IBN HALDUN UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF MANAGEMENT

MASTER THESIS

DEMOGRAPHIC DIVERSITY OF BOARDROOM AND SOCIAL SUSTAINABILITY: EVIDENCE FROM HIGH ESG COUNTRIES

NOUR KIFO

THESIS SUPERVISOR: ASST. PROF. SÜMEYYE KUŞAKCI

ISTANBUL, 2020

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by

NOUR KIFO

A thesis submitted to the School of Graduate Studies in partial fulfilment of the requirements for the degree of Master of Arts in Management

THESIS SUPERVISOR: ASST. PROF. SÜMEYYE KUŞAKCI

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APPROVAL PAGE

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts in Management.

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ÖZ

YÖNETİM KURULU DEMOGRAFİK ÇEŞİTLİLİĞİ VE SOSYAL SÜRDÜRÜLEBİLİRLİK: YÜKSEK ESG ÜLKELERİNİN KANITLARI

Yazar: Kifo, Nour
İşletme Yüksek Lisans Programı
Tez Danışmanı: Dr.Öğretim Üyesi Sümeyye KUŞAKCI
Ağustos 2020, 83 sayfa

Bu çalışmanın amacı, yüksek ESG puanına sahip gelişmiş ve gelişmekte olan ülkelerdeki şirketlerin yönetim kurulu demografik çeşitlilikleri ve sosyal sürdürülebilirlikleri arasındaki ilişkiyi keşfetmektir. Yönetim kurulu demografik çeşitliliği cinsiyet ve kültürel çeşitlilik olmak üzere iki boyutta incelenmiştir. Öte yandan, sosyal sürdürülebilirlik ise şu alt boyutlarda ele alınmıştır: işgücü, insan hakları, topluluk ve ürün sorumluluğu. Thomson Reuter's Eikon veritabanından elde edilen panel data 2014-2018 yılları arasında 10 ülkeden 1491 gözlem içermektedir. Modelin test edilmesinde iki dinamik panel veri yöntemi olan Genelleştirilmiş En Küçük Kareler (GLS) ve Sıradan En Küçük Kareler (OLS) yöntemleri kullanılmıştır. Araştırma sonuçları, cinsiyet çeşitliliğinin dört sosyal sürdürülebilirlik boyutu üzerinde de anlamlı bir etkiye sahip olduğunu göstermektedir. Kültürel çeşitlilik ise; işgücü, toplum ve ürün sorumluluğu boyutlarıyla pozitif ve anlamlı bir ilişki içerisindeyken, dördüncü boyut olan insan hakları ile ilişkisinin negatif ve istatistiki olarak anlamsız olduğunu gözlemlenmiştir.

Anahtar Kelimeler: Yönetim Kurulu Demografik Çeşitliliği, Cinsiyet Çeşitliliği, Kültürel Çeşitlilik, Sosyal Sürdürülebilirlik, Thomson Reuters Eikon, ESG Skoru.

ABSTRACT

DEMOGRAPHIC DIVERSITY OF BOARDROOM AND SOCIAL SUSTAINABILITY: EVIDENCE FROM HIGH ESG COUNTRIES

Student Name: Kifo, Nour

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August 2020, 83 Pages

The purpose of this study is to empirically test the relationship between board demographic diversity and social sustainability in developed, advanced emerging and secondary emerging countries with high ESG score. The board demographic diversity was measured based on two dimensions, a gender dimension and cultural dimension. On the other hand, social sustainability was investigated through four dimensions: workforce, human rights, community, and product responsibility. The panel data attained through Thomson Reuters Eikon involves 1491 observations of businesses from 10 countries for the years 2014-2018. The empirical model tested by two dynamic panel data methods are Generalized Least Square (GLS) and Ordinary Least Squares (OLS). Findings suggest that gender diversity has a positive impact on all four dimensions of social sustainability. There also exists a positive and significant relationship between cultural diversity and three dimensions of social sustainability, which are workforce, community, and product responsibility. However, cultural diversity has shown an insignificant and negative relationship with the fourth dimension that is human rights.

Keywords: Board Demographic Diversity, Gender Diversity, Cultural Diversity, Social Sustainability, Thomson Reuters Eikon, ESG Score.

DEDICATION

I dedicate my master's dissertation to my parents, who instill in me the love and passion of hard work. They both supported me and encouraged me to continue my higher degree education. I am also so grateful for having such nice and supported friends around me who were always ready to help me with anything at any time.

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Nour Kifo

İSTANBUL, 2020

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

The board of directors is the most influential decision-making unit in any corporation. Hill and Jones (1992) stated that a board has different functions and one of the crucial functions is to increase a firm's accountability to their stakeholders and to initiate the firm's sustainable behavior. Scholars have recommended diversity among board members to enhance firm performance and to strengthen corporate governance (Leung, 2015). Board diversity can take two different shapes. The first is a demographic phenomenon involving gender, age, and ethnicity-based diversity. The second one is the diversity in terms of governance structure including director ownership, CEO duality and board independence (Hoangetal, 2016). Carter et al. (2003) suggested that diversity based on culture, gender and ethnicity can lead to a better understanding of the firm's market position, innovation, and creativity as well as increasing the effectiveness of problem-solving.

Additionally, the way businesses performed has been greatly transformed due to the increasing awareness of environmental, social and governance issues (Kolk & van Tulder, 2010; Seuring & Müller, 2008). As discussed by Deegan (2007) and Cho and Pattern (2007) firms try to obtain legitimacy from their stakeholders by disclosing environmental, social, and governance information. Therefore, ESG (environmental, social and governance sustainability) has become a key indicator of firm non-financial performance, management competence and risk management (Galbreath, 2013). While ESG studies in the literature are limited, a big proportion of them try to discover the relationship between financial performance and ESG. Some scholars have attempted to highlight the positive impact of board diversity on social sustainability such as higher number of donation campaigns and human rights activities. On the other hand, some empirical research showed that diversity on board harms the firm's non-

financial performance, as personal differences can cause problems among board members.

Even though an increasing number of studies dealing with the relationship between board diversity and a firm's financial performance have been carried out, less research has been conducted on board diversity and firm non-financial performance. Some studies have covered the environmental dimension of the ESG and some others explained the relationship between corporate governance and board diversity. However, few studies have mentioned about the social sustainability and board diversity. This study attempts to extend previous studies on the relationship between the diversity of board and social sustainability. While board diversity refers gender and cultural diversity, social sustainability involves human rights, product responsibility, community, and workforce.

1.1 Statement of Problem

The literature on board diversity's various impacts provides diverse hypotheses. To date, the link between board diversity and social sustainability is inconclusive and ambiguous. Depending on a variety of empirical models, a segment of the literature advocates for the positive effects of board diversity on firm performance. Yet, there is another group of studies that make claims about the negative impacts of board diversity.

On the other hand, previous studies have been split into three sections: Those focusing on structural diversity, or on demographic diversity, and those combining both. Most of the literature that aimed to study the relationship between board demographic diversity and firm performance have focused on gender diversity. The main question was whether women members perform better and lead to a more favorable performance or cause more problems.

As clearly seen, the existing literature has a restricted approach to the relationship between diversity and sustainability. Moreover, the results of above-mentioned studies are diverse. This work aims to conduct a comprehensive study that captures different dimensions of board demographic diversity and to assess its impact on social

sustainability using the example of countries with high a sustainability score as well. Considering the fact that many previous studies have shown the positive effect of diversity on sustainability, conducting the study using the example of countries with high scores would be more advantageous to test the relationship more efficiently.

1.2. Research Objective

This thesis aims to study the impact of board diversity, precisely gender and cultural diversity, on social sustainability. The Thomson Reuters DataStream provides a comprehensive database not only covering the two dimensions of the board diversity, but also the four dimensions of social sustainability. This work utilizes the database to discover a more comprehensive and multidimensional relationship between diversity among board members and social sustainability.

More precisely, it attempts to measure whether the companies with more diversified boards perform better in terms of their social responsibilities. Stated in other words, whether boards including female members or members originating from various cultures take the social impact of the business more into consideration or not.

1.3 Research Questions

The study addresses the following questions:

1. Does gender diversity on a company board affect the human rights conventions of a company either positively or negatively?
2. Does gender diversity on a company board affect the product responsibility value of a company either positively or negatively?
3. Does gender diversity on a company board affect the workforce satisfaction and equality of a company either positively or negatively?
4. Does gender diversity on a company board affect the community commitment of a company either positively or negatively?
5. Does cultural diversity on a company board affect the human rights conventions of a company either positively or negatively?
6. Does cultural diversity on a company board affect the product responsibility value of a company either positively or negatively?

7. Does cultural diversity on a company board affect the workforce satisfaction and equality of a company either positively or negatively?

8. Does cultural diversity on a company board affect the community commitments of a company either positively or negatively?

1.4 Significance of the Study

There is an extensive literature available on the relationship between the diversity of the board of directors and the firm's financial performance. In recent years, some studies have also attempted to analyze the influence of board diversity on a firm's non-financial performance. While some studies have considered the effect of board demographic diversity, others have discussed the effect of the board's structural diversity.

This study will take the demographic part of the board diversity into consideration and link it with firms' non-financial performance. Particularly social sustainability has never been addressed in this manner in previous studies. Additionally, the sample of the study consists of companies that originated from or are operating in countries with a high sustainability score. Moreover, what makes the study unique is its approach to testing each social sustainability dimension separately.

The thesis proceeds as follows: Chapter 1 presents an introduction of the thesis including problem statement, objectives and questions of the research. Then, in the second chapter, the conceptual background of the study specifically existing works on the link between board demographic diversity and firm performance is introduced. Chapter 3 presents the empirical model of the research; specifically defines the study variables, the sample, the time frame adopted, and the data sources. It also highlights the empirical methodology used to evaluate the results. Chapter 4 introduces firstly empirical findings by offering a summary of the research outcomes; secondly alternative research models are created. Finally, the last section discusses findings of the study and compares them with previous works. Moreover, several managerial implications in addition to suggestions for further research have been offered.

CHAPTER II

LITERATURE REVIEW

This chapter reviews the relevant empirical and theoretical literature on the relationship between board diversity and corporate non-financial performance. Additionally, it points out the different sample and statistical methods that have been used by different studies. Lastly, this chapter highlights the literature gap that this study intends to fill.

2.1 Board of Directors and Diversity

"A board of directors is the supreme authority in the organization that is expected to see the governance and overall functioning of the organization" (Kagzi and Guha, 2018). The board of directors' responsibility in a company is to align the company behavior with pressure by all stakeholders in order to drive the company into a more sustainable development process (Aguilara et al., 2006). While some studies have claimed that the role of a board of directors is to take a passive position in corporate strategy formulation; other studies have pointed that in order for a firm to be successful its board must take a role in forming strategy, but by doing so it can exposed to a considerable level of stress (Finkelstein and Hambrick, 1996). Additionally, studies have recently suggested that strategic decision-making is strongly influenced by board of directors (Tarus, 2011).

Boards of directors in common law countries have two essential fiduciary duties: the duty of care and the duty of loyalty. Duty of care involves evaluating and monitoring senior managers, setting strategy, providing managers with necessary advice and directions and ensuring that the firm is in compliance with all regulations and laws (Mallin, 2004).

Regarding board of directors' formation and firm efficiency, an important question arises of whether a homogenously or heterogeneously constituted board help with growing the productivity of a firm's monitoring and management (Eulerich, Velte and Uum, 2014). Board diversity has been broadly classified by researchers into two categories which are the "board demographic diversity" and "board structural diversity" (Kagzi and Guha, 2018).

"Board demographic diversity" is associated with demographic criteria, like nationality, age, occupational, educational and functional backgrounds of board members. (Du, 2014; Hafsi and Turgut, 2013). However, board structural diversity is related to functional attributes of a board, for instance, leadership structure, board model, board size, number of independent members, etc. (Bertoni et al, 2014).

Milliken and Martins (1996) differentiated between two forms of diversity: The first type is non-observable diversity including personality traits, educational background, functional expertise, etc. The second type of diversity one is observable diversity based on gender, race, and age. Further, the literature of corporate governance also uses the term board diversity by referring to the diverse combination of characteristics, expertise and attributes contributed by board members' composition in relation to decision-making and management processes (Van der Walt and Ingley, 2003). Pearce and Zahra (1992) stated that not all directors can make strategic decisions; they need to have some appropriate skills in order to perform strategic roles. Hence, such skills can be found in the cognitive side of the directors, meaning that the board's demographic characteristics like tenure, age, educational qualification, etc. (Golden and Zajac, 2001). Many scholars (Hambrick and Mason, 1984; Boeker, 1997) also supported the previous thought, believing that cognitive ability is reflected in the decision makers' demographic characteristics which in turn affect the firm's ability to set strategic change. The table 2.4 below summarizes the definitions of board diversity.

Table 2.1. Definitions of Board Diversity (Kagzi and Guha, 2018)

Board diversity	Definition	Published article
Observable and less observable criteria	Board diversity has been split into observable criteria such as age, gender, nationality, and into less visible criteria such like functional educational, and occupational backgrounds of board members	Kang et al. (2007)
Structural diversity/diversity of the board (DOB)	Structural diversity is related to some attributes such as leadership structure (CEO and duality of chairman), size, the presence of international directors and their number, founder leader as director.	Srivastava (2015)
Demographic diversity/ diversity in the board (DIB)	Diversity is based on demographics background, nationality, gender, age, educational, functional and occupational backgrounds	Ararat et al. (2015
Task-related/non-task-related diversity	Non-task related diversity includes gender, age, race and nationality while Task-related diversity is related to functional or educational background.	Adams et al. (2015)

2.1.1 Advantages and Disadvantages of Board Diversity

Studies have suggested that board functioning in terms of firm performance and strategy designing is influenced by board demographic diversity (Hambrick, 2007; Post and Byron, 2015). Likewise, Westphal and Milton (2000), emphasized that having "demographic diversity" on corporate boards can lead to greater openness to change and less complicated decision-making processes. Additionally, a minority of earlier scholars have tested the link between firm-level outcomes and board diversity on such factors as social performance (Hafsi and Turgut, 2013), board appointments (Westphal and Stern, 2007), acquisitions (Chen et al, 2016) and reputation (Miller and

Del Carmen Triana, 2009). Further, while making any decision, a number of advantages can be obtained by creating greater diversity on a firm's board (Post et al., 2011). For instance, board diversity helps with improving management's understanding of employees' and customers' needs and perceptions, strengthen and change thecompany's relationship with external and internal stakeholder groups and increase the willingness to adapt (Al-Musalli and Ku İsmail, 2012a, 2012b). Further, a knowledge-based perspective proposes that better performance can be produced by diversity that encourages innovative ideas and multiple views before making decisions (Orlando et al, 2007).

However, despite the advantages of having more diversity on boards, the disadvantages are also noteworthy. Carpenter (2002) explained that board diversity could cause more clashes and influence the efficiency of top management's communication negatively. In addition, board diversity could restrict a board's ability to take appropriate strategic actions on time and it could result in conflicting thoughts of strategic change (Goodstein et al, 1994).

Westphal and Milton (2000) noted that "A central tenet of this literature is that demographic differences lower social cohesion between group members and that these social barriers reduce the likelihood that minority viewpoint will be incorporated into group decisions"

Moreover, contextual factors such as the intensity of innovation (Dezsö and Ross, 2012), social beliefs about diversity (Van Knippenberg et al, 2011) and legal systems incorporate boards that define the gender quota on board (Terjesen et al, 2015) can lead to different results such as variances in socio-cultural backgrounds and regulatory contexts (Post and Byron, 2015).

However, in spite of the disadvantages of having diversity on board, Simon et al. (1999) confirmed that discussions and arguments among board members could help to overcome problems related to board diversity such as coordination and poor communication.

2.1.2 Related Theories

Theoretically speaking, some theories such as agency theory, behavioral theory of the firm, stewardship theory, social capital theory, upper echelons theory, signaling theory, critical mass theory, resource dependence theory, resource-based view (RBV), contingency theory and human capital theory have found evidence of positive impacts of board diversity. On the opposite side, social categorization theory and also social identity theory reported some negative impacts on firm performance when considering board diversity (Kagzi and Guha, 2018).

Two resource theories have emphasized the resource-saving role of board with diversity (Kagzi and Guha, 2018). The first theory is resource dependency theory. According to this theory, firms need various external and internal resources to increase firm performance (Pfeffer and Salancik, 1978). The second one is the resource-based view theory (RBV). What this theory discussed is that firms require internal resources that are uncommon, non-substitutable, inimitable and valuable to enhance firm performance (Barney, 1991). According to Hillman et al. (2000), diversity in age, gender, professional background, and experience provide valuable resources which the company can benefit from.

Additionally, the proposition that characteristics of certain individual directors have an influence on firm performance can be sourced to the resource dependency theory (Pfeffer and Salancik, 1978). RD theory also argues that boards with larger size are associated with higher-performing companies (Pfeffer, 1973). This is not only because of increasing organizational access to external resources through more board members, but also because the wider community can find representation on a larger board. Researchers mainly analyze board composition and board size as characteristics that affect the supervisory capacity of the board of directors (Villanueva-Villar et al., 2016).

Similarly, the stakeholder theory proposed that companies have both implicit and explicit agreements with different stakeholders (Freeman, 1984). Failing to meet these agreements will expose companies to a series of nonfinancial and financial risks

with reputational damage (Manita, Bruna, DANG and Houanti, 2018). Stakeholder theory assumed that firms have to be responsible to both primary stakeholders like employees and customers, and to secondary stakeholders too such as local authorities, nongovernmental organizations (NGOs), suppliers, social communities and subcontractors (Manita, Bruna, DANG and Houanti, 2018). In addition, Ferrero-Ferrero et al. (2015) emphasized that stakeholders' interests cover not only financial concerns but also environmental, governance and social concerns too. Thus, a company can improve its market performance and enhance its relationship with stakeholders through socially responsible activities and disclosure of these activities (Garcia-Sanchez et al., 2014).

Another theory supporting diversity is legitimacy theory which emphasizes the need to behave according to societal norms and values to ensure the continued existence of a company (Dowling and Pfeffer, 1975). Companies use a variety of methods and practices to pursue legitimacy from their stakeholders since it is not easy to get such support (Ashforth and Gibbs, 1990). For instance, implementing projects related to the environment by a company board would result in maximizing the sustainability performance of that company and then it enhances the legitimacy of the company (Hummel and Schlick, 2016). Additionally, as argued by Westphal and Milton (2000), social impact theory argues that directors who have majority status tend to apply more impact in board decision-making. Similarly, the theory of upper echelons noted that the demographic dimensions of the board influence firms' production and performance (Hambrick and Mason, 1984).

In contrast to the previous theories that were supporting the notion of having diversity on the board for better performance, the following two theories, as it was mentioned earlier, highlighted the negative side of diversity. These theories are social identity and self-categorization theory (Kagzi and Guha, 2018). Self- categorization theory claimed that the individuals tend to categorize themselves within multiple groups based on comparable demographic characteristics like tenure, education, age, gender or of operational elements like being outsider independent members or board insider (Brown and Turner, 1981). While inside directors know better the firm's inner culture, history, workings and issues that need to be solved in real time, outside directors can

provide distinct and valuable perspectives from their outsider experience, which helps improving the firm's efficiency. Similarly, at group level, social identity theory discussed the idea that a board of directors will assort themselves into a group of individuals sharing homogenous characteristics. For example, young or old members on a board will create a psychological association with the group who is in the same age category as them, so when all old people gather to make their own group, young people will act in the same manner and isolate themselves from other age categories (Kagzi and Guha, 2018). This means people will have better communication and a higher level of understanding of each other when they are inside a group whose members share similar interests, same gender, close age, and culture as well. Thus, having diversity among board members will cause many problems according to the previous two theories.

2.1.3 Dimensions of Board Diversity

To test the diversity's influence on a company, research has mainly followed two approaches. One of them is to investigate the diversity broadly, by creating statements about homogeneity and heterogeneity in general instead of focusing only on a particular kind of diversity like gender diversity (Kagzi and Guha, 2018). Studies following the second approach take a particular kind of demographic diversity into consideration such as age, culture, demographic diversity etc. Dependent variables for these types of works range from risk taking ability, enthusiasm for work (Ararat et al, 2015) higher amount of donations to non-profit organizations (Siciliano, 1996) and increasing firm value (Hambrick and Mason, 1984; Darmadi, 2011).

Moreover, Eulerich and his fellows (2014) show that multiple board diversity characteristics, particularly national and age diversity, have negative effects on corporate performance due to decreasing communication among members of board.

Board demographic diversity also influences the type of board meeting discussions for entrepreneurial issues (Tuggle et al., 2010), strategic choices (Heyden et al., 2015), firm performance (Hillman, 2015) and CEO compensation (Zhu, 2014). Tenure diversity is also a type of demographic diversity. Bantel and Jackson (1989) stated

that if a company is trying to focus on efficiency, then it is better to have homogeneity in tenure instead of diversity. On the other hand, Finkelstein et al. (1996) clarified that when a company's aim is innovation, then having tenure diversity among board members is more preferred over board homogeneity.

When sustainability becomes dependent variable of board diversity research, it seems that demographic diversity has multifaceted effects since the process of board decision-making might vary as well (Velte, 2016). Better ESG performance leads to decreasing transaction costs and information asymmetries (Shankmann, 1999). Stronger communication with stakeholders provides also a stronger link between sustainable achievement, stakeholder power and sustainability reporting (Roberts, 1992).

The two specific dimensions of diversity that has been frequently mentioned in the literature are cultural and gender diversity. The following two sections introduce them in details, as they constitute the focus of this study.

2.2 Cultural Diversity and Firm Performance

National culture is considered as a combination of beliefs and values, which guide people to choose or evaluate policies, other people, actions or events (Schwartz, 2012). Hence, culture can represent one of the main aspects influencing decision-making (Frijns, Dodd and Cimerova, 2016). Even though diversity on a board is a much-discussed topic, national cultural diversity of board members has not been studied adequately (Frijns, Dodd and Cimerova, 2016). First of all, nationality as one of the demographical diversity dimensions has been questioned in some studies showing that, when boards consist of different members of different nationalities, then the firm will be able to enhance consumer policies that create and sustain the relationship with customers for longer-term and can better understand its customers who are culturally diverse (i.e. certain customer requirements and preferences) (Randøy et al., 2006). As Maznevski (1994) noted when a member becomes a source of valuable information about different cultures due to their familiarity with a specific country's customs, linguistic resources and communication networks, then cultural

diversity will be considered as an advantage for that firm. Similar to the previous argument, Masulis et al. (2012) emphasized that having both foreign and independent directors in a firm would create efficient cross-border acquisitions, specifically when the target is from the director's home country. Generally, management literature refers to cultural diversity as a "double-edged sword" (Milliken and Martins, 1996), signalling both negative and positive sides of cultural diversity. Positively speaking, cultural diversity can present a diverse range of perspectives and knowledge and facilitate the elaboration of information (Nederveen Pieterse et al, 2013).

On the contrary, cultural diversity could also have a negative effect on performance because of disagreements (Frijns, Dodd and Cimerova, 2016). For instance, slower communication and harder coordination, all could exist within culturally diverse groups (Anderson et al, 2011; Doney et al., 1998). Another negative outcome of cultural diversity might be lower intragroup trust (Bjørnskov, 2008). The study conducted by Frijns and fellows (2016) measured national cultural diversity through the cultural distances among board members based on Hofstede's cultural dimensions. The study indicated that the board's national cultural diversity has a negative effect on firm performance taking Tobin's Q and ROA measures into consideration.

Since culture is something intrinsic to the individual, in particular, unchangeable and not certainly obvious or public (e.g., Hofstede, 2001), directors are prone to cultural biases, in addition to "negative externalities" which may undermine the effectiveness of a board (e.g., Manzoni et al, 2010; Nederveen Pieterse et al., 2013).

Moreover, Frijins and fellows (2016) stated that "cultural diversity" can impact the decision making process of board directors in two ways. The first way is that "cultural diversity" may affect the degree of relationship and the task-related conflicts. The second way is its influence on intragroup trust. First of all, the relationship conflict and the degree of task-related show the disadvantages and advantages of diversity which shape the two aspects of the double-edged sword (Milliken and Martins, 1996). The advantages can be specific or general to group decision-making with cultural diversity (Maznevski, 1994). Cognitive conflict or task-related conflict is what general advantages referred to, and it relates to different ideas, views and diverse

methods of interpretation and perception of information by that group (Nederveen Pieterse et al, 2013; Simon and Peterson, 2000). For instance, diversity reduces groupthink. However, for better group performance, the "task-related conflict" has appeared to be highly beneficial, particularly when a task is complex (Frijns, Dodd and Cimerova, 2016).

Further studies done by Ferreira (2010) also show the potential benefits of diversity. In addition to the possible benefits of greater access to connections and resources, having different perspectives and increased creativity, diversity can also bring benefits to a company through showing equal opportunities to workers in lower-level positions and complying with societal expectations. On the other hand, "relationship conflict" (when there is an awareness of interpersonal incompatibility) has been found as a disadvantage of diversity (Frijns, Dodd and Cimerova, 2016). Many studies have certified the undesirable impacts of "relationship conflict" on group decision quality and group commitment as it can result in lowering effort to solve the cognitive tasks of a group due to higher levels of conflict and stress within-group (De wit et al., 2012; Jehn and Mannix, 2001). Kirchmeyer and Cohen (1992) described that, in multi-cultural groups, conflict may be hard to identify and difficult to resolve. Moreover, Simons and Peterson (2000) pointed out that an "increase in task-related conflict goes hand in hand with an increase in a relationship conflict, making it difficult to increase the benefits of diversity without increasing the disadvantages". Similarly, Ferreira (2010) has also mentioned the potential costs of group diversity such as conflicts of interest, insufficient communication, lack of cooperation and people trying to push their own plans.

The second way which influences the functioning of the board is the effect of cultural diversity on the intragroup trust level. Bjørnskov (2008) presented a theoretical framework where people have a "trust radius"; they distrust people who are outside the "trust radius" and they trust who is inside it. Reasonably, in higher dissimilar groups, people fall more outside the "trust radius", thus in a more heterogeneous group, there will be less trust (Frijns, Dodd and Cimerova, 2016).

In other words, “differences in how people perceive the world has a detrimental effect on trust building within that group” (Frijns, Dodd and Cimerova, 2016). To sum up, boards with cultural diversity tend to have lower intragroup trust and therefore, lower performance.

2.3 Gender Diversity and Firm Performance

As previously mentioned, there are several dimensions of board demographic diversity. One of the most studied dimensions is gender diversity (Hillman, 2015). In board research, gender diversity is approached through three different perspectives: moral and ethical perspective, theoretical perspective and business case perspective (Kagzi and Guha, 2018).

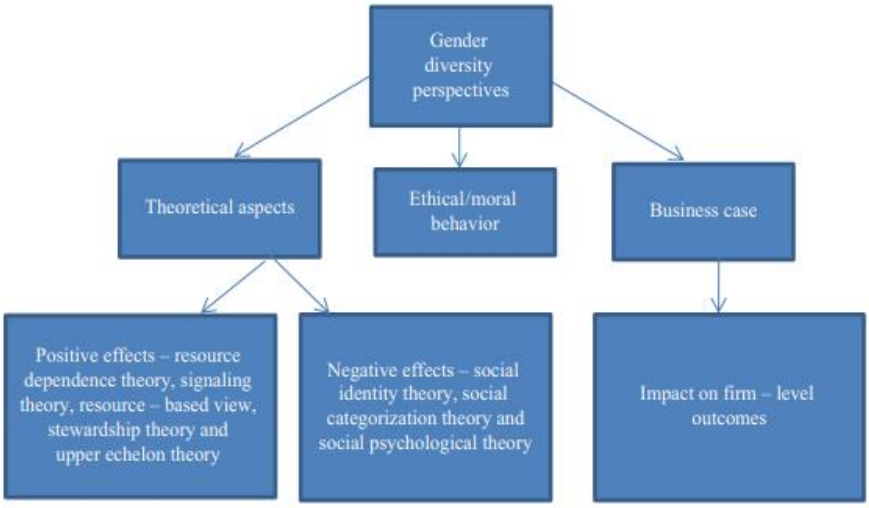

Figure 2.1. Gender Diversity Perspectives (Kagzi and Guha, 2018)

Similar to cultural diversity, researchers characterized gender diversity as double-edged weapon (Triana et al., 2014), claiming that gender diversity could either hinder or enhance a firm’s strategic achievements (Kagzi and Guha, 2018).

The initial question might be what makes a female board member different than her male colleague. Adams and Ferreira (2009) found that, female directors have higher attendance records and fewer attendance problems than male directors in a sample of US firms. Besides, females tend to be more risk- averse when making decisions and

they are less likely to violate financial, accounting or ethical rules than male directors (Pierce and Sweeney, 2010; Kyaw et al., 2015).

There exist some empirical research arguing that the tendency of initiating socially responsible activities increases with increasing number of female board members (Cucari, De Flaco and Orlando, 2017). Likewise, some studies found that higher female exemplification on boards is associated with a higher level of charitable giving (Bernadi and Threadgill, 2010), reinforce CSR practices (Zhang, 2012) and strengthen the connection with the community (Hillman et al., 2002).

Kyaw and his associates (2017) stated that, a higher number of females on boards' management benefits the society through the improvements not only at the social or environmental level but also overall performance of the company. Interestingly, Shrader et al. (1997) noted that it might be important for a company to reach a critical number of women on board before observing any positive influence exerted by them. Specifically, critical mass theory found that having three women on a board is necessary to establish the desired critical mass in order to affect a firm's performance (Liu et al, 2014).

On the other hand, some findings couldn't captured any significant relationship between the representation of female board and firm performance (Kyaw, Olugbode and Petracci, 2017). Table 2.3 in the appendix lists various studies showing the influence of the gender diversity among board members on firm performance.

2.4 ESG and Social Sustainability

The ESG is originally grounded in the concept of socially responsible investments (SRI) that takes not only economic aspects, but also social, environmental and governance issues into consideration (Breuer and Nau, 2014). The phrase of "three pillars of sustainability" is used interchangeably with ESG aspects (Staub-Bisnang, 2012). According to Brundtland Report (1987) issued by the "World Commission on Environment and Development", sustainability includes three dimensions: economic, social and environmental sustainability (World Commission on Environment and Development, & Brundtland, 1987)

Similarly, the term of "the triple bottom line" introduced by Elkington (2013) consists of planet, people and profit. Whereas the concept of 'people' refers to a firm's social responsibility towards the community where it is operating and the employees working with them, the term 'planet' represents a company's environmental sustainability. The third notion 'profit' denotes the benefits a company is creating and the economic value as well.

Since ESG is a wide area of study, this research will concentrate on the social sustainability dimension of it. In another word, this study focuses on the "people" within the concept of triple bottom line. Social sustainability is covering a wide range of topics such as human rights issues like the banning of forced labour and child labour; diversity with no discrimination of gender, religion or race; the health care policies of companies; healthy and safe working conditions; the promotion of development and training programs and the regulation of working hours and salaries (Laville, 2009).

Similarly, Thomson Reuters (2019) divided the social sustainability into four parts: workforce score, human rights score, community score and product responsibility score. First, the workforce measures a firm's effectiveness towards a healthy and safe workplace, development opportunities for the workforce, job satisfaction and maintaining diversity and equal opportunities. Second is the human rights score, which evaluates the firm's effectiveness towards respecting the essential human rights conventions. Thirdly is the community score, which measures the firm's commitment

towards protecting public health, respecting business ethics and being a good citizen. Last of all, is the product responsibility score, which reflects a firm's capacity to produce a higher quality of goods and services combining the customer's health and safety, data privacy and integrity.

To sum up, this chapter presented the concept of board diversity and its various dimensions in addition to introducing the ESG evaluation, specifically social sustainability. Findings of previous studies can be divided into three parts as it is presented in the table 2.4 that can be found in the first appendix. First, some researchers have found a positive relation between board diversity and firm non-financial performance. Other studies show no certain effect of diversity on board on the non-financial performance of the firm. Lastly, some studies presented negative impact of board diversity on the non-financial performance of the firm.

CHAPTER III

RESEARCH METHODOLOGY

The previous chapter presented a comprehensive background of this research taking the pertinent empirical literature into consideration. This chapter attempts to explain the empirical model, methodology, time frame and sample of the work in detail. The definition of independent, dependent and control variables in addition to the expected relationship between them and the sources from where the data is retrieved, is depicted.

3.1 Model Specification

The following model is used to study the influence of board demographic diversity on corporate social sustainability. The equation below shows the general functional form of the empirical model:

$$SS = f(GD, CD, FS, BS, BI)$$

According to the formula, social sustainability (SS) could be measured as a function of gender diversity (GD), cultural diversity (CD) and some control variables like size of the firm (FS), board size (BS) and the independence of the board (BI).

3.2 Sample and Time Span

Due to the data availability, this research focused on a comparatively short period of time which is precisely five years covering from 2014 to 2018. This limitation has mainly been caused by the following facts. First of all, most of the companies' historical ESG performance data is limited to five or four years. Second, at the time of carrying out this study, the ESG data for the year 2019 was not fully published on the Thomson Reuters Eikon Data Stream. Thirdly, this study intended to use a balanced data set and so only included companies whose data for all the variables chosen is

existing over the five-years. By taking into consideration the given limitations, the period from 2014 to 2018 helps us to study a more representative and greater number of companies.

Moreover, to test the empirical model, we have selected a sample of ten different countries that have been described as having the highest ESG score for the year 2018 and a score above 50 for the year 2019 by Morningstar. "The Morningstar Sustainability Rating™ for funds allows investors to understand how the companies in their portfolios are managing their environmental, social, and governance – or ESG – risks relative to their peers" (Morningstar Inc., 2019). Therefore, they support investors with company comparisons across industries and make easier for them to take their investment decisions accordingly.

Mainly the process of a firm's evaluation takes the following shape: "Sustainability assessments are provided to Morningstar by ESG researcher Sustainalytics, which assigns ESG Scores to more than 10,000 companies across the globe. Sustainalytics compares companies' ESG profiles with their global industry peers', based on industry-relevant indicators. Ranking is conducted across dimensions of preparedness, disclosure, quantitative performance, and qualitative performance" (Morningstar Inc., 2019). The Morningstar Global Markets Index includes both emerging and developed markets.

After filtering the dataset based on availability and origin-country the sample size of this study has been emerged as 298 companies and 1490 observations.

3.3 Study Variables

Based on the data recovered from Thomson Reuters Eikon DataStream, all the variables were built and defined. The use of secondary data can be considered as a limitation for this study because it is not easy to control the quality of the accessible data (Saunders, Thorn hill and Lewis, 2009). Yet, secondary data are useful when conducting longitudinal/cross-sectional researches. Besides, DataStream is a database that is broadly used by academics and practitioners, involving a high data quality

3.3.1 Dependent Variable

ESG rating is made up of three major groups of indicators: environmental, social and governance. The focus in this research will be on the social subgroup, which measures the ability of a company to generate loyalty and trust with its customers, society and workforce, using the best management practices. Thus, the dependent variable of this study is the social sustainability's subcomponents as it was categorized by Thomson Reuters Eikon DataStream:

1. Workforce score: It measures a firm's effectiveness towards a healthy and safe workplace, development opportunities for the workforce, job satisfaction and maintaining diversity and equal opportunities.
2. Human rights score: This indicator considers the firm's effectiveness towards respecting the essential human rights conventions.
3. Community score: It measures the firm's commitment towards protecting public health, respecting business ethics and being a good citizen.
4. Product responsibility score: It reflects a firm's capacity to produce higher quality of goods and services combining the customer's health and safety, data privacy and integrity.

3.3.2 Independent Variables

The initial independent variable utilized in this research was the board demographic diversity including culture, gender, age, tenure, race, etc. However, the research was conducted only on board cultural and gender diversity due to the lack of available data in most of the other demographic diversity types. The gender diversity among board members can be considered as the number of female members on the board or how much of a percentage they shape. On the other hand, cultural diversity on a board considers the number or the percentage of culturally different members in comparison to the location of corporate headquarters.

3.3.3 Control Variables

In order to improve the healthiness of the model, some variables which can have an effect on the social sustainability performance of a firm have been used as control

variables. Looking at previous similar research two types of control variables could be defined: organizational characteristics (firm size and profitability), board characteristics (board size and number of independent directors on board). In this research, board independence, board size and firm size are used as control variables.
For the measurement of each control variable, the following methods are used:
1. Board size is measured by the total number of board members at the end of the fiscal year.
2. Board independence is the percentage of independent members reported by the company.
3. Firm size is measured by the actual-total asset which is the company's actual value normalized to reflect the I/B/E/S default currency and corporate actions (e.g. stock splits). While total assets is anything tangible or intangible that is capable of being owned or controlled to produce value, asset represents ownership of a value that can be converted into cash although cash itself is also considered an asset.

3.4 Econometric Methodology

Mainly there are two types of data; time series and cross-sectional. "Cross-sectional data enables to search into types of units over a definite time whereas time series data measures a unit in a certain period" (Ciftci, 2016). For example, to analyze the social sustainability scores of countries at a certain period involves a kind of cross-sectional data while to assess one of the country's social sustainability scores during a longer period of time involves time-series data. However, the datasets sometimes bear characteristics of both time-series and cross-sectional data simultaneously that is called pooled or longitudinal data. According to Guris (2015), units in the pooled data can demonstrate differences according to cross-sections or time.

Data that is consistent on the subject of cross-sectional and time period is called panel data. This implies that all panel data demonstrates pooled data, yet the opposite is not necessarily right. Meaning that pooled data cannot exemplify all panel data. What is significant about panel data is, it enables the use of many variables for a long period simultaneously. It combines both time-series and cross-sectional characteristics. Baltagi (2005) has claimed that panel data includes "the pooling of observations on a cross-section of households, countries, firms, etc. over several periods." Additionally,

Andreß et al. (2013) stated that having repeated information coming from the same units over many years is defined as panel data. Since our research dataset is combining both time series (5 years ranging from 2014 to 2018) and cross-sectional observations (including 298 firms), we will be using the panel data methodology that best fits our model. Hsiao (2003) shows that using a panel dataset can have some plusses in comparison with the time-series and cross-sectional datasets. Some of the pros are highlighted below:

i. Using panel data gives a more precise assumption for the model parameters. It provides more helpful data, reduce multi-collinearity (which is seen mostly in time series dataset) and increase degrees of freedom in descriptive variables.
ii. Panel data has a higher capacity for building practicable behavioral hypotheses.
iii. Whereas cross-sectional data or time-series data cannot estimate the macro and micro-dynamic impacts, panel data is working better as an estimator in such a dynamic environment.
iv. Panel data is a good estimator that can control the effect of omitted variables. It leads to highly appropriate predictions for individual outcomes. Biørn (1992) argued that panel data helps with controlling unobserved time-specific and/or individual heterogeneity.

On the other hand, Baltagi (2005) pointed out some limitations of panel data. Data design and collection is the most fundamental restriction because panel data combines both time series and cross-sectional remarks that require a longer time for data collection. Some coverage problems may emerge since some variables cannot be part of the research. Further, measurement errors can exist due to faulty responses derived from unclear questions, inappropriate informants, and memory errors and so on.

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3.5 Reliability

Reliability is a crucial concern for any study and refers to meeting some research criteria. The consistency in data collection is the first possible concern that needs to be discussed. Most of the data used in research generally come from companies' financial statements. Besides, Thomson Reuters Eikon DataStream is used to select companies and collect data. Eikon "DataStream" is a database that is broadly used by specialists

and scholars. Taking into account that the data comes from a reliable institution and follows a specific framework, it can be considered as a reliable source. Moreover, the use of five-years enables us to decrease the risk of having temporal errors affecting our data (Bryman & Bell, 2011). It also strengthens the stabilization of the outcomes of our study, thus affecting positively on the reliability.

3.6 Empirical Models

As it was mentioned earlier, social sustainability (SS) is the dependent variable in this study. However, SS is a vector of dependent variable consisting of WS, CS, PR, and HR. Thus, four equations presenting our model are shown as following:

$$WS_{i,t} = \alpha + \beta_1 GD_{i,t} + \beta_2 CD_{i,t} + \beta_3 BS_{i,t} + \beta_4 BI_{i,t} + \beta_5 FS_{i,t} + \mu_i + \vartheta_t + e_{it} \quad (1)$$

While WS is the dependent variable, which is workforce score, GD and CD are gender diversity and cultural diversity respectively. BS, BI, and FS are the control variables of the model and they indicate board size, board independence, and firm size respectively.

$$CS_{i,t} = \alpha + \beta_1 GD_{i,t} + \beta_2 CD_{i,t} + \beta_3 BS_{i,t} + \beta_4 BM_{i,t} + \beta_5 FS_{i,t} + \mu_i + \vartheta_t + e_{it} \quad (2)$$

In the second equation above, CS is the community score, another dependent variable, with constant independent and control variables as in the first equation.

$$PR_{i,t} = \alpha + \beta_1 GD_{i,t} + \beta_2 CD_{i,t} + \beta_3 BS_{i,t} + \beta_4 BM_{i,t} + \beta_5 FS_{i,t} + \mu_i + \vartheta_t + e_{it} \quad (3)$$

The third dependent variable formulated in the equation above is product responsibility with constant independent and control variables as in the first equation.

$$HR_{i,t} = \alpha + \beta_1 GD_{i,t} + \beta_2 CD_{i,t} + \beta_3 BS_{i,t} + \beta_4 BM_{i,t} + \beta_5 FS_{i,t} + \mu_i + \vartheta_t + e_{it} \quad (4)$$

Last dependent variable formulated in the equation above is human rights with constant independent and control variables as in the first equation.

The figure below is comprehensively showing the connection between the dependent and the independent variables:

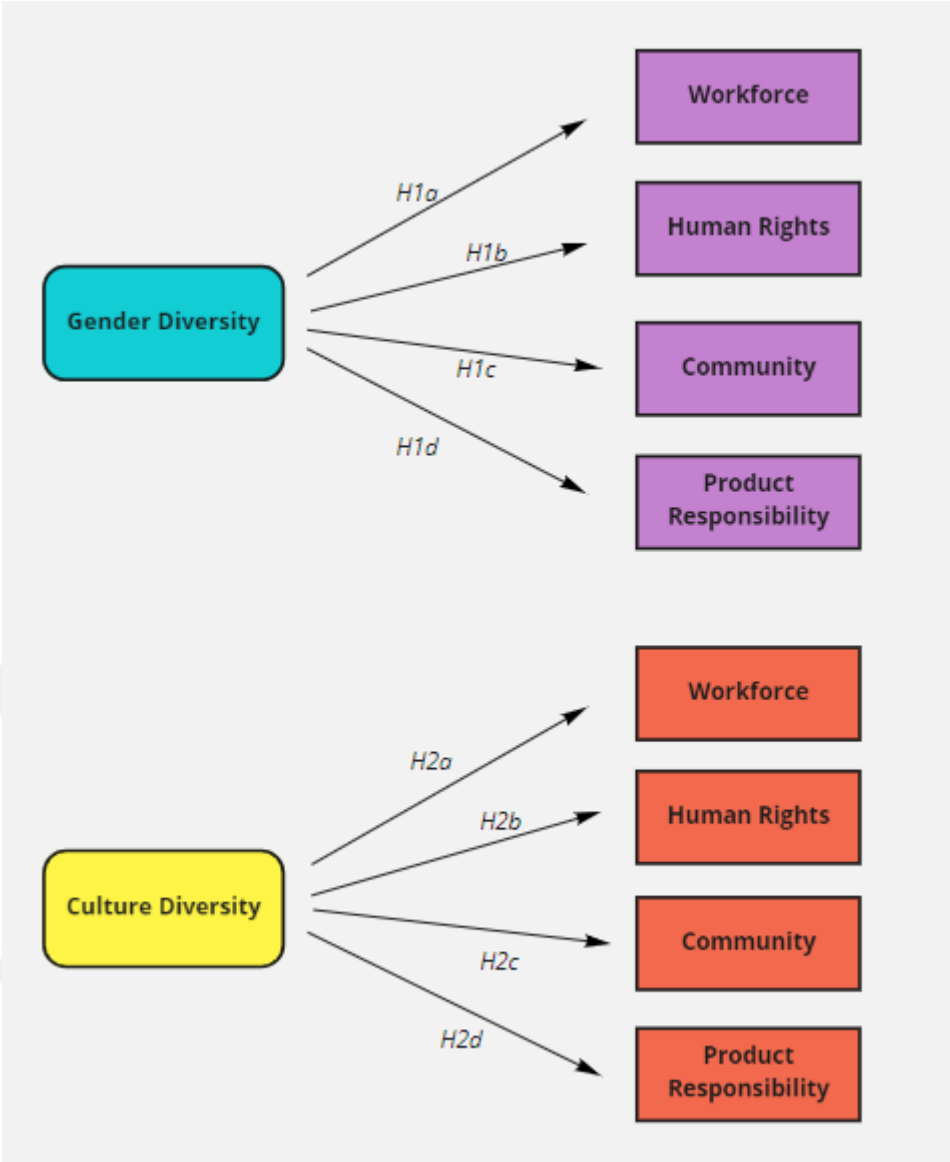

Figure 3.1. Empirical Model of the Study

Our hypothesis are formulated as in the following statements:

H1a: The relationship between gender diversity and workforce performance is positive and statistically significant.

H1b: The relationship between gender diversity and human rights activities is positive and statistically significant.

H1c: The relationship between gender diversity and community condition is positive and statistically significant.

H1d: The relationship between gender diversity and product responsibility is positive and statistically significant.

H2a: The relationship between cultural diversity and workforce performance is positive and statistically significant.

H2b: The relationship between cultural diversity and human rights activities is positive and statistically significant.

H2c: The relationship between cultural diversity and community condition is positive and statistically significant.

H2d: The relationship between cultural diversity and product responsibility is positive and statistically significant.

The research model will take the following shape as presented in the Figure 3.2:

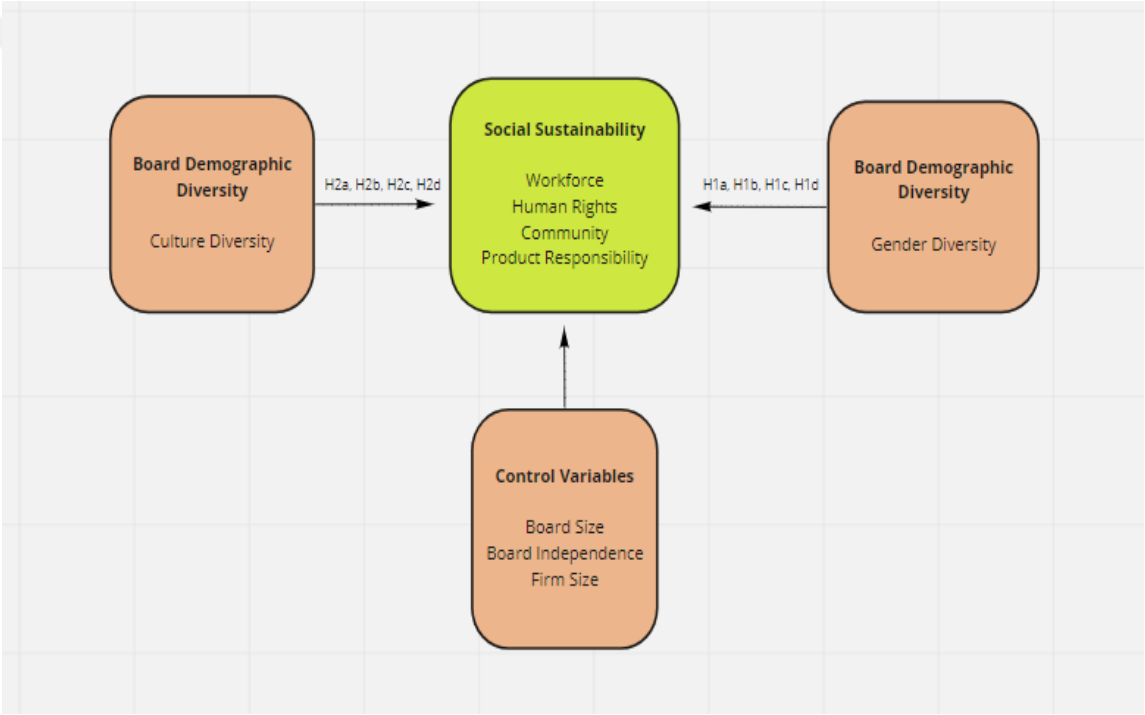

Figure 3.2. Research Framework

CHAPTER IV

RESULTS AND FINDINGS

This chapter presents the empirical findings and discusses the results. STATA statistical package 15 is used to run the empirical model. Firstly, some preliminary statistics such as descriptive and correlations have been presented to exhibit the properties of our dataset. Later, other tests like heteroscedasticity and multicollinearity were provided. Finally, the hypothesis were tested and initial interpretation was made.

4.1 Descriptive Statistics

As it was clarified in the previous chapter, this study selected a sample of companies operating in ten countries with the highest ESG score. The Table 4.1 presents the aggregate ESG scores of each country for the year 2018 and 2019. In 2018, the Netherlands took the highest spot with a score of 60.54, derived from the high-scoring companies like ING Group, ASML Holding, Ahold Delhaize, and Philips. The other countries with high sustainability scores were outside of the Nordic region. Surprisingly, some of them were from emerging markets and they received sustainability scores above 50. In 2019, the majority of the countries had an increase in their ESG scores except for Colombia and Hungary. The Table 4.1 also separately shows the scores for each pillar of sustainability, which are environmental, social and governmental sustainability. Additionally, by focusing on the dimension of social sustainability, which is the main topic of this research, Denmark scored the highest with 64.79 and Hungary scored the lowest with 51.78 in 2019.

Table 4.1. Country-Wise Accumulated ESG Scores of Firms (Author's Compilation)

Country name	ESG score 2018	ESG score 2019	Environmental Score 2019	Social Score 2019	Governance Score 2019
Netherlands	60.54	63.70	60.12	61.17	66.90
Denmark	60.47	64.04	59.72	64.79	64.51
Finland	60.2	63.00	62.57	61.26	61.30
Portugal	58.5	62.36	64.92	64.34	62.64
France	57.6	62.74	61.99	62.70	58.39
Colombia	57.6	56.28	54.07	57.44	64.19
Spain	55.2	62.36	64.57	62.17	57.07
Hungary	53.5	52.42	54.49	51.78	51.18
Taiwan	52.6	54.37	55.39	58.01	56.31
Turkey	50.9	51.86	50.34	54.85	51.45

Colombian companies were excluded from this study due to the unavailability of data required by the research. The majority of the research sample is French companies while Hungary is represented only by two companies.

Table 4.2. Number of Companies in Each Country

Country of Headquarter	Number
Denmark	34
Finland	25
France	100
Hungary	2
Netherlands	47
Portugal	6
Spain	27
Taiwan	45
Turkey	12
Total	**298**

It is also meaningful to check the industries in which the sustainable companies are operating. Table 4.3. Exhibits the distribution of companies under research based on the U.S. Standard Industrial Classification (SIC) system which is a way of classifying businesses to provide comparability in statistical research. Of 298 companies 95 are from the manufacturing sector, followed by services and finance, insurance and real estate industries with 75 and 50 companies respectively. On the other hand, only three companies are operating in the agriculture or wholesale trade sectors and none is in the public administration.

Table 4.3. Sector-Wise Classification of Firms

Divisions	**Number of companies**
Agriculture, Forestry and Fishing	2
Mining	27
Construction	17
Manufacturing	95
Finance, Insurance and Real Estate	50
Non-Classifiable	0
Public Administration	0
Retail Trade	14
Services	75
Transportation, Communications, Electric, Gas and Sanitary Service	17
Wholesale Trade	1
Total	**298**

The Table 4.4 is showing countries whose companies are listed on the stock exchanges. France has the highest number of companies of 101. In addition to the 9 countries previously mentioned where the companies' headquarters are located, another 5 countries are added to represent the stock exchanges in which shares of relevant companies are traded. These countries are Sweden, Germany, Italy, the United States of America and the United Kingdom.

Table 4.4. Countries in Which Firms' Stocks are Listed

Countries	Number
Denmark	34
Finland	24
France	101
Germany	1
Hungary	2
Italy	1
Netherlands	37
Portugal	7
Spain	26
Sweden	1
Taiwan	45
Turkey	12
United Kingdom	1
United States of America	6
Total	**298**

The descriptive statistics function was run through the normal form of the data except one variable that is the firm size. To include the firms' size, a specifically transformed form of the data was used which is the log form. Transforming the data into natural logarithm was used in order to make data logical and more appropriate in interpretation. As normality is an essential condition when analysing data, transforming data using log is helpful to get rid of the cases when the variable is either too much negatively or positively skewed. The results of descriptive statistics are presented in the Table 4.5.

Central tendency indicates the centre of the distribution, where the most commonly used measure for it is the mean. As it can be seen in the Table 4.5, the dependent variable "human rights" has the largest mean value of 63.845, among other dependent variables. On the other hand, "community score" has the lowest mean value of 48.867 in comparison with other dependent variables. Additionally, while the independent

variable “cultural diversity” has the highest mean value of 26.173, the second independent variable “gender diversity” has a lower mean value of 21.874.

Table 4.5. Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
Board independence	1490	46.119	29.525	5.88	100
Board size	1490	9.758	5.394	3	24
Community score	1490	48.867	34.205	0.33	99.84
Human rights	1490	63.845	34.562	8.59	99.72
Gender diversity	1490	21.874	16.81	5	66.67
Cultural diversity	1490	26.173	28.063	4.35	100
Workforce score	1490	57.945	32.138	0.89	99.79
Product responsibility	1490	54.303	34.276	0.15	99.76
Log_firm size	1490	9.324	2.319	1	12.673

Next, the standard deviation represents the distribution spread of variables, and shows amount of the deviation the values are having across the central mean value. The variable of “human rights” has the greatest standard deviation of 34.562 in comparison with other dependent variables. That means companies differ from each other in terms of human rights activities whereby some firms have less activities while others carry out more of these activities. The dependent variable “product responsibility” has second greatest standard deviation which is 34.276. Since the sample firms comprises of various industry sectors in which they are operating, the standard deviation shows firms differ a lot one to another in terms of products they are producing or services they are providing.

Further, while the independent variable “cultural diversity” has the highest standard deviation of 28.063, the second independent variable “gender diversity” has a lower standard deviation value of 16.81. The asymmetry properties of distribution can be shown by skewness, where by a normal distribution have a zero skewness value. A distribution can be positively or negatively skewed. As it can be seen in Table 4.6 all dependent variables and two of the independent variables are negatively skewed “workforce score, product responsibility, human rights, community score, board size,

log_firm size". On the other hand, the independent variables and one of the control variables are positively skewed "gender diversity, cultural diversity, board independence".

Table 4.6. Skewness and Kurtosis

Variable	Skewness	Kurtosis
Gender diversity	0.0943479	1.770703
cultural diversity	1.201695	3.646648
workforce score	-0.6469742	2.15561
human rights	-0.8161208	2.155244
community score	-0.0268073	1.608665
product responsibility	-0.3936282	1.702664
board independent member	0.0534541	2.175925
board size	-0.2223676	2.737691
Log_firm size	-2.862041	10.81297

4.2 Correlations

The correlation matrix that can be seen in Table 4.7 presents the inter-item correlations. Majority of the items related to factors are highly correlated with each other. For instance, there is a high correlation of 0.786 between workforce and human rights, on the other hand, there is a small correlation of 0.145 between the cultural diversity and board size. That means there is a mutual link or connection between board size and cultural diversity at the value of 0.145, however it is not significant.

Table 4.7. Correlation Matrix

Variables	Board independence	Board size	Community score	Human rights	Gender diversity	Cultural diversity	Workforce score	Product responsibility	Log_firm size
1.Board independence	1.000								
2. Board size	0.281	1.000							
3.Community score	0.543	0.466	1.000						
4.Human rights	0.621	0.614	0.675	1.000					
5.Gender diversity	0.566	0.449	0.428	0.588	1.000				
6.Cultural diversity	0.428	0.145	0.315	0.322	0.246	1.000			
7.Workforce score	0.492	0.646	0.603	0.786	0.554	0.269	1.000		
8.Product responsibility	0.489	0.597	0.605	0.683	0.497	0.285	0.681	1.000	
9.Log_firm size	0.313	0.377	0.376	0.416	0.316	0.215	0.402	0.383	1.000

4.3 Static Panel Estimates

After checking data properties and frequencies, the second stage is to verify the existence of firm specific effect and the heterogeneousity of sample firms. For that purpose, Generalized Least Square (GLS) and Pooled OLS methods was used. Such preliminary testing is necessary to figure out if a random model exists or if it is a fixed effect in the dataset.

4.3.1 Random Effect of Workforce Variable

The study has four dependent variables, therefore the tests of pooled OLS and GLS method of random effect and fixed effect have been run for four times. The findings of random effect model for the first dependent variable "workforce" are presented in Table 4.8. According to the random effect model, all independent variables are statistically significant to cause variance in dependent variable workforce. The t-value of five variables is significant at 1% level of significance.

In order to choose which model is appropriate, among OLS or Random effect, the Breusch and Pagan LM test (Breusch and Pagan, 1980), for the first dependent variable "workforce score" is run. The chi-square value of 1180.41 is significant at 1% level of significance therefore the null hypothesis of 'pooled OLS is better' could be rejected. Hence, it is concluded that using the random effect is a better method than using OLS. Hence, the result shows that there are firm-certain effects in data set.

Table 4.8. Random Effect of Workforce Variable

Workforce score	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Gender diversity	0.443	0.047	9.40	0.000	0.351	0.535	***
Cultural diversity	0.046	0.019	2.36	0.018	0.008	0.084	**
Board size	2.214	0.159	13.95	0.000	1.903	2.525	***
Board independence	0.294	0.028	10.44	0.000	0.239	0.350	***
log_firm size	0.562	0.218	2.58	0.010	0.135	0.989	**
Constant	6.635	2.378	2.79	0.005	1.975	11.295	***

Mean dependent var	57.945	SD dependent var	32.138
Overall r-squared	0.541	Number of obs	1490.000
Chi-square	1540.344	Prob > chi2	0.000
R-squared within	0.495	R-squared between	0.557

**** p<0.01, ** p<0.05, * p<0.1*

4.3.2 Fixed Effect of Workforce Variable

In order to check for heterogeneity and individual fixed effect among sample firms, simple linear equation of the study model is estimated through using fixed effect in STATA. The results of fixed effect model can be shown in Table 4.9. According to fixed effect model, the five independent variables gender diversity, cultural diversity, board independence, board size and log firm size are statistically significant to cause variance in the dependent variable workforce. The significance of the t-value of these five variables is at 1%, 5% and 10% level of significance.

Table 4.9. Fixed Effect of Workforce Variable

Workforce score	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Gender diversity	0.499	0.054	9.21	0.000	0.393	0.605	***
Cultural diversity	0.048	0.021	2.33	0.020	0.008	0.088	**
Board size	1.427	0.220	6.49	0.000	0.995	1.858	***
Board independence	0.380	0.035	10.83	0.000	0.311	0.449	***
log_firm size	0.393	0.227	1.73	0.084	-0.053	0.839	*
Constant	10.672	2.400	4.45	0.000	5.964	15.381	***

Mean dependent var	57.945	SD dependent var	32.138
R-squared	0.502	Number of obs	1490.000
F-test	239.065	Prob > F	0.000
Akaike crit. (AIC)	11487.514	Bayesian crit. (BIC)	11519.353

*** *p<0.01, ** p<0.05, * p<0.1*

To compare which is better between fixed effect model and the random effect model, the Hausman test has been run. The calculated Hausman test value is 36.495 that is significant at 1% level of significance, thus the null hypothesis saying random effect is better can be rejected. Then the acceptance of alternative hypothesis (H_1: Cov (α_1, X_{it}) $\neq$ 0) suggests that the fixed effect model provides the appropriate and consistent estimators for the model and that there exist a firm-certain fixed effect in the dataset of pooled OLS, Random Effect and Fixed Effect.

Table 4.10. Hausman (1978) Specification Test of Workforce Variable

	Coef.
Chi-square test value	36.495
P-value	0.0000

It is also necessary to check if the results are reliable based on data properties such as heteroscedasticity and multicollinearity. As presented in the Table 4.11, the multicollinearity among variables is 1.454. A high multicollinearity value is associated with two or more variables when they are highly related to each other which can lead to biased and inaccurate estimations. No particular limit for multicollinearity yet scholars have developed particular method of thumb to deal with high multicollinearity

cases e.g. (10, 20, 40) or above (O'Brien, 2007). In our dataset the multicollinearity value of (1.454) shows that there is no high collinearity between variables.

Table 4.11. Variance Inflation Factor

	VIF	1/VIF
Board Independence	1.72	.581
Gender Diversity	1.708	.586
Board Size	1.358	.737
Log_firm size	1.249	.801
Cultural Diversity	1.236	.809
Mean VIF	1.454	.

The Wald test is run to test heteroskedasticity in fixed effect regression model. While the null hypothesis states that there is no heteroskedasticity (constant variance assumed in error term or homoscedasticity), the alternative hypothesis states that there is heteroskedasticity. When the probability value is less than 0.05 level of significance, the null hypothesis can be rejected and the alternative hypothesis can be accepted where there is heteroskedasticity in residuals or error terms.

Table 4. 12 Test of Heteroskedasticity

H0: sigma(i)^2 = sigma^2 for all i
chi2 (298) = 1.6e+07
Prob>chi2 = 0.0000

4.3.3 Random Effect of Human Rights Variable

The findings of random effect model for the second dependent variable "Human Rights" are presented in Table 4.13. According to random effect model, all independent variables are statistically significant to cause variance in the dependent variable human rights. The t-value of four variables is significant at 1% level of

significance except one independent variable the “cultural diversity” shows no level of significance of 0.898.

The significance of the founded chi-square value of 1292.58 is at 1% level of significance so the null hypothesis of ‘pooled OLS is better’ could be rejected. Hence it is concluded that using the Random effect is a better method than using the OLS. Thus, the result shows that there are firm-specific effects in data set.

Table 4.13. Random Effect of Human Rights Variable

Human rights	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Gender diversity	0.449	0.045	9.87	0.000	0.360	0.538	***
Cultural diversity	0.002	0.019	0.13	0.898	-0.034	0.039	
Board size	2.207	0.155	14.25	0.000	1.904	2.511	***
Board independence	0.458	0.027	16.76	0.000	0.405	0.512	***
log_firm size	0.735	0.209	3.52	0.000	0.325	1.144	***
Constant	4.447	2.308	1.93	0.054	-0.077	8.970	*

Mean dependent var	63.845	SD dependent var	34.562
Overall r-squared	0.614	Number of obs	1490.000
Chi-square	2221.855	Prob > chi2	0.000
R-squared within	0.594	R-squared between	0.621

**** p<0.01, ** p<0.05, * p<0.1*

4.3.4 Fixed Effect of Human Rights Variable

Table 4.14 presents the results of fixed effect model. According to fixed effect model, the five independent variables gender diversity, cultural diversity, board independence, board size and log firm size are causing variance in the dependent variable workforce because of their significance statistically. The t-value of gender diversity, board size, board independence and firm size is in 1% significance level and like in the random test, the culture diversity variable shows again no level of significance of 0.634.

Table 4.14. Fixed Effect of Human Rights Variable

Human rights	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Gender diversity	0.509	0.052	9.80	0.000	0.407	0.611	***
Cultural diversity	-0.009	0.020	-0.48	0.634	-0.048	0.029	
. board size	1.822	0.211	8.64	0.000	1.408	2.235	***
Board independence	0.486	0.034	14.45	0.000	0.420	0.552	***
log_firm size	0.600	0.218	2.75	0.006	0.173	1.028	***
Constant	7.176	2.301	3.12	0.002	2.662	11.690	***

Mean dependent var	63.845	SD dependent var	34.562
R-squared	0.595	Number of obs	1490.000
F-test	349.420	Prob > F	0.000
Akaike crit. (AIC)	11361.814	Bayesian crit. (BIC)	11393.653

**** p<0.01, ** p<0.05, * p<0.1*

The value of Hausman test is 18.917 at 1% significance level, then the null hypothesis can be rejected. Meaning random effect model is not appropriate. By choosing the alternative hypothesis it can be suggested that the fixed effect model can give consistent and appropriate estimators which result in existing firm-specific fixed effect in the dataset of pooled OLS, and both Random and Fixed Effect.

Table 4.15. Hausman (1978) Specification Test of Human Rights Variable

	Coef.
Chi-square test value	18.917
P-value	0.0020

4.3.5 Random Effect of Product Responsibility Variable

The findings of random effect model for the third dependent variable the product responsibility are included in Table 4.15. Four independent variables are statistically significant to result in variance in the dependent variable product responsibility according to random effect model. The t-value significance of the four variables is at

both 1% and 5 % level of significance. However, the control variable "log_firm size" has shown no level of significance of 0.339.

The calculated chi-square value of 1380.017 has a significance level of 1% so it is better to reject the null hypothesis of 'pooled OLS. Therefore, using the Random effect is a better methodology than using OLS. Hence, result shows that there are firm-specific effects in examined data set.

Table 4.16. Random Effect of Product Responsibility Variable

Product responsibility	**Coef.**	**St.Err.**	**t-value**	**p-value**	**[95% Conf**	**Interval]**	**Sig**
Gender diversity	0.379	0.051	7.45	0.000	0.279	0.478	***
Cultural diversity	0.044	0.021	2.13	0.034	0.003	0.084	**
Board size	2.416	0.175	13.80	0.000	2.072	2.759	***
Board independence	0.235	0.031	7.67	0.000	0.175	0.295	***
log_firm size	0.222	0.232	0.96	0.339	-0.232	0.675	
Constant	8.392	2.597	3.23	0.001	3.302	13.483	***

Mean dependent var	54.303	SD dependent var	34.276
Overall r-squared	0.481	Number of obs	1490.000
Chi-square	1133.226	Prob > chi2	0.000
R-squared within	0.416	R-squared between	0.501

**** p<0.01, ** p<0.05, * p<0.1*

4.3.6 Fixed Effect of Product Responsibility Variable

Table 4.17 presents the results of fixed effect model. According to fixed effect model, the four independent variables gender diversity, cultural diversity, board independence and board size are causing variance in the dependent variable product responsibility because of their statistical significance. The significance of the t-value of the four variables is at both 1% and 10% significance level. Yet, the variable "log_firm size" shows again no level of significance at 0.906

Table 4.17. Fixed Effect of Product Responsibility Variable

Product responsibility	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Gender diversity	0.434	0.057	7.57	0.000	0.321	0.546	***
Cultural diversity	0.036	0.022	1.65	0.099	-0.007	0.078	*
Board size	2.153	0.232	9.27	0.000	1.697	2.610	***
Board independence	0.224	0.037	6.03	0.000	0.151	0.297	***
log_firm size	-0.028	0.240	-0.12	0.906	-0.500	0.443	
Constant	12.808	2.537	5.05	0.000	7.830	17.785	***

Mean dependent var	54.303	SD dependent var	34.276
R-squared	0.417	Number of obs	1490.000
F-test	169.861	Prob > F	0.000
Akaike crit. (AIC)	11653.089	Bayesian crit. (BIC)	11684.928

**** p<0.01, ** p<0.05, * p<0.1*

The calculated Hausman test value is 25.085 which has 1% significance level, then the null hypothesis of the random effect better to be rejected Hence by choosing the alternative hypothesis, it can be suggested that using the fixed effect model can give the consistent and the appropriate estimators, which result in existing firm-certain fixed effect in the studied dataset of pooled OLS, and both Random and Fixed Effect model.

Table 4.18. Hausman (1978) Specification Test of Product Responsibility Variable

	Coef.
Chi-square test value	25.085
P-value	0.0001

4.3.7 Random Effect of Community Variable

The findings of the random effect model for the last dependent variable, the community score are show in the Table 4.19. By considering the random effect, all

independent variables are causing variance in the dependent variable community because of their significance statistically. The significance of the t-value of the five variables is on both 1% and 5 % level of significance.

Additionally, the significance of the chi-square value of 1371.52 is on 1% significance level, then it is better to reject the null hypothesis of 'pooled OLS. Therefore, using the Random effect turned to be more appropriate methodology than using OLS. Hence, results show the existing of firm-specific effects in the studied data set.

Table 4.19. Random Effect of Community Variable

Community score	**Coef.**	**St.Err.**	**t-value**	**p-value**	**[95% Conf**	**Interval]**	**Sig**
Gender diversity	0.279	0.054	5.14	0.000	0.172	0.385	***
Cultural diversity	0.052	0.022	2.36	0.019	0.009	0.095	**
Board size	1.424	0.186	7.64	0.000	1.058	1.789	***
Board independence	0.344	0.033	10.54	0.000	0.280	0.408	***
log_firm size	0.966	0.247	3.92	0.000	0.483	1.450	***
Constant	2.632	2.767	0.95	0.342	-2.791	8.054	

Mean dependent var	48.867	SD dependent var	34.205
Overall r-squared	0.409	Number of obs	1490.000
Chi-square	833.336	Prob > chi2	0.000
R-squared within	0.342	R-squared between	0.432

**** p<0.01, ** p<0.05, * p<0.1*

4.3.8 Fixed Effect of Community Variable

Table 4.20 is presenting the results of the fixed effect model. According to the fixed effect model, the five independent variables gender diversity, cultural diversity, board independence, board size and log firm size are causing variance in the dependent variable workforce because of their significance statistically. The significance of the t-value of the previous five variables is on both 1% and 10% level of significance.

Table 4.20. Fixed Effect of Community Variable

Community score	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Gender diversity	0.371	0.061	6.07	0.000	0.251	0.491	***
Cultural diversity	0.043	0.023	1.85	0.065	-0.003	0.088	*
Board size	1.149	0.248	4.64	0.000	0.663	1.635	***
Board independence	0.314	0.040	7.94	0.000	0.236	0.392	***
log_firm size	0.767	0.256	2.99	0.003	0.264	1.269	***
Constant	6.800	2.704	2.52	0.012	1.495	12.105	**

Mean dependent var	48.867	SD dependent var	34.205
R-squared	0.344	Number of obs	1490.000
F-test	124.499	Prob > F	0.000
Akaike crit. (AIC)	11842.983	Bayesian crit. (BIC)	11874.822

**** p<0.01, ** p<0.05, * p<0.1*

The value of Hausman test is 26.123 which is significant on 1% significance level, then it is better to reject the null hypothesis of the random effect. Hence by choosing the alternative hypothesis it can be suggested that using the fixed effect model can provide the proper and stable estimators l which result in existing firm-certain fixed effect in the studied dataset of pooled OLS, and both Random Effect and Fixed Effect model.

Table 4.21 Hausman (1978) Specification Test of Community Variable

	Coef.
Chi-square test value	26.123
P-value	0.0001

4.4 Research Models

In this study, three different models have been generated to understand the relationship between variables and measure to what extent each one of the studied variables can affect the others. Table 4.22 presents the results. First of all, Model 1 has tested the relationship between the gender diversity/cultural diversity which are the independent variables and all dependent variables which are community score, human rights, workforce score, and product responsibility. Results show a significant relationship between the independent variables "gender diversity and cultural diversity" and the four dependent variables at a 1% level of significance.

Secondly, Model 2 is searching for the relationship between the controls variables: board size, board independence, and firm size, and the dependent variables. The findings indicate a significant relationship among not only board independence and all dependent variables but also board size and all dependent variables on a 1% significance level.

The control variable "log firm size" has shown 10% significance level, 1% significance level, and no level of significance with workforce score, community score and human rights, and the product responsibility variable respectively.

Lastly, Model 3 has been run between each dependent variable, workforce score, product responsibility, human rights, and community score and all other independent and control variables. The purpose of this test is to check if there is consistency with previous results. The results in Table 4.22 indicate that, all variables have shown consistency with its level of significance except the independent variable "cultural diversity". The relationship between cultural diversity and both the first dependent variable "community score" and the fourth dependent variable "product responsibility" is significant but has changed from 1% to 10% significance level. Furthermore, the relationship with the second dependent variable "human rights" was significant and it has changed to be insignificant. Which means that firms with culturally diverse board are having similar impacts on human rights conventions like

the firms with no cultural diversity on board. Lastly, cultural diversity has maintained a significant relationship with the dependent variable “workforce score” but instead of 1%, it has become at a 5% level of significance

Table 4.22. Research Models

	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	C.S	C.S	C.S	H.R	H.R	H.R	W.S	W.S	W.S	P.R	P.R	P.R
Gender Diversity	0.858*** -0.0489		0.371*** -0.061	1.258*** -0.0465		0.509*** -0.0519	1.083*** -0.0453		0.499*** -0.0542	0.967*** -0.0467		0.434*** -0.0573
Cultural Diversity	0.120*** -0.0237		0.0427* -0.0231	0.108*** -0.0225		-0.00937 -0.0197	0.139*** -0.0219		0.0478** -0.0205	0.113*** -0.0226		0.0358* -0.0217
Board Independence		0.418*** -0.0365	0.314*** -0.0395		0.605*** -0.0318	0.486*** -0.0336		0.516*** -0.0331	0.380*** -0.0351		0.340*** -0.0345	0.224*** -0.0371
Board Size		1.700*** -0.236	1.149*** -0.248		2.513*** -0.205	1.822*** -0.211		2.160*** -0.214	1.427*** -0.22		2.785*** -0.223	2.153*** -0.232
Log_Firm Size		0.810*** -0.26	0.767*** -0.256		0.626*** -0.226	0.600*** -0.218		0.446* -0.235	0.393* -0.227		0.0156 -0.246	-0.0283 -0.24
Constant	26.95*** -1.152	5.454** -2.739	6.800** -2.704	33.52*** -1.097	5.575** -2.383	7.176*** -2.301	30.62*** -1.067	8.896*** -2.481	10.67*** -2.4	30.19*** -1.101	11.29*** -2.591	12.81*** -2.537
Observations	1490	1490	1490	1490	1490	1490	1490	1490	1490	1490	1490	1490
R-squared	0.257	0.321	0.344	0.427	0.563	0.595	0.386	0.463	0.502	0.316	0.387	0.417
Number of Firms	298	298	298	298	298	298	298	298	298	298	298	298

Note: *** p<0.01, ** p<0.05, * p<0.1

(CS: Community Score; H.R: Human Rights; W.S: Workforce Score; P.R: Product Responsibility)

4.5 Hypothesis confirmation

Recalling our hypothesis that has been listed earlier in the previous chapter, the Table 4.23 is presenting the expected relationship between the variables and the actual result.

Table 4.23. Hypothesis

	Expected Relationship	**Rejected/Accepted**	**Actual Relationship**
H1a	The relationship between gender diversity and workforce performance	Accepted	Statistically significant and positive relationship
H1b	The relationship between gender diversity and human rights activities	Accepted	Statistically significant and positive relationship
H1c	The relationship between gender diversity and community condition	Accepted	Statistically significant and positive relationship
H1d	The relationship between gender diversity and product responsibility	Accepted	Statistically significant and positive relationship
H2a	The relationship between cultural diversity and workforce performance	Accepted	Statistically significant and positive relationship
H2b	The relationship between cultural diversity and human rights activities	Rejected	Statistically insignificant and negative relationship
H2c	The relationship between cultural diversity and community condition	Accepted	Statistically significant and positive relationship
H2d	The relationship between cultural diversity and product responsibility	Accepted	Statistically significant and positive relationship

As the Table 4.23 shows, all hypothesis were confirmed except H2b which has been indicating an insignificant negative relationship between its variables.

CHAPTER V

DISCUSSION & CONCLUSION

5.1 Discussion

The impact of board diversity on firms' financial performance is an excessively discussed topic in the literature. What has not been appropriately inquired into is the effect that board diversity can have on firms' non-financial performance. While some studies have shown the side effects of diversity, some others argued the positive outcomes that certain types of board diversity can bring to the firms' non-financial performance. Ferreira (2010) stated that diversity among board members can bring benefits to a company through providing workers at any level with equal opportunities and complying with societal expectations.

Diversity could have two different shapes. The first is structural and the second is demographical diversity. The aim of this study is to understand the possible relationship among the demographical board diversity, specifically gender and cultural diversity, and the social sustainability dimension of the non-financial performance of the firm. Social sustainability was analyzed based on four dimensions, which are product responsibility, community, human rights, and the workforce. A panel data of 5 years, between 2014 and 2018, of developed, advanced emerging and secondary emerging countries with relatively high sustainability scores were analyzed.
Our findings show the following results:

1- Gender diversity is positively and significantly related to the four dimensions of social sustainability. Previous studies have indicated that corporations with more women on boards will have higher tendency to do more socially responsible activities in comparison with firms that have fewer or no women (Cucari, De Flaco and Orlando, 2017). Likewise, some studies have found that higher female representation on boards can stimulate higher level of charity activities (Bernadi and Threadgill, 2010),

reinforce CSR practices (Zhang, 2012) and strengthen the connection with the society (Hillman et al, 2002).

2- The study demonstrated that cultural diversity is positively and significantly related to three of social sustainability's dimensions which are the workforce, product responsibility, and community. Masulis et al. (2012) has also argued that the effect of having foreign independent directors in a firm would create efficient cross-border acquisitions, specifically when the target is from the director's home country. Which means both culturally diverse and independent members can enhance firms' performance.

3- The findings have shown that cultural diversity is negatively and insignificantly related to the human rights dimension of social sustainability. Frijns, Dodd and Cimerova (2016) have argued that boards with cultural diversity tend to have lower intragroup trust and therefore experience lower performance. Additionally, Kirchmeyer and Cohen (1992) described that, in multi-cultural groups, conflict could be hard to identify and not easy to resolve. For instance, slower communication, harder coordination, more reason to misunderstand, all could exist within culturally diverse groups (Anderson et al, 2011; Doney et al, 1998). Thus, having cultural diversity among board members may not always be the right option considering the efficiency of human rights conventions. However, cultural diversity can still enhance the firms' workforce satisfaction, product responsibility capacity and community commitments.

The next Table 5.1 is presenting both the findings of our study and which studies 'results are matching our study and which are not.

Table 5.1 Current Study's Results vs. Previous Studies' Results

Our Study' results	Similar Results	Different Results
1- Period: 2014-2018 **2- Sample:** 9 different countries:(France, Turkey, Netherland, Taiwan, Spain, Hungary, Portugal, Finland, Denmark) and 298 companies. **3- Results:** a. The relationship between gender diversity and workforce performance is statistically significant and has positive relationship. b. The relationship between gender diversity and human rights activities is statistically significant and has positive relationship. c. The relationship between gender diversity and community condition is statistically significant and has positive relationship. d. The relationship between gender diversity and product responsibility is statistically significant and has positive relationship. e. The relationship between cultural diversity and workforce performance is statistically significant and has positive relationship. f. The relationship between cultural diversity and human rights activities is statistically insignificant and has negative relationship. g. The relationship between cultural diversity and community condition is statistically significant and has positive relationship. h. The relationship between cultural diversity and product responsibility is statistically significant and has positive relationship	**(Hafsi and Turgut, 2013)** **1- Period:** 2013 **2- Sample:** USA, 500 S&P listed firms **3- Results:** gender diversity has positive impact on the corporate social performance. **(Velte, 2016)** **1- Period:** 2010-2014 **2- Sample**: Germany and Austrian, 1,019 observations **3- Results**: Femal have positive impact on ESG performance, measured by the assetfour database by thomson reuters **(Gupta et al., 2015)** **1- Period:** 2003-2012 **2- Sample**: 1,507 observations **3- Results:** board with more diversity in terms of gender and ethnicity may enhance firms performance on social, environment and governance dimensions . **(Bernile, 2017)** **1- Period:** 1996-2014 **2- Sample:** 21,572 observations **3- Results:** greater board diversity leads to lower volatility and better performance, and firms with greater board diversity also invest persistently more in research and development.	**(Ahern and Dittmar, 2012)** **1- Period:** 2012 **2- Sample:** Norway, 248 Norwegian public-listed firms **3- Results:** Ratio of women in corporate boards has negative impact on the firm performance. **(Sanan, 2016)** **1- Period:** 2016 **2- Sample**: India, 54 companies **3- Results**: the study doesn't find a significant association between gender diversity of boards and firms financial and social performance. **(Dang et al, 2017)** **1- Period:** 2010-2015 **2- Sample:** US, 379 firms. **3- Results:** there is no significant relationship between gender diversity and ESG disclosure. Below three female directors, the relationship between board gender diversity and ESG disclosure is not statistically significant.

Table 5.1. continued

	(Lin et al, 2018) **1- Period:** 2011-2013 **2- Sample:** Taiwan, 380 firms **3- Results:** board gender diversity with the critical number of female director is positively related to charitable donations. **(Naciti, 2016)** **1- Period:** 2019 **2- Sample:** 46 different countries, 362 firms **3- Results:** firms with more diversity on board (gender, nationality) show higher sustainability performance. **(Silcilano, 2014)** **1- Period:** 2014 **2- Sample:** TMCA, 240 organization **3- Results:** gender diversity compared favorably to the organization's level of social performance. **(Kagzi and Guha, 2018)** **1- Period**: 2010-2014 **2- Sample**: India, 200 firms. **3- Results:** positive linear relationship between the overall board demographic diversity (gender, age, tenure, education) and firm performance.	**(Eulerich, 2014)** **1- Period:** 2009-2011 **2- Sample:** Germany, 149 firms **3- Results:** negative effects of various board diversity characteristics on corporate performance especially regarding national diversity and age, due to the fact that great internationality on boards can decrease communication between board members. **(Cucari et al, 2017)1- Period:** 2011-2014 **2- Sample:** Italy, 54 firms **3- Results:** women on board is negatively correlated with the ESG performance.

5.2 Recommendations

Theoretically speaking this study provide a comprehensive understanding of board gender and cultural diversity and assess their impact on social sustainability dimensions which are workforce, human rights, community and product responsibility using the example of countries with high sustainability score. Unlike previous studies which have only focused on sustainability as a single variable, our study has focused on each dimension of social sustainability separately and has tested the relationship of each dimension with gender diversity and cultural diversity separately as well. Additionally, taking countries with high sustainability score as sample in order to test how much diversity could be considered as the main factor affecting the sustainability performance of a firm is another distinguishing feature of this study.

Practically speaking, not only managers but also owners of the companies may benefit from the findings of this study by considering to increase the number of the female members on the boards for a better social sustainability performance. A higher social sustainability performance could bring many advantages to the company such as increasing job satisfaction, and product or service quality Moreover, they initiate more charitable movements and support human rights activities. To sum up, gender diversity is a way for a company to contribute to society in which it is operating.

On the other hand, companies may consider the option of cultural diversity among board members if they have strong international relations. Through recruiting culturally diverse members the company show a more efficient social performance. However, companies may avoid having cultural diversity if they are primarily local players. Because the people from the local culture will understand better the need of the community and make less conflicting decisions with societal norms and expectations.
There are many examples of companies around the world who adapted the diversity strategy and have been successful. First example is MasterCard, they see diversity as a tool which leads to better decisions, better product and clearer insights. Over the past years MasterCard has conducted a distinctive project that involves having older personnel when it comes to social media. The second example is Accenture Company, they believe that discrimination should not exist among employees just because of their differences, such as gender, age, ethnicity, incapacity, sexual orientation or religion. The

company adapted a diversity training programme which is divided into 3 different categories; 1) Diversity Consciousness – to show to the public the importance and what kind of benefits someone might obtain when working with a diverse group, 2) Diversity Management – to prepare executives to manage diverse teams and 3) Professional Development – to help ethnically diverse employees and women to build skills for success. The third example is Disney, they understood that diversity is something essential for their success. The company has established the "Global Workplace and Women's Initiative" (GWWI) programme, which concentrates on extending chances for women, also they successfully achieved offers for Latinos of more than (75.6%) compared with other companies. Lastly, Coca-Cola, they see diversity as more than only practices and policies. Diversity from their perspective is an integral part of who they are as a company, how they see their future and how they operate. The company has also worked on Diversity Education Programmes, which include a diversity speaker series, Diversity Training and a Diversity Library (Socialtalent, 2020).

5.3 Limitations and Further Studies

The study could also make certain recommendations for future research based on its limitations. First, this study used panel data including aggregated results which may not be applicable in the individual countries. Future studies can be done applying cross-section or time-series data in the case of a specific region or country. Second, the academicians can identify elements other than board diversity which can influence the firms' non-financial performance. Additionally, different dimensions of board diversity either structural or demographical ones that have not been used in this study can also be included in future researches to test its relatedness with the social sustainability. Thirdly, further similar studies would be conducted with different samples. For instance, there are many other countries which have low sustainability scores. Further studies inquiring into whether these countries' low ESC score is because of less diversity among their companies' board members or there are different factors affecting the social sustainability which are more significant than the diversity, these studies can lead to a better understanding of the relationship between board diversity and social sustainability. Lastly, the rejected hypothesis in this study can give an idea for further research aiming to understand the reasons why cultural diversity doesn't have an impact on human rights dimension of social sustainability specifically.

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APPENDIXES
APPENDIX A

Table A.1. The Research on Board Gender Diversity (Kagzi and Guha, 2018).

Author(s)	Country	Sample	Dependent variables	Independent variables	Result
Ku Ismail and Abdul Manaf (2016)	Malaysia	127 Malaysian firms (1999-2011)	Average abnormal return (AAR)	Women director demographics, size of the company, ROA, leverage, industry dummy	Positive
Terjesen et al. (2016)	47 countries	3,876 public firms in 47 countries	ROA, Tobin's Q	Percentage of independent directors, percentage of female directors	Positive
Rose et al. (2013)	Denmark, Sweden, Norway, Finland and Germany	117 listed companies	ROA, ROE and ROCE	Women director, nationality of director, industry dummy, firm size	No link
Hafsi and Turgut (2013)	USA	500 S&P listed firms	Corporate social performance	Outside directors, board size, ownership, leadership, duality, gender, age, ethnicity, tenure and experience	Positive
Ahern and Dittmar (2012)	Norway	248 Norwegian public-listed firms	Firm performance	Ratio of women in corporate boards	Negative

Dezsö and Ross (2012)	USA	1,500 S&P companies	ROA, Tobin's Q	Percentage of female, innovation intensity, age, size	Positive
Mahadeo et al. (2012) Mauritius	Mauritius	39 companies listed on Mauritius stock exchange	ROA	Ratio of women directors in corporate boards	Positive
Gul et al. (2011)	USA	7,597 US firms	Stock prices	Gender diversity ratio	Positive
Torchia et al. (2011)	Norway	317 Norwegian companies	Innovation	No. of women in corporate boards categorized into four groups – no woman, one woman, two women and three plus women	Three plus women – positively related
Bøhren and Strøm (2010)	USA, Norway	7,597 US firms, 203 Norwegian firms	Tobin's Q, ROA	Gender ratio	Positive and Negative links
Haslam et al. (2010)	UK	126 British companies	ROA, ROE, Tobin's Q	Dummy (women), ratio of women directors	No link and negative link
LückerathRovers (2013)	The Netherlands	99 Dutch companies	ROE, ROS	Ratio of women on boards	Positive
Adams and Ferreira (2009)	USA	1939 US firms	Firm characteristics	Board characteristics	Negative

Table A.2 Findings of Previous Related Studies

Authors	Positive Relationship	Negative Relationship	No Relationship
Westphal and Milton (2000)	Having demographic diversity in the corporate boards can lead to great openness to change and less separated decision-making processes		
Post et al., (2011)	In the decision-making process, a number of advantages can be brought by creating a greater diversity on a firm's board		
Al-Musalli and Ku İsmail, (2012a, 2012b)	Board diversity helps to improve management's understanding of employees' and customers' needs and perceptions, strengthen and change the company's relationship with external and internal stakeholder groups and increase the willingness to adapt		
Orlando et al, (2007)	A knowledge-based perspective proposes that better performance can be produced by diversity that encourages innovative ideas and multiple views before making decisions		
Carpenter (2002)		Board diversity could lead to more conflicts and influence the efficiency of top management's communication negatively	

Goodstein et al, (1994)		Board diversity could restrict a boards' ability to take appropriate strategic actions on time and it could result in conflicting thoughts of strategic change	
Westphal and Milton (2000)		Demographic differences lower social cohesion between group members and that these social barriers reduce the likelihood that minority viewpoint will be incorporated into group decisions	
Hillman et al (2000)	Diversity in age, gender, professional background, and experience provide valuable resources which the company can benefit from.		
Barney, (1991)	According to the Resource-based View, a firm can gain a sustained competitive advantage if it takes advantage of its valuable, rare, inimitable, and non-substitutable resources. Board diversity facilitates these resources to improve firm performance.		
Zona et al., (2013)	Firms use heterogeneous boards to communicate visible signals to gain reputation and status among the stakeholders.		

Eulerich and his fellows (2014)		Multiple board diversity characteristics, particularly national and age diversity, have negative effects on corporate performance due to decreasing communication among members of board	
Randøy et al, (2006)	When boards consist of different nationalities members, then the firm will be able to enhance consumer policies that create and sustain the relationship with customers for longer-term and can better understand its customers who are culturally diverse		
Nederveen Pieterse et al, (2013)	Cultural diversity can present a diverse range of perspectives and knowledge and facilitate the elaboration of information		
Anderson et al, (2011); Doney et al, (1998)		Slower communication and harder coordination, all could exist within culturally diverse groups	
Ferreira (2010)	Diversity can also bring benefits to a company through showing equal opportunities to workers in lower-level and complying with societal expectations.		
Cucari, De Flaco and	The tendency of initiating socially responsible activities increases with increasing		

Orlando, (2017).	number of female board members		
Bernadi and Threadgill, (2010), Zhang, (2012), Hillman et al, (2002).	Female representation on boards is associated with a higher level of charitable giving, reinforce CSR practices and strengthen the connection with the community		
Kyaw and his associates (2017)	A higher number of females on boards' management benefits the society through the improvements not only at the social or environmental level but also overall performance of the company		
Kyaw, Olugbode and Petracci, (2017).			There is no significant relationship between female board representation and firm performance

Table A.3 The Summary of Contributing Theories (Kagzi and Guha, 2018)

#	Name of the Theory	Theoretical Explanation	Research's Question
1	Resource Dependence Theory (Pfeffer and Salancik, 1978)	Resource Dependence Theory offers a rationale for a board's function of providing critical resources to the firm.	How does board diversity facilitate a broad range of internal and external resources to enhance firm performance?
2	Upper Echelons Theory (Hambrick and Mason, 1984)	According to Upper Echelons Theory, directors differ in their cognitive frames, and these cognitive frames, in turn, influence firm outcomes.	How do board characteristics influence strategic decision making?
3	Agency Theory (Jensen and Meckling, 1976)	As per Agency Theory, a key activity for boards is to monitor management on behalf of shareholders and that effective monitoring can improve firm performance by reducing agency costs.	How does board structural diversity (number of independent/outsider directors on boards) influence firm performance?
4	Stewardship Theory (Donaldson and Davis, 1994)	Stewardship Theory claims that directors are essentially trustworthy individuals and therefore good stewards of the resources entrusted to them. This theory proposes that more number of insider directors can enhance firm performance.	How does board structural diversity (number of inside directors on boards) influence firm performance?
5	Resource Based View (RBV) (Barney, 1991)	According to the Resource-based View, a firm can gain a sustained competitive advantage if it takes advantage of its valuable, rare, inimitable, and non-substitutable resources. Board diversity	How does board diversity facilitate the use of internal resource for improving firm performance?

		facilitates these resources to improve firm performance.	
6	Human Capital Theory (Singh, 2007)	Human Capital Theory focuses upon the director's expertise for the firm. Directors in terms of Insiders, Business Experts and Community Influential, Business Support Specialists and Community Influential facilitate board functioning which can influence firm performance.	How does a board's expertise influence firm performance?
7	Social Capital Theory (Singh, 2007)	Social Capital Theory puts emphasis upon a board's social ties to other sources of influence. This includes links to government and politics, business institutions, educational institutions, international bodies, financial institutions and charity/voluntary sector.	How does a board's social networks influence firm performance?
8	Critical Mass Theory (Liu et al., 2014).	Critical Mass Theory suggests that the minimum number of women directors (at least three women) constitute the desired critical mass to influence firm performance	What minimum number of women is needed to influence firm performance?
9	Signalling Theory (Miller and Triana, 2009)	Signalling theory to explain how firms use heterogeneous boards to communicate visible	Does board diversity provide signals to the stakeholders of the firm?

		signals to gain reputation and status among the stakeholders.	
11	Contingency Theory (Zona et al., 2013)	Contingency theory looks at the specific contingency variables which facilitate the board diversity and firm performance relationship.	How board diversity is pronounced in the presence of some specific contextual factors, such as firm size?
12	Self-Categorization Theory (Brown and Turner, 1981; Hogg and Reid, 2006).	Self-categorization theory suggests that people categorize themselves into various social and psychological identity groups based on specific attributes such as gender, age etc. The categories available for self-categorization operate at multiple levels. The narrowest level of category relates to an individual's self-identity, and wider group-level categories create the individual's social identity	How different individuals are categorized based on similar attributes?
13	Social Identity Theory (Tajfel, 1978)	The social identity perspective is a social psychological analysis of group processes, intergroup relations, and the self-concept.	How does board members categorization at group level hamper the firm performance?

APPENDIX B

Abbreviation	Full Term
GD	Gender Diversity
CD	Cultural Diversity
WS	Workforce Score
CS	Community Score
HR	Human Rights
PR	Product Responsibility
FS	Firm Size
BS	Board Size
BM/BI	Board Independence Members

```
. xtdescribe

   firms:  1, 2, ..., 298                             n =         298
    year:  2014, 2015, ..., 2018                      T =           5
           Delta(year) = 1 year
           Span(year)  = 5 periods
           (firms*year uniquely identifies each observation)

Distribution of T_i:   min      5%      25%       50%       75%      95%      max
                         5       5        5         5         5        5        5

     Freq.  Percent    Cum. |  Pattern
 ---------------------------+---------
       298   100.00  100.00 |  11111
 ---------------------------+---------
       298   100.00         |  XXXXX
```

```
reg  pr gd cd bm bs log_fs

      Source |       SS       df       MS              Number of obs =    1490
-------------+------------------------------           F(  5,  1484) =  285.23
       Model |  857312.898     5  171462.58             Prob > F      =  0.0000
    Residual |  892076.093  1484  601.129443           R-squared     =  0.4901
-------------+------------------------------           Adj R-squared =  0.4883
       Total |  1749388.99  1489  1174.87508           Root MSE      =  24.518

------------------------------------------------------------------------------
          pr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          gd |   .2489351   .0493937     5.04   0.000     .1520462    .345824
          cd |   .0854188   .0251709     3.39   0.001     .0360445   .1347931
          bm |    .278839   .0282214     9.88   0.000     .2234808   .3341971
          bs |   2.729131   .1372553    19.88   0.000     2.459896   2.998366
      log_fs |   1.370426   .3061292     4.48   0.000     .7699346   1.970918
       _cons |  -5.645191   2.650477    -2.13   0.033    -10.84427   -.4461117
------------------------------------------------------------------------------
```

```
reg   cs gd cd bm bs log_fs
```

Source	SS	df	MS	Number of obs =	1490
Model	734312.255	5	146862.451	F(5, 1484) =	216.26
Residual	1007801.13	1484	679.111273	Prob > F =	0.0000
				R-squared =	0.4215
				Adj R-squared =	0.4196
Total	1742113.38	1489	1169.98884	Root MSE =	26.06

cs	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gd	.0561418	.0524999	1.07	0.285	-.0468401	.1591236
cd	.0961847	.0267538	3.60	0.000	.0437055	.1486639
bm	.4324101	.0299962	14.42	0.000	.3735707	.4912494
bs	1.842443	.1458867	12.63	0.000	1.556277	2.128609
log_fs	1.830747	.3253802	5.63	0.000	1.192493	2.469001
_cons	-9.867836	2.817153	-3.50	0.000	-15.39386	-4.34181

```
reg   ws gd cd bm bs log_fs
```

Source	SS	df	MS	Number of obs =	1490
Model	852504.877	5	170500.975	F(5, 1484) =	369.16
Residual	685410.599	1484	461.86698	Prob > F =	0.0000
				R-squared =	0.5543
				Adj R-squared =	0.5528
Total	1537915.48	1489	1032.85123	Root MSE =	21.491

ws	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gd	.3601169	.0432958	8.32	0.000	.2751894	.4450444
cd	.053676	.0220634	2.43	0.015	.0103972	.0969548
bm	.2243801	.0247374	9.07	0.000	.1758562	.2729041
bs	2.751826	.1203106	22.87	0.000	2.515829	2.987823
log_fs	1.294109	.2683361	4.82	0.000	.7677502	1.820467
_cons	-.602577	2.323264	-0.26	0.795	-5.159807	3.954653

```
reg    hr gd cd bm bs log_fs
```

Source	SS	df	MS	Number of obs =	1490
Model	1104768.39	5	220953.678	F(5, 1484) =	486.59
Residual	673867.931	1484	454.088902	Prob > F =	0.0000
				R-squared =	0.6211
				Adj R-squared =	0.6199
Total	1778636.32	1489	1194.51734	Root MSE =	21.309

hr	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gd	.3296594	.0429297	7.68	0.000	.24545	.4138688
cd	.0571969	.0218768	2.61	0.009	.0142841	.1001097
bm	.4343963	.0245282	17.71	0.000	.3862826	.4825099
bs	2.544369	.1192932	21.33	0.000	2.310368	2.778371
log_fs	1.337896	.2660671	5.03	0.000	.8159883	1.859803
_cons	-2.197801	2.303618	-0.95	0.340	-6.716495	2.320893

Breusch and Pagan Lagrangian multiplier test for random effects

pr[firms,t] = Xb + u[firms] + e[firms,t]

Estimated results:

	Var	sd = sqrt(Var)
pr	1174.875	34.27645
e	181.6862	13.4791
u	413.8696	20.34378

Test: Var(u) = 0

chibar2(01) = 1380.07
Prob > chibar2 = 0.0000

Breusch and Pagan Lagrangian multiplier test for random effects

cs[firms,t] = Xb + u[firms] + e[firms,t]

Estimated results:

	Var	sd = sqrt(Var)
cs	1169.989	34.2051
e	206.3817	14.36599
u	467.3584	21.61847

Test: Var(u) = 0

chibar2(01) = 1371.52
Prob > chibar2 = 0.0000

Breusch and Pagan Lagrangian multiplier test for random effects

ws[firms,t] = Xb + u[firms] + e[firms,t]

Estimated results:

	Var	sd = sqrt(Var)
ws	1032.851	32.138
e	162.5778	12.7506
u	295.3407	17.18548

Test: Var(u) = 0

chibar2(01) = 1180.41
Prob > chibar2 = 0.0000

Breusch and Pagan Lagrangian multiplier test for random effects

hr[firms,t] = Xb + u[firms] + e[firms,t]

Estimated results:

	Var	sd = sqrt(Var)
hr	1194.517	34.56179
e	149.425	12.22395
u	303.3138	17.41591

Test: Var(u) = 0

chibar2(01) = 1292.58

Prob > chibar2 = 0.0000

APPENDIX C

Models

```
. xtreg  cs gd cd, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.2569                         Obs per group: min =         5
       between = 0.2035                                        avg =       5.0
       overall = 0.2150                                        max =         5

                                                F(2,1190)          =    205.73
corr(u_i, Xb)  = 0.0094                         Prob > F           =    0.0000

------------------------------------------------------------------------------
          cs |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          gd |   .8581749   .0489109    17.55   0.000     .7622137    .9541361
          cd |   .1202609    .023673     5.08   0.000     .0738154    .1667063
       _cons |   26.94779   1.152461    23.38   0.000     24.68671    29.20887
-------------+----------------------------------------------------------------
     sigma_u |  27.095163
     sigma_e |   15.27061
         rho |  .75893513   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1190) =    15.37                 Prob > F = 0.0000
```

```
. xtreg  cs  bs bm log_fs, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.3214                         Obs per group: min =         5
       between = 0.4422                                        avg =       5.0
       overall = 0.4124                                        max =         5

                                                F(3,1189)          =    187.74
corr(u_i, Xb)  = 0.1638                         Prob > F           =    0.0000

------------------------------------------------------------------------------
          cs |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          bs |   1.700423   .2359419     7.21   0.000     1.237515    2.163332
          bm |   .4177494   .0365121    11.44   0.000     .3461141    .4893847
      log_fs |   .8102721    .259961     3.12   0.002     .3002387    1.320306
       _cons |   5.453964   2.739315     1.99   0.047      .079534    10.82839
-------------+----------------------------------------------------------------
     sigma_u |  23.085817
     sigma_e |  14.598949
         rho |  .71433613   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1189) =    12.07                 Prob > F = 0.0000
```

```
. xtreg  cs  gd cd bs bm log_fs, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.3440                         Obs per group: min =         5
       between = 0.4134                                        avg =       5.0
       overall = 0.3959                                        max =         5

                                                F(5,1187)          =    124.50
corr(u_i, Xb)  = 0.1289                         Prob > F           =    0.0000

------------------------------------------------------------------------------
          cs |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          gd |   .3707436   .0610476     6.07   0.000     .2509704    .4905169
          cd |   .0427274   .0231209     1.85   0.065    -.0026351    .0880899
          bs |   1.148794   .2477372     4.64   0.000     .6627429    1.634846
          bm |   .3140077   .0395309     7.94   0.000     .2364494     .391566
      log_fs |   .7666651   .2561001     2.99   0.003     .2642057    1.269124
       _cons |   6.799695   2.703876     2.51   0.012     1.494787     12.1046
-------------+----------------------------------------------------------------
     sigma_u |  23.513923
     sigma_e |  14.365989
         rho |  .72818992   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1187) =    12.45                 Prob > F = 0.0000
```

```
. xtreg   hr gd cd, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.4270                         Obs per group: min =         5
       between = 0.3505                                        avg =       5.0
       overall = 0.3690                                        max =         5

                                                F(2,1190)          =    443.45
corr(u_i, Xb)  = -0.0448                        Prob > F           =    0.0000

------------------------------------------------------------------------------
          hr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          gd |   1.257585   .0465362    27.02   0.000     1.166283    1.348887
          cd |   .1076191   .0225236     4.78   0.000     .0634287    .1518095
       _cons |   33.52018   1.096507    30.57   0.000     31.36888    35.67148
-------------+----------------------------------------------------------------
     sigma_u |  24.243657
     sigma_e |  14.529198
         rho |  .73574898   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1190) =    13.59                 Prob > F = 0.0000
```

```
. xtreg  hr  bs bm log_fs, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.5627                         Obs per group: min =         5
       between = 0.6081                                        avg =       5.0
       overall = 0.5968                                        max =         5

                                                F(3,1189)          =    510.03
corr(u_i, Xb)  = 0.0408                         Prob > F           =    0.0000

------------------------------------------------------------------------------
          hr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          bs |   2.512845   .2052208    12.24   0.000     2.11021    2.91548
          bm |   .6052806    .031758    19.06   0.000    .5429727    .6675886
      log_fs |   .6258683   .2261125     2.77   0.006    .1822444    1.069492
       _cons |   5.575325    2.38264     2.34   0.019     .900679    10.24997
-------------+----------------------------------------------------------------
     sigma_u |  18.826515
     sigma_e |  12.698077
         rho |  .68732252   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1189) =     10.69                 Prob > F = 0.0000
```

```
. xtreg  hr gd cd bs bm log_fs, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.5954                         Obs per group: min =         5
       between = 0.6046                                        avg =       5.0
       overall = 0.6023                                        max =         5

                                                F(5,1187)          =    349.42
corr(u_i, Xb)  = 0.0230                         Prob > F           =    0.0000

------------------------------------------------------------------------------
          hr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          gd |   .5088708   .0519451     9.80   0.000     .4069563    .6107853
          cd |  -.0093745   .0196735    -0.48   0.634    -.0479732    .0292242
          bs |   1.821654   .2107984     8.64   0.000     1.408075    2.235233
          bm |   .4859467   .0336367    14.45   0.000     .4199527    .5519407
      log_fs |   .6003263   .2179144     2.75   0.006     .1727861    1.027867
       _cons |   7.175765   2.300715     3.12   0.002     2.661844    11.68969
-------------+----------------------------------------------------------------
     sigma_u |  18.898138
     sigma_e |  12.223951
         rho |  .70502283   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1187) =     11.19                 Prob > F = 0.0000
```

```
. xtreg   ws gd cd, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.3861                         Obs per group: min =         5
       between = 0.3042                                        avg =       5.0
       overall = 0.3243                                        max =         5

                                                F(2,1190)          =    374.24
corr(u_i, Xb)  = -0.0532                        Prob > F           =    0.0000

------------------------------------------------------------------------------
          ws |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          gd |   1.083248   .045274    23.93   0.000      .994422    1.172074
          cd |   .1388492   .0219127    6.34   0.000      .0958574   .1818411
       _cons |   30.61581   1.066768    28.70   0.000      28.52286   32.70877
-------------+----------------------------------------------------------------
     sigma_u |  23.263775
     sigma_e |  14.135134
         rho |  .73036357   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1190) =    13.49           Prob > F = 0.0000
```

```
. xtreg  ws  bs bm log_fs, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.4634                         Obs per group: min =         5
       between = 0.4974                                        avg =       5.0
       overall = 0.4888                                        max =         5

                                                F(3,1189)          =    342.25
corr(u_i, Xb)  = 0.0191                         Prob > F           =    0.0000

------------------------------------------------------------------------------
          ws |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          bs |   2.159783   .2136758    10.11   0.000     1.740559    2.579006
          bm |   .5163288   .0330664    15.61   0.000     .4514538    .5812038
      log_fs |   .4463617   .2354282     1.90   0.058    -.0155394    .9082627
       _cons |   8.895977   2.480803     3.59   0.000     4.028737    13.76322
-------------+----------------------------------------------------------------
     sigma_u |  19.738295
     sigma_e |  13.221231
         rho |  .69028957   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1189) =     9.86           Prob > F = 0.0000
```

```
. xtreg  ws  gd cd bs bm log_fs, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.5017                         Obs per group: min =         5
       between = 0.4911                                        avg =       5.0
       overall = 0.4938                                        max =         5

                                                F(5,1187)          =    239.06
corr(u_i, Xb)  = 0.0004                         Prob > F           =    0.0000

------------------------------------------------------------------------------
          ws |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          gd |   .4990922   .0541831     9.21   0.000     .3927869    .6053975
          cd |   .0478322   .0205211     2.33   0.020     .0075705    .0880939
          bs |   1.426577   .2198803     6.49   0.000     .9951797    1.857974
          bm |   .3799564   .0350859    10.83   0.000     .3111192    .4487936
      log_fs |   .3925447   .2273029     1.73   0.084    -.0534155    .8385049
       _cons |   10.67246   2.399838     4.45   0.000     5.964064    15.38086
-------------+----------------------------------------------------------------
     sigma_u |   19.85767
     sigma_e |  12.750601
         rho |  .70806895   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1187) =    10.20           Prob > F = 0.0000
```

```
. xtreg  pr gd cd, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.3157                         Obs per group: min =         5
       between = 0.2574                                        avg =       5.0
       overall = 0.2697                                        max =         5

                                                F(2,1190)          =    274.47
corr(u_i, Xb)  = 0.0185                         Prob > F           =    0.0000

------------------------------------------------------------------------------
          pr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          gd |    .967378   .0467186    20.71   0.000     .8757181    1.059038
          cd |   .1126993   .0226119     4.98   0.000     .0683357    .1570629
       _cons |   30.19266   1.100804    27.43   0.000     28.03293    32.35239
-------------+----------------------------------------------------------------
     sigma_u |  26.270229
     sigma_e |  14.586135
         rho |   .7643593   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1190) =    16.05                 Prob > F = 0.0000
```

```
. xtreg  pr  bs bm log_fs, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.3873                         Obs per group: min =         5
       between = 0.4935                                        avg =       5.0
       overall = 0.4684                                        max =         5

                                                F(3,1189)          =    250.51
corr(u_i, Xb)  = 0.1438                         Prob > F           =    0.0000

------------------------------------------------------------------------------
          pr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          bs |   2.784957    .223155    12.48   0.000     2.347135    3.222778
          bm |   .3403649   .0345333     9.86   0.000     .2726119     .408118
      log_fs |   .0156129   .2458725     0.06   0.949    -.4667793    .4980052
       _cons |   11.28504   2.590858     4.36   0.000     6.201873     16.3682
-------------+----------------------------------------------------------------
     sigma_u |  21.989509
     sigma_e |  13.807761
         rho |  .71721104   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1189) =    12.14                 Prob > F = 0.0000
```

```
. xtreg  pr  gd cd bs bm log_fs, fe

Fixed-effects (within) regression               Number of obs      =      1490
Group variable: firms                           Number of groups   =       298

R-sq:  within  = 0.4171                         Obs per group: min =         5
       between = 0.4908                                        avg =       5.0
       overall = 0.4725                                        max =         5

                                                F(5,1187)          =    169.86
corr(u_i, Xb)  = 0.1415                         Prob > F           =    0.0000
```

pr	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gd	.4336018	.0572788	7.57	0.000	.3212228	.5459808
cd	.0358497	.0216936	1.65	0.099	-.0067123	.0784117
bs	2.153494	.2324431	9.26	0.000	1.697449	2.609539
bm	.2238215	.0370905	6.03	0.000	.1510513	.2965917
log_fs	-.028264	.2402897	-0.12	0.906	-.499704	.443176
_cons	12.80772	2.536951	5.05	0.000	7.830311	17.78513
sigma_u	22.044578					
sigma_e	13.479102					
rho	.72787194	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(297, 1187) =    12.54           Prob > F = 0.0000
```

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