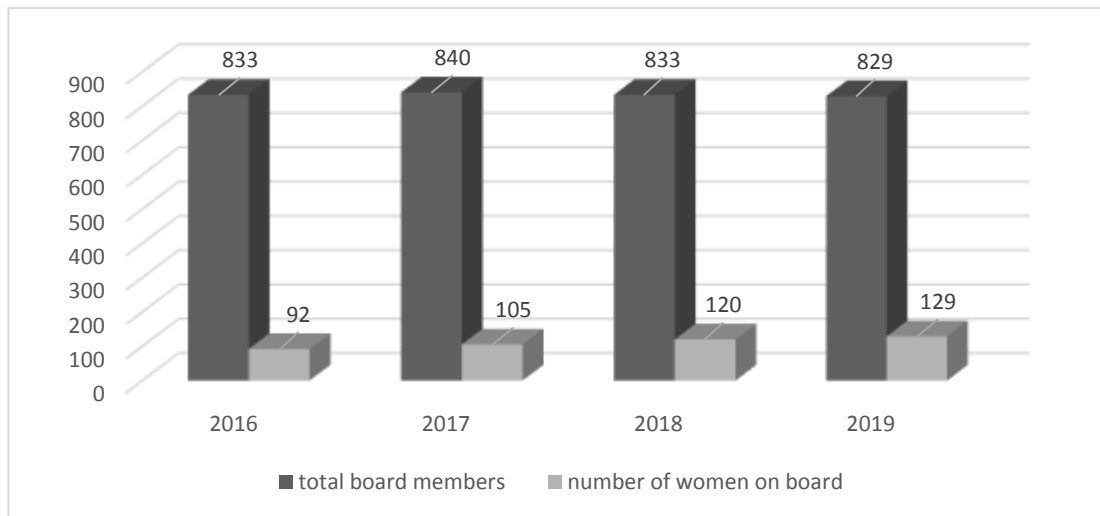


Figure 6 shows the total number of members and female members on the boards of directors of firms between 2016 and 2019. As can be seen from the graph, the number of female board members is very low compared to the total number of members. However, this rate has an increasing trend over the years. While the ratio of female board members was 11% in 2016, this ratio increased to 12.5% in 2017, 14.4% in 2018 and 15.5% in 2019.

Figure 6: Female Members and Total Number of Members in the Board of Directors



#### 4.4.2. Model and Analysis Method

##### 4.4.2.1 Analysis Method: Panel Data Models

Panel data analysis was used in the research. Panel data is the gathering of cross-sectional observations of units such as individuals, countries, firms, and households within a specified time period (Baltagi , Bratberg, & Holmås, 2005). In this study, panel data analysis was used because the data set containing the time factor and cross section data was analyzed together. Gaps were created in the data set because there were missing data in some variables of each firm between 2016 and 2019 in the data obtained. Therefore, the analysis is based on unbalanced panel data. The time dimension of the data set consists of 4 years, the number of cross-section units are 100 firms. Therefore, we have a micro panel for the study. For that reason, we did not check for cross-sectional dependence, and existence of auto-correlation.

Panel data analysis:

- Provides the opportunity to work with a larger data set compared to time series or cross section analysis.

- The problem of lower multiple linear linkages between explanatory variables is encountered.
- Allows quantitative and qualitative factors to be determined together on the same model.
- Since the cross-section and time series observations are combined, the number of observations is higher.

#### 4.4.2.1.1 Fixed Effects Model vs Random Effects Model

There are two estimation methods that can be used in panel data analysis. These are fixed effects model and random effects model. In the fixed effects model, the differences between cross sectional units is controlled by individual dummy variables for each cross sectional units. For that reason, fixed effects model will be more relevant if most of the population (cross sectional units) is included in the analysis. In the random effects model, the individual effects are controlled not by dummy variables but by a random unobservable error term. Therefore, the assumed distribution for unobservable error term becomes important for the results to be valid. Fixed effects model and random effects model formulas are as follows:

Fixed Effects Model:

$$Y_{it} = \sum_{i=1}^n \beta_{1i} D_i + \beta_2 X_{2it} + \beta_3 X_{3it} + u_{it} \quad (4)$$

$D_i$  is a dummy variable that takes the value of 1 if  $I$  equals the specific cross sectional unit, otherwise it equals to zero.

Random Effects Model:

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + \varepsilon_i + w_{it} \quad (5)$$

#### 4.4.2.1.2 F-test

An F-test is used first to determine whether pooled regression or fixed effects model should be used. The reason for the F-test is to investigate whether the dummy variables used are equal to each other in the cross section. The formula of the F-test is as follows:

$$F = \frac{(R_{FE}^2 - R_{CC}^2) / (N - 1)}{(1 - R_{FE}^2) / (NT - N - k)} \sim F(N - 1, NT - N - k) \quad (6)$$

#### 4.4.2.1.3 Hausman Test

Hausman test was used to decide which panel data model will be used in the study. Hausman test measures whether there is a relationship between the error term and explanatory variables due to unit effect, that is, whether the random effects or fixed effects model are suitable. If the null hypothesis is rejected, the conclusion is that random effects model is not appropriate and that we may be better off using fixed effects model. The rejection of the null indicates that RE model is not consistent and therefore estimated coefficients are significantly different from each other. This result is caused by the correlation between explanatory variables and the unobservable random effect in the RE model. The formula of the Hausman test used is as follows:

$$H = (\beta^{FE} - \beta^{RE})' [\text{Var}(\beta^{FE}) - \text{Var}(\beta^{RE})]^{-1} (\beta^{FE} - \beta^{RE}) \sim \chi^2(k) \quad (7)$$

#### 4.4.2.2 Research Model

Regression models created using the variables defined above are:

Model 1:  $ROA = \beta_0 + \beta_1 \text{Gender Diversity} + \beta_2 \text{Firm age} + \beta_3 \text{Board size} + \beta_4 \text{Firm size} + \varepsilon$

Model 2:  $ROE = \beta_0 + \beta_1 \text{Gender Diversity} + \beta_2 \text{Firm age} + \beta_3 \text{Board size} + \beta_4 \text{Firm size} + \varepsilon$

Model 3: (Tobin's Q) =  $\beta_0 + \beta_1 \text{Gender Diversity} + \beta_2 \text{Firm age} + \beta_3 \text{Board size} + \beta_4 \text{Firm size} + \varepsilon$

#### 4.4.3. Hypotheses

In this section, hypotheses expressing the expectations about what kind of interaction exist between variables in the research problem forming the subject of the thesis are included. These hypotheses have been prepared on the basis of other studies in the relevant literature on the study of the thesis.

**H<sub>1</sub>:** The presence of women on the board of directors positively affects the firm performance.

**H<sub>2</sub>:** Increases in the ratio of female members on the board of directors positively affect the firm performance.

**H<sub>3</sub>:** Inclusion of a new woman on the board of directors positively affects firm performance.

**H<sub>4</sub>:** Having two or more female members on the board has a positive effect on firm performance.

#### 4.5. Research Findings

Table 5 examines the effects of gender diversity in the board of directors on using three performance measures (ROA, ROE, and Tobin's Q). According to the results of the regression analysis, it was determined that there is a statistically significant but weak relationship between the Gender diversity (coefficient= 0.0005; p= 0.097) and ROA. However, it could not be determined whether Gender diversity had a statistical effect on ROE and Tobin's Q. When the results were examined in terms of control variables, statistically significant relationships were found between

Firm age (coefficient= 0.0017; p= 0.033) and ROE, and between Board size (coefficient= 0.0307; p= 0.098) and Tobin's Q. In addition, it was determined that Firm size has a statistically significant but inverse relationship on ROA (coefficient = -0.0163; p= 0.000), ROE (coefficient= -0.259; p= 0.013), and Tobin's Q (coefficient= -0.1427; p=0.000). In this context, according to the results of the regression analysis, the H<sub>1</sub> hypothesis was rejected because the gender diversity of the board of directors did not have a positive effect on the firm's ROA, ROE, and Tobin's Q ratios.

*Table 5: The Effect of Lagged Gender Diversity on Firm Performance*

Performance measure	ROA		ROE		Tobin's Q	
	Coefficients	SE	Coefficients	SE	Coefficients	SE
Gender diversity	0.0005*	0,0003	0,0014	0,0009	-0,0011	0,0022
Firm age	0,0002	0,0003	0.0017**	0,0011	0,0021	0,0022
Board size	0,0007	0,0021	0,0034	0,0077	0.0307*	0,0159
Firm size	-0.0163***	0,0039	-0.0259**	0,0076	-0.1427***	0,0273
Constant	0.4098***	0,0806	0.5908***	0,1525	4.0764***	0,5665
Preferred model	RE		RE		RE	

\*\*\*, \*\*, and \* indicates statistical significance at 1%, 5% and 10% levels.

Preferred model is selected by first F-test then by Hausman test.

Robust standard errors are used in estimation.

RE refers to Random Effect Model, FE refers to Fixed Effect Model

Table 6 examines the effects of the change in the ratio of female members on the board of directors on ROA, ROE, and Tobin's Q. According to the results of the regression analysis, it was determined that there was a statistically significant but negative effect on Change in women in ROA (coefficient = -0.0014; p = 0.001) and ROE (coefficient = -0.0021; p = 0.015). In other words, the increase in the ratio of female members in the board of directors decreases the firm's return on assets and return on equity. Additionally, no statistically significant relationship was found between Change in women and Tobin's Q. When the analysis results were examined in terms of control variables, a statistically significant relationship was found between Firm age (coefficient = 0.0019; p = 0.087) and ROE. Lastly, a statistically significant but inverse relationship was found between Firm size and ROA (coefficient = -0.0159; p = 0.000), ROE (coefficient = -0.0255; p = 0.001) and Tobin's Q (coefficient = -0.2477; p = 0.029). In this context, the H<sub>2</sub> hypothesis was rejected because of the changes in the ratio of female members in the board of directors have a negative effect on the firm's ROA, ROE ratio.

Table 6: The Change in Lagged Gender Diversity on Firm Performance

Performance measure	ROA		ROE		Tobin's Q	
	Coefficients	SE	Coefficients	SE	Coefficients	SE
Change in woman	-0,0014***	0,0004	-0,0021**	0,0009	-0,0006	0,0017
Firm age	0,0002	0,0003	0,0019*	0,0011	-0,0144	0,0273
Board size	0,0006	0,0021	0,0032	0,0077	0,0156	0,0211
Firm size	-0,0159***	0,0038	-0,0255***	0,0075	-0,2477**	0,1118
Constant	0,4080***	0,0778	0,5987***	0,1514	7,2608***	1,8966
Preferred model	RE		RE		FE	

\*\*\*, \*\*, and \* indicates statistical significance at 1%, 5% and 10% levels.  
Preferred model is selected by first F-test then by Hausman test.  
Robust standard errors are used in estimation.  
RE refers to Random Effect Model, FE refers to Fixed Effect Model

Table 7 examines the effects of new female board members on ROA, ROE, and Tobin's Q. According to the results of the regression analysis, it was determined that newly joining female board members had a statistically significant but negative effect on ROA (coefficient = -0.0188;  $p = 0.001$ ) and ROE (coefficient = -0.2484;  $p = 0.038$ ). In other words, the new female members joining the board of directors have a negative effect on the firm's return on assets and return on equity. When the analysis results were examined in terms of control variables, it was found that there was a significant but weak statistical relationship between Firm age (coefficient = 0.0019;  $p = 0.085$ ) and ROE. Finally, it has been determined that there is a statistically significant but inverse relationship between Firm size and ROA (coefficient = -0.0157;  $p = 0.000$ ), ROE (coefficient = -0.0254;  $p = 0.001$ ), Tobin's Q (coefficient = -0.2438;  $p = 0.032$ ). As a result, the  $H_3$  hypothesis was rejected because new female members of the board of directors have a negative impact on the firm's ROA and ROE ratio.

Table 7: The Impact of New Woman Board Member on Firm Performance

Performance measure	ROA		ROE		Tobin's Q	
	Coefficients	SE	Coefficients	SE	Coefficients	SE
New woman	-0,0188***	0,0058	-0,2484**	0,0119	-0,0134	0,0224
Firm age	0,0002	0,0003	0,0019*	0,0011	-0,0154	0,0271
Board size	0,0006	0,0021	0,0032	0,0077	0,0144	0,0211
Firm size	-0,0157***	0,0038	-0,0254***	0,0075	-0,2438**	0,1119
Constant	0,4052***	0,0774	0,5968***	0,1512	7,2273***	1,9040
Preferred model	RE		RE		FE	

\*\*\*, \*\*, and \* indicates statistical significance at 1%, 5% and 10% levels.

Preferred model is selected by first F-test then by Hausman test.

Robust standard errors are used in estimation.

RE refers to Random Effect Model, FE refers to Fixed Effect Model

Table 8 examines the effects of two or more female members on the board of directors on ROA, ROE, and Tobin's Q. According to the results of the regression analysis, it has been determined that having two or more female members on the board of directors does not have a statistically significant relationship on ROA, ROE, and Tobin's Q. When the analysis results were examined in terms of control variables, a statistically significant relationship was found between Firm age (coefficient = 0.0018; p = 0.082) and ROE, between Board size (coefficient = 0.0322; p = 0.042) and Tobin's Q. Finally, it has been determined that there is a statistically significant but inverse relationship between Firm size and ROA (coefficient = -0.0163; p = 0.000), ROE (coefficient = -0.0261; p = 0.001), Tobin's Q (coefficient = -0.1416; p = 0.000). As a result, the H<sub>4</sub> hypothesis was rejected since no significant relationship could be determined between the presence of two or more members on the board of directors and firm performance.

Table 8: The Effect of Having Two or More Women Board of Directors on Firm Performance

Performance measure	ROA		ROE		Tobin's Q	
	Coefficients	SE	Coefficients	SE	Coefficients	SE
Two or more women	-0,0036	0,0068	0,0142	0,0267	-0,0432	0,0426
Firm age	0,0002	0,0003	0,0018*	0,0011	0,0021	0,0023
Board size	0,0008	0,0021	0,0025	0,0080	0,0322**	0,0158
Firm size	-0,0163***	0,0039	-0,0261***	0,0076	-0,1416***	0,0274
Constant	0,4152***	0,0804	0,6123***	0,1544	4,0388***	0,5649
Preferred model	RE		RE		RE	

\*\*\*, \*\*, and \* indicates statistical significance at 1%, 5% and 10% levels.

Preferred model is selected by first F-test then by Hausman test.

Robust standard errors are used in estimation.

RE refers to Random Effect Model, FE refers to Fixed Effect Model

There are similar studies in the literature indicating that gender diversity negatively affects firm performance. Mirza, Andeleeb, & Ramzan (2012) report that female board members negatively affect investors' attitudes to invest for the firm. According to the study conducted by Adnan, Sabli, & Abdullah (2013), different opinions between men and women cause conflicts which negatively affect firm performance. According to the statistical analysis reports, Adams & Ferreira (2009) also report that, although board gender diversity has positive aspects in terms of corporate governance, it affects firm performance negatively. This is because female board members may have less work experience than men. Studies conducted in Turkey also have similar results. Menteş (2011) reports that increase in the percentage of women ratio on the board of directors decrease firm performance. Turkish firms mostly have a family owned structure. Since the female members of the board of directors are usually selected from within the family, they cannot be effective in making decisions regarding management. Ataünal & Aybars (2018) also reports that heterogeneous structure of the board of directors causes different opinions in the decision-making process. These different opinions lead to a prolonged decision-making process. Also, since the female board members not enough, they can not be effective in decision making.

## CONCLUSION

The aim of this study is to statistically examine the relationship between the presence of female members on the boards of directors and firm performance. In the study, it was examined on the basis that gender diversity of the board of directors will have a positive effect on the performance of the firm, based on resource dependence theory, agency theory, social psychological theory, and human capital theory, which are included in the corporate governance literature. According to the Resource dependence theory, gender diversity in the board of directors will provide firms with more diverse resources and this will positively affect the firm performance. According to agency theory, gender diversity will enable different perspectives to be brought to decisions to be taken in boards of directors. Thanks to the different perspectives that emerge, more effective decisions can be taken in the board of directors, which will positively affect the performance of the firm. According to human capital theory, gender diversity in the board of directors will enable firms to include different members in terms of knowledge, skills, and experience, and thus the firm performance will be positively affected. According to social psychological theory, it is stated that men and women are different from each other and this difference will create new and creative ideas in the boards of directors and affect the performance positively.

According to the results of the panel data regression analysis, it was determined that the presence of female members on the boards of directors of firms has a negative effect on the ROA, ROE, and Tobin's ratios of the firms. This study supports the work of Adams & Ferreira (2009), Adnan, Sabli, & Abdullah (2013), and Endraswati (2018) who found a negative relationship between board gender diversity and firm performance. In Turkey, studies conducted by Karayel & Doğan (2014) and Solakoğlu & Demir (2016) found a positive relationship between board gender diversity and firm performance in BIST firms. However, in this study, it was

determined that there is a statistically negative relationship between the presence of female members in the boards of directors of firms traded in the BIST 100 index for the years between 2016 and 2019, and the rate of return on assets, return on equity, and Tobin's Q value. When the research findings are examined in detail, the presence of female members in the board of directors weakly affects the asset profitability of the firm. Changes in the ratio of female members in the board of directors have a negative effect on the return on assets and return on equity of firms. Also, new female members of the board of directors negatively affect the return on assets and equity of firms. Based on these findings, all four hypotheses developed within the scope of the study were rejected. Another situation observed when the data is examined is the phenomenon of favoritism in family firms. In other words, when the boards of directors in these family firms are examined in detail, it is observed that female members are composed of family members. This situation may be an important reason for the negative effect of gender diversity on firm performance.

In the study, the relationship between the board gender diversity included only in the BIST 100 index and the firm performance was examined. The limitations of this study are that only the 2016-2019 year range was used in the study, and that qualifications such as the age, education, and work experience of female members were not included in the analysis. Also sectoral effects in future studies, these qualifications can also be included in the study, and more firm data can be obtained and a more comprehensive analysis can be made.

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