Impact of ownership concentration and corporate governance on sustainability and stakeholder risk: An empirical analysis of listed firms from USA, UK and Germany

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Zahid Irshad Younas

DEDICATION

I dedicate this thesis to my beloved parents

Mr. Muhammad Younas (Late) and Mrs. Irshad Begum (Late).

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LIST OF ABBREVIATIONS

AESSCO	Average environmental and social score
AB	Arrellano-Bond
BOGED	Board gender diversity
BOM	Board meetings
BOSI	Board size
CEO	Chief executive officer
CEOD	CEO Duality
CGSCO	Corporate governance score
CHEXCEO	Chairman -ex-ceo
CO_2	Carbon dioxide
COW	Concentration of ownership
DPS	Dividend per share
e.g.	For example
ES	Environmental and social
ESCO	Environmental score
ESG	Environmental, social and governance
FE	Fixed effect
FIG	Firm Growth
GCOSIG	Global compact signatory
GMM	Generalized methods of moments
i.e.	that is
INDBOA	Independent board
KLD	Kinder, Lydenberg and Domini
LCAP	Large Cap
LEV	Leverage
LIQ	Liquidity
MCAP	Market capitalization
MEDCAP	Medium cap
Nasdaq	National Association of Securities Dealers Automated Quotation

NYSE	New York Stock Exchange
OECD	Organization of economic cooperation and development
OLS	Ordinary least square
QR	Quantile regression
RE	Random effect
RESE	Resource and energy efficient
ROA	Return on Assets
SCAP	Small cap
SIZE	Firm Size
SOX	Sarbanes-Oxley Act
SSCO	Social Score
STAGBOA	Staggered board
STARIS	Stakeholder risk
SUST	Sustainability
UK	United Kingdom
USA	United States of America

1. Introduction

1.1 Background

Generally, corporate governance is understood as a system of protecting the shareholder wealth and controlling the opportunistic behaviour of managers. It is the narrow goal of corporate governance under the agency theory of firms and, under this perspective, the scope of corporate governance is spread to short-term goals, incentive alignment, financial crisis, and even accounting fraud and corporate misconduct.

Although corporate governance is overwhelmingly applied to improve firm value and shareholder wealth, in recent times shareholders have emerged as prominent social actors and have taken a firm stance on different corporate issues such as sustainable supply chain management, labour rights, human development, destruction of rainforests, the welfare of future generation and other . The purpose of this stance is to shift the firm from short term wealth maximization specifically for the benefit of the owners to long a term sustainable business and a viable society.

Similarly, stakeholders such as consumers, suppliers, government, general public, NGOs, social and environmental activists also seek to hold companies accountable for risk associated with stakeholders. Due to this we have seen a shift in the role of corporate governance from a simple shareholder perspective to a stakeholder perspective of corporate governance in monitoring a company's sustainability i.e. triple bottom line (economic, environmental, and social outcomes). This shift of role of firm from shareholder wealth maximization to stakeholder welfare can also be observed in the corporate social and environmental policies. With the passage of time corporations have also implemented the sustainability management systems that monitor the issues regarding stakeholders up to the level of the board. Further, corporate leaders have started to formulate a vision that assimilates sustainability into the strategic commands of corporates.

Against this background several studies already argue that corporate governance is necessary for increasing the value of the firm and adding in shareholder wealth by controlling the opportunistic behaviour of managers with different incentives and monitoring tools. However, with the changing scope of the firm from wealth maximization to stakeholder welfare many

researchers also argue that corporate governance is necessary for improving stakeholder wealth maximization.

However, related empirical studies mainly focus on the impact of corporate governance on corporate social responsibility both under shareholder and stakeholder perspective of corporate governance.

This thesis contributes to and extends the literature by observing the impact of corporate governance and different attributes of board effectiveness and firm level corporate governance mechanism on stakeholder risk. Like shareholders, stakeholders also face the agency problem and fear losing their hidden resources and efforts. This thesis defines this fear of losing resources and efforts and long-term sustainability prospects as stakeholder risk. Here, it is worthwhile to mention that this thesis also contributes to the literature by introducing a method to calculate stakeholder risk. Further, this thesis also considers shareholder and stakeholder corporate governance practices implemented in different countries while observing the impact of corporate governance and also challenges the effectiveness of a wide range features of board effectiveness on stakeholder risk. The reason is that a country where a stakeholder perspective on corporate governance prevails is not able to mitigate the stakeholder risk and vice versa.
In recent times ownership concentration has received ample attention from regulatory bodies and governance institutions. The reason is that it is understood that ownership concentration reduces the agency problem and provides better control for protecting the interests of shareholders. However, limited research is available on the impact of different types of ownership concentration on corporate sustainability. Further, this limited set of empirical studies do not consider the level of scale of the firm while observing the impact of ownership concentration on sustainability. In this thesis, we also contribute by dividing the firms with ownership concentration into different scale subgroup of firms i.e. large cap firms, medium cap firms and small cap firms to see the impact of the ownership concentration of firms at different scales on sustainability. This division of firms into three different subgroups is critical to understanding the different incentives and difference in the approaches of owners at different scale firms regarding sustainability.

1.2 State of research and objectives of this thesis

So, far the main direction of research in the field of corporate governance and corporate social responsibility (CSR) has been the empirical effect of ownership concentration on CSR or the impact of corporate governance on CSR. First, we will highlight state of research in the field of concentration of ownership and CSR. Next we will discuss the state of research in other aspect of our thesis i.e. the impact of corporate governance and different features of board effectiveness on stakeholder risk.

Ownership structure is considered as a mechanism in corporate governance for enhancing the efficiency of a firm. For example, Adam Smith (1776) indicates that public limited companies focus less on maximizing the wealth of owners than private companies because the directors of public limited companies are the manager of the other's wealth. Thus, involvement of agents in the form of directors raises the agency problem for public limited companies and ultimately reduces the performance of the firm (Jensen and Meckling, 1976). However, this agency problem could be reduced through ownership concentration (Fama and Jensen, 1983).
In the absence of the agency problem, firm performance is assumed to be independent of ownership structure. However, in the real world, the agency problem is a globally accepted truth that also results in agency costs for the firm. According to Denis & McConnell (2003) Equity ownership structure is an important mechanism for improving corporate governance and reducing agency costs (Berk & DeMarzo, 2007).

Similarly, the path dependent argument of Coffee (1999) and Dyck (2004) suggests that the ownership structures are path dependent, and are dependent upon the entrusted interests. Therefore, the investors can maximize their interests by having the optimal share in the ownership structure of firm. The path dependent argument is based on ownership concentration and the identity of the owners. Ownership concentration provides quantitative information about the capital right of the largest shareholder(s) (Fama and Jensen, 1983; Morck et al., 1989; Claessen et al., 1996), while owner identity information provides qualitative information about the character of the controlling owner(s). Usually both approaches to ownership are considered acceptable and comparable.

The studies of Hindley (1970), Grossman (1976), Grossman & Hart (1986), Grossman & Hart (1986), Hill & Snell (1989), Agrawal & Mandelker (1990), Denis & Serrano (1996), Burkart,

Gromb & Panunzi (1997), Bushee (1998), Brailsford, Oliver & Pua (2002), Holderness (2003), Edwards & Weichenrieder (2004) find a positive impact of ownership concentration on corporate performance. The main argument for the positive effect given by these studies is that block holders have the ability and the incentive to monitor and control agents, in order to maximize the wealth of shareholder, which is known as incentive alignment. Further, La Porta et al. (1998) asserts that in the cases where there is a large divergence of control rights and cash flow rights, block holders have less incentive to monitor the managers to pursue profit-maximization goals.

Furthermore, the studies of Dyck & Zingales (2004), Burkart et al. (1997) and Zingales (1994) are based on arguments relating to private control benefits. These studies highlight that due to the increased stake in ownership, control and access to more information block holders exploit their position and gain private control benefits and thus ownership concentration has a negative effect on firm performance. Similarly, the studies of Barclay & Holderness (1989) and Bolton & Von Thadden (1998) conclude that ownership concentration has a negative effect on financial performance of firms. These studies are based on the cost of capital argument that was first introduced by Fama & Jensen (1983a). They argue that high ownership concentration reduces the liquidity of the stocks that ultimately results in higher costs of capital. This phenomenon was further confirmed empirically by Beaver et al. (1970), Rosenberg (1976), Thompson (1976) and Hartzell & Starks (2003).

Furthermore, the studies of Eckbo & Smith (1998), Himmelberg et al. (1999) and Bahng (2004), find no effect of ownership concentration on firm performance. These studies are based on the argument of natural selection given by Alchian (1950), Friedman (1953) and Becker (1962) for explanation of the results of their respective studies. According to the natural selection model, corporations perform equally well under different ownership structures because market competition will rule out all inefficient forms in the long run. Thus, the selection of optimal ownership structure depends on the environment and there is no consistent direct effect of ownership structure on performance. The other argument that claims no effect of ownership concentration on firm performance is mutual neutralization. This argument asserts that the positive and negative effects of different ownership tools cancel out each other and result in nullification.

Concentration of ownership exists in the various forms including government ownership, family ownership, foreign ownership and institutional ownership. Further, the impact of these types of concentration of ownership has also been observed in the previous literature. For example, La Porta et al. (1999) state that concentration of ownership in the form of family owned firms is the most prevalent form of ownership structure in 27 countries of the world. Anderson & Reeb (2003) observed that more than one third of the S&P 500 companies are family firms.

Considering this type of ownership concentration very important the studies of Anderson & Reeb (2003), Górriz & Fumás (2005), Ben-Amar & André (2006), Maury (2006), Ehrhardt, Nowak & Weber (2006), Andres (2008), Achleitner et al. (2009), Jonchi Shyu (2011) explore whether family ownership influences firm performance or not and conclude that family ownership has a positive effect and that this effect is stronger when family members also act as managers. The conflicts between principal and agent are reduced. Another widely applied argument is the *long-term orientation* of the family owner. While other owner types focus on profit maximization in the short term, family owners have a long-term commitment to the firm and are willing to invest in the capacities that will create competitive advantages which require large investments in the beginning (Hsu & Chen, 2009).

Similarly, according to Taylor (1990) the percentage of US equity held by institutional owners has moved up from 8% in 1950 to 45% in 1990. He asserts that institutional ownership attracts significant attention along with its increased importance in the equity markets. Although institutions can be differentiated in terms of financial and non-financial; domestic and foreign, etc. in this study such divisions are not made. However, positive effects of institutional ownership on firm performance are found by McConnell & Servaes (1990), Han & Suk (1998) and Tsai & Gu (2007), who elucidate the positive effect with the *active monitoring* argument. The monitoring effect should be stronger for institutional investors than general shareholders. According to Hand (1990), institutional investors are more sophisticated than other shareholders because of their more professional approach, expertise regarding capital markets, industries and businesses and because they are better informed. Apart from that, institutional shareholders have higher capabilities in taking actions and can therefore monitor managers more effectively and cheaper. However, all of the above-mentioned studies focused on the impact of ownership structure on firm performance.

But with the passage of time the goal of wealth maximization of firm is being replaced by corporate social responsibility for long term sustainability motives. In the past the major focus of the studies has been CSR i.e. the actions taken by the firms for the welfare of employees, community and human beings and for protection of environment beyond the legal requirements of firms (McWilliams et al., 2006).

According to the latest trends, business operations with social values is a well-developed industry: hundreds of websites, newsletters, professional associations, and consultants are devoted to CSR program development, students can earn an MBA degree in CSR, and most major companies issue a special annual publication dedicated to CSR or devote a large section of their annual reports to the documentation of social goals advanced and good works undertaken. Finally, perhaps most importantly, there is increasing evidence that CSR-related expenses of many companies are a substantial component of their operations. For instance, according to Forbes (‘‘Responsibility Pays,’’ November 11, 2007), GE spends approximately $2 billion annually on new environmental technologies, $800 million on management systems that work to reduce the company’s environmental footprint, $300 million on social programs, and $60 million on ecomagination-related marketing. The sum of these components represents about 15% of the profits of the company. These initiatives taken by the companies suggest that sustainability is an important issue from a corporate perspective. Moreover, in the modern era making improvements in the areas of environmental, social and governance factors has become a challenging job for modern corporations (Edmans, 2011, Berry and Rodinelli, 1998).

Moreover, the previous research suggests that improvement in environmental, social and governance factors (ESG) bring competitive advantage to the firm (Mc Williams and Siegel, 2001; Aguilera et al., 2006). Further, improvements in performance in the areas of environment, social and governance factors also bring strategic benefits for the firm by improving its relationships with all stakeholders including suppliers, consumers, governments and employees (Benabou and Tirole, 2010; Siegel and Vitalino, 2007). Ultimately improvements in ESG performance also improve the market value of firm (Jo and Harjoto, 2012). These studies suggest that in recent times the modern corporation has realised the importance of improvements in the area of ESG to bring about ultimate sustainability for the company.
Realising that sustainability issues are important in the field of ownership concentration, the following studies observe the impact of ownership concentration on sustainability of firm.

According to the studies of Bernea and Rubin (2010), Mackenzie, Rees, and Rodionova, (2013), Rees and Rodionova (2011), and Rodionova and Rees, (2015) ownership concentration has a negative and significant impact on the environmental, social and governance performance of firm. The logic behind it suggests that equity holders who have a large and long term stake in the ownership of the firm oppose investment in ESG as they are primarily interested in short term personal gains and dividend payments as opposed to the long-term sustainability of firm. This view is in line with the agency theory, which asserts that large owners conduit the firm's activity towards their personal benefits (Shleifer and Vishny, 1986). According to Kappes and Schmid (2013), concentration of ownership improves the control of owners on management and increases their emotional and personal attachment and financial associations with the company, which reduces the agency problem, and, further, we posit that major owners will prefer long-term sustainability of firm.

This study diverges from previous studies in three major ways. Firstly, we consider the different types of ownership concentration, e.g. in the form of investment companies, mutual funds and banks, that prevail in each country being examined. Secondly, we divide firms by scale (small / medium / large) with the assumption that incentives for sustainability may vary significantly depending on whether firms are massive and global, and likely well-known brands, or smaller-scale: the types of owners, ownership concentration, stakeholders and firm reputation almost certainly vary between different scales, which would directly affect the type of incentives and strategies implemented with regards to sustainability. Thirdly, we use the panel dynamic Generalized Method of Moments (GMM) introduced by Arrelano and Bond (1991) to control the inherent endogeneity, simultaneity, autocorrelation, and reverse causality in the field of ownership structure and corporate finance; panel dynamic models also capture the dynamic nature of variables relating to corporate finance (Flannery et al., 2013; Keasey et al. 2015).

Thus, this thesis fills the gaps in the prior literature on ownership concentration and sustainability by achieving the following targets in the field of ownership concentration and sustainability.

(i) This thesis examines the impact of ownership concentration on the sustainability of listed firms in the leading economies of the USA, UK and Germany in a comparative manner.

(ii) This thesis observes the impact of concentrated ownership on the sustainability of firms within the full sample of firms and subsequently within scale subgroups (large / medium / small) on the basis of market capitalization.

(iii) This thesis apply a series of estimation techniques ranging from simple OLS, quantile regression, and panel data techniques to dynamic panel models.

The following segment describes the state of research in the fields of corporate governance on sustainability and stakeholder risk. Firstly, we explain the state of research in the field of corporate governance, board effectiveness and stakeholder risk. Then, at the end, we explain the state of research in the field of corporate governance and sustainability.

If we go in depth we will find that theories on corporate governance have been differentiated into the perspectives of shareholders and stakeholders (Letza et al., 2004; Szwajkowski, 2000; Vinten, 2001). Shareholder and stakeholder views have different understandings regarding the purpose of and existence of corporations and related systems of corporate governance (Ayuso et al., 2007). Further, it could be observed that current practices of good governance are concerned with agency theory, which is based on a shareholder perspective (Wheeler and Davies, 2004). This traditional view of corporate governance is based on the single narrow goal of wealth maximization for shareholders and the firm. The shareholder wealth maximization approach is based on the idea that owners i.e. shareholders take on risk by investing capital in the firm and thus they are the sole residual claimants, while other contributors, for example, employees, are compensated on the basis of their wages determined by the labour market. In the setting of the shareholder model, the governance mechanism is controlling the managers in the interest of owners (Berle and Means, 1932; Blair, 1995; Kochan and Rubinstein, 2000; Ayuso and Argandona, 2007). Further, under the shareholder perspective the major focus of controlling owners, managers and other corporate governance actors is to reduce the owners' risk and protect the capital of owners by elevating returns. (Arora and Dharwadkar, 2011; Mahoney and Thorn, 2006; McGuire et al., 2003; Neubaum, 2006).

This traditional view of agency theory is being challenged by stakeholder theory, which considers the corporation to be accountable and answerable to all types of stakeholders (Arora and Dharwadkar, 2011; Letza et al., 2004). According to stakeholder theory, corporations should develop their policies taking into consideration the concerns of individuals and groups

(local communities, employees, creditors, suppliers, futures generations and customers) who are the cause of and affected by the organization's objectives (Freeman, 1984). Further, with reference to the shift of firms away from the shareholder approach towards the stakeholder approach, corporate governance mechanisms also shift from a principal agent issue to a team production issue (Ayuso et al., 2007, Arora and Dharwadkar, 2011). Under this broader model of corporate governance the task is not only to resolve the principal agent problem, but also to protect the interests of other parties (Kochan and Rubinstein, 2000; Ayuso and Argandona, 2007). Stakeholder theory was first introduced by Freeman (1984). According to the stakeholder model it is necessary to expand the focus of managers from shareholders to stakeholders who contribute indirectly to the wealth generating capacity of firms and thus are also potential beneficiaries and risk bearers (Post et al., 2002).

Here we take a step forward and posit that the role of corporate governance is not only to reduce the agency problem and maximize the wealth of shareholders but also to control the risk of stakeholders as they are also the contributors of resources and their resources are also at stake because of the agency problem. In a stakeholder model the contributions, resources and unseen efforts of a wide range of stakeholders are put at risk to achieve the goals of the firm (Blair 1995; Ayuso and Argandona, 2007). Whenever a corporation collapses because of poor corporate governance mechanisms a crisis emerges in which stakeholders also must face the music and bear the consequences along-with shareholders in the form of unemployment in the community, decreased tax revenue, an increase in the number of suicides or other serious social problems, reduced social and infrastructural development, a lack of compensation for environmental deterioration, a lack of consumer trust and overall bleaker prospects for future generations.

The growing literature in the field of corporate governance highlights the critical role of corporate governance and boards of directors in establishing CSR practices in firms (Garcia-Sanchez et al., 2015; Webb, 2004; Arman et al., 2014; Khan et al., 2013). The reason for this is that boards are effective tools for observing managers and designing strategies (Garcia-Torea et al., 2016). Prior literature associates the effectiveness of boards with shareholder well-being and thus mainly relied on the shareholder view of corporate governance (Van den Berghe and Levrau, 2004; John and Senbet, 1998; Finegold et al., 2007; Kiel and Nicholson, 2003). These studies conclude that board independence, the absence of CEO duality and more female board

members are effective determinants of board effectiveness in increasing shareholder wealth and firm performance. However, scant literature is available on the impact of corporate governance and board effectiveness on stakeholder well-being: many studies only observe the impact of different limited board features on CSR (Lattemann et al., 2009; Parado-Lorenzo et al., 2009; Mallin and Michelson, 2011; Arman et al., 2014). The most recent study (Garcia-Torea et al., 2016) observes the impact of a few board characteristics on stakeholder interest and does not consider the deviation of firm from stakeholder well-being i.e stakeholder risk. However, our research is divergent from previous studies of (Lattemann et al., 2009; Parado-Lorenzo et al., 2009; Mallin and Michelson, 2011; Arman et al., 2014; Garcia-Torea et al., 2016) as we observe the impact of corporate governance and extended features of board effectiveness on stakeholder risk.

Thus, this thesis fills in the gap in prior literature on corporate governance, corporate boards and stakeholder by achieving the following targets in the field of corporate governance and stakeholder risk.

(i) This thesis is the first to observe the impact of corporate governance on stakeholder risk.

(ii) This thesis further contributes to and extends the literature by observing the impact of attributes of board effectiveness on stakeholder risk that contribute to the aim of corporate governance based on a shareholder perspective.

(iii) This thesis introduces a new measurement of stakeholder risk by developing ES indices.

(iv) This thesis comparatively examines the USA, UK and Germany, and considers their respective forms of corporate governance and board systems to shed light on which forms most effectively mitigate stakeholder risk.

In the subsequent paragraphs of this segment, we describe the state of research and the objectives of our research in the field of corporate governance and sustainability.

Although a remarkable volume of research has been conducted regarding the issue of corporate governance, its effects on sustainability of firm are not completely understood in a country specific and in comparative manner. One reason is the inability to control the effect of omitted variables while observing the effect of corporate governance on financial sustainability of firms.

Another reason is ignoring the structural corporate governance differences among the developed countries while estimating the relationship between financial sustainability and board level corporate governance system. Thus, we hypothesize that effective corporate governance has a positive effect on sustainability if we control for the effect of the omitted variables. Further, exploiting the variations in board level corporate governance mechanisms in the USA, UK and Germany, this thesis estimates the effect of corporate governance variables on the sustainability of firms.

The divorce of ownership and control in the modern corporation is the basic reason for corporate governance. The interest of managers and owners are not always aligned due to which agency problem arises. To minimize the agency problem a specific governance system is required to meet the shareholders objectives by managers (Fama and Jensen, 1982).

In its report in 1998, the OECD declared the fundamental principles of corporate governance. According to this report, corporate governance is a nexus of relationships between a company's management, its shareholders and other stakeholders. In addition, governance structures assist in formulating effective corporate strategies and in monitoring corporate performance. Better corporate governance facilitates in introducing incentives for managers to protect the interest of shareholders, effective monitoring and providing the equitable treatment for all other stakeholders (Cadbury 1992; Monks and Minow 2004; OECD 2004).

Aras and Crowther (2008) assert that corporate governance and sustainability are both essential for any corporation to continue their business. To investigate the relationship, they used the data of FTSE 100 companies. However, their study was based on qualitative analysis of reporting process and they did not quantify the empirical relationship between corporate governance and sustainability.

Further, the OECD has been very successful in harmonizing the corporate governance systems in different regions of the world, however, there are still disparities in board level corporate governance mechanisms in the USA, UK and Germany (Schneider and Chan, 2001; OECD, 2014**).** This country specific and comparative approach seems to be missing in the prior studies of Hoffman and Bansal (2012) and Shrivastava and Addas (2014).

After the collapse of Enron in the USA the board structure of the company was also found culpable and as a result of this crisis the Sarbanes-Oxley Act (SOX) of 2002 and the NYSE and Nasdaq exchange listing rules were introduced with more emphasis on independent directors in board composition (Kirkpatrick, 2009). Similarly, previous studies (Zahra and Pearce, 1989; Yermack, 1996; Hutchinson, 2002; Choi et al.,2007; Adams, 2005; Jameson et al., 2014) confirm the role of independent directors as an effective controlling mechanism in modern corporations and financial institutions. Thus, in line with the above mentioned studies, we also use percentage of independent board members in the board of a company as a proxy of the quality of board level corporate governance system.

Moreover, in line with the study of Vafeas (1999) this thesis also asserts that board activity may be an important tool for improving the monitoring mechanism. That is why this study used the information on the number of board meetings in a year as another proxy of board level corporate governance systems. Because, on one hand it reflects the board activism and on the other more meetings of board members may also result in better decisions to improve the sustainability of firm.

Thus this thesis fill in the gap in prior literature on board level corporate governance mechanisms and sustainability of firm by achieving the following targets in the field of board level corporate governance mechanisms and sustainability of firm.

(i) This thesis observes the impact of board level corporate governance mechanisms in the form of independent boards on the sustainability of firms.

(ii) This thesis comparatively examines the USA, UK and Germany, and considers their different forms of corporate governance and board systems to shed light on which forms are most effective in improving sustainability.

(iii) This thesis utilizes a series of estimations techniques ranging from simple OLS to complex binary model techniques and from simple panel data estimation techniques i.e. fixed effects to dynamic panel data models.

1.3 Methodological strategy, contributions and primary results

All four studies presented in this thesis are based on data obtained from Thomson Reuter ASSET4 data base**.** The Thomson Reuters ASSET4 data provides information on ESG factors, however, to avoid the endogeneity, reverse causality and simultaneity problem and to get robust

results we excluded the governance factors, while measuring the sustainability and stakeholder risk as a dependent variable in our second, third and fourth paper respectively. Contrary to the ESG data from Kinder, Lydenberg and Domini's (KLD), ASSET4 provides the data on ESG factors not only for the US but also of companies from Europe. ASSET4 uses publicly available information to fill more than 750 data points based on 280 ESG related key performance indicators (Thomson Reuters, 2015).

The data on social performance of the company consists of issues such as safeguarding human rights, maintaining diversity in its workforce, providing equal opportunities to its workforce, offering quality working conditions, rendering healthy and safe work environment, commitments and efforts for introducing value added products and services and offering development and training opportunities to its workforce (Thomson Reuters, 2015).

The data on environmental factors of the company consists of subjects such as the usage of nuclear energy, amount of research and development expenditure on environmental issues, CO_2, emissions, amount of total waste, withdrawal of total water, resource reduction and monitoring of environmental supply chains (Thomson Reuters, 2015).

To measure the quality of corporate governance data on corporate governance was also obtained from Thomson Reuters ASSET4 data base. The data on corporate governance score (CGSCO) is based on governance factors including the effectiveness of board functioning and activities in the form of establishment of various committees, balancing the board structure, compensation policies, integrating the financial and non-financial aspects of the corporation in corporate strategies and not the least the protection of shareholder rights (Thomson Reuters, 2015).

The first paper of this thesis, titled "The Effects of Ownership Concentration on Sustainability: A Case of Listed Firms from USA, UK and Germany", aims to observe the impact of ownership concentration on sustainability of firms in the USA, UK and Germany. To this end, econometric analysis reflects that firms with more concentrated ownership do not have only short-term interests in mind, and that investors, because of their tight control on management, emotional and personal attachments and financial associations with the company, prefer long-term viability and the continued existence of the company to short-term profits. Using a sample of

firms from Germany, the UK and the USA for the period 2004-2014, we find that concentrated ownership is positively related to the sustainability of firms and that this relationship is more significant and stronger in the cases of the USA and the UK than for Germany. In addition, this paper find that within groupings of large firms in the USA and the UK firms became less sustainable as they became larger. This effect is even stronger in the case of the USA. Firstly, this paper study the impact of ownership concentration on the sustainability of listed firms in the leading economies of the USA, UK and Germany in a comparative manner. Secondly, this paper observe the impact of concentrated ownership on the sustainability of firms within the full sample of firms and subsequently organize the data from each country into subgroups of large, medium and small cap firms on the basis of market capitalization. This division of firms into three different subgroups is critical to understanding the different incentives and difference in approaches of owners at different scale firms. The final contribution of this paper relates to the use of a series of estimation techniques ranging from simple OLS, quantile regression, and panel data techniques to dynamic panel models. Regarding the final results we rely on the panel dynamic GMM methods by Arrelano and Bond (1991). This estimation technique makes it possible to overcome the inherited problem of endogeneity in ownership structure data and some unobservable factors that might be correlated with independent variables and affect the dependent variable (Keasey et al. 2015). Further, panel dynamic models also capture the dynamic nature of variables relating to corporate finance (Flannery et al., 2013).

The second paper of this thesis, titled "Corporate Governance and Stakeholder risk: A Case of Listed Firms of Germany", is a short paper and aims to observe the impact of corporate governance and different individual components of corporate governance i.e. board independence, board size, board meetings, CEO duality, board gender diversity, having a staggered board structure, whether the chairman is an ex-CEO and ownership concentration on stakeholder risk from the firms listed in Germany. This paper, consistent with Becchetti et al., (2015) defines stakeholder risk as the deviation of the firm from stakeholder well-being in the domain of community, employee relations, human rights, environment, diversity and product quality. In the empirical part this paper calculates stakeholder risk by developing ES indices[1] (based on ASSET4's environmental and social score) for each firm from 2004 to 2015.

[1] ASSET4 ES scores cover all environmental and social dimensions of stakeholder well-being, which in turn reflects stakeholder risk.

Downward fluctuations in ES indices serve as a proxy for stakeholder risk, while upward fluctuations represent a lack of stakeholder risk. This paper contributes to the literature by introducing the measurement of stakeholder risk and examining the impact of overall corporate governance mechanisms and the different firm level corporate governance mechanisms on stakeholder risk. Further, this paper uses GMM Arellano Bond i., because of dynamic trends in the data for corporate governance and stakeholder risk from Germany. However, in our next study we could not find such dynamic trends in the data of corporate governance and stakeholder risk from USA and UK. The econometric result of this short paper reflects that the corporate governance in Germany does not seem effective in mitigating the stakeholder risk.

Study number three has the title "Corporate Governance and Stakeholders risk: A Case of Listed Firms in the USA, UK, and Germany" and analyses the impact of corporate governance and different attributes of board effectiveness on stakeholder risk. This study considers board effectiveness as the focal point of corporate governance in the form of independent board structure, board meetings, board size, CEO duality, board diversity, staggered board structure, chairman is ex-chief executive on stakeholder risk. This paper follows up on our previous work which was the first study to introduce this measurement of stakeholder risk. This study is the first to observe the impact of corporate governance on stakeholder risk. This study further contributes to and extends the literature by observing the impact of attributes of board effectiveness on stakeholder risk that contribute to the aim of corporate governance based on a shareholder perspective. Moreover, this paper also utilizes a new measure of stakeholder risk by developing ES indices for firms. For econometric analyses, this study estimates the fixed effect and random effect regression. While selecting which of the two methods is appropriate we conducted a Hausman test. The test is based on the difference between the parameters of a consistent (FE) and an efficient (RE) estimator. If the results are significant, indicating systematic differences between the two sets of parameters, then study run the consistent fixed effect regression. Contrary to this, if the results of the Hausman tests are insignificant then the random effect model can be considered appropriate (Green 2008). This study is based on the USA, UK and Germany and, in these economies, there are different forms of corporate governance and board systems. This study considers these differences by looking at each country separately, while observing the impact of corporate governance and board effectiveness on stakeholder risk. This approach helps us to know which of the corporate governance system seems more effective in mitigating stakeholder risk. According to the results of this study

overall corporate governance in USA has a significant and positive impact on ES indices i.e. stakeholder risk. Thus, the impact of corporate governance appears stronger in the case of the USA, while in the case of Germany and the UK the impact of corporate governance (CGSCO) on stakeholder risk is positive but insignificant. These results indicate that as corporate governance improves the ES score in the USA it in turn also leads to a reduction of stakeholder risk.

The fourth study, entitled "Corporate Governance and Sustainability. A case of listed firms from USA, UK and Germany", aims to observe the impact of board level corporate governance systems i.e. independent board, board meetings and board size in the USA, UK and Germany. This study further explores the differences in board level corporate governance mechanisms in each country comparatively to observe the impact of board level corporate governance mechanisms on sustainability of firms in the USA, UK and Germany. Although a remarkable volume of research has been conducted regarding the issue of corporate governance, its effects on sustainability of firm is not completely understood in a country specific and in comparative manner. One reason is the inappropriate econometric techniques used in prior studies to control for the effects of omitted variables while observing the effect of corporate governance on sustainability of firms. Another reason is ignoring the structural corporate governance differences in the USA, UK and Germany, while estimating the link between sustainability and board level corporate governance system in the USA, UK and Germany. However, this study contributes to the literature by alleviating these issues and observing the effect of corporate governance on sustainability, and also attempts to control for the effect of omitted variables by using GMM estimation techniques. Further, from an estimation and econometric point of view this study ensures that the results are not confounded by omitted variable bias. To this end, this thesis confirms the presence of endogeneity by using two-stage least square. Then this thesis executes a series of estimations techniques ranging from simple OLS to complex binary model techniques and from simple panel data estimation techniques i.e. fixed effects to dynamic panel data models. Further, exploiting the variations in board level corporate governance mechanisms in the USA, UK and Germany this paper estimates the effect of corporate governance variables on the sustainability of firms. At the end this paper finds that firms in Germany and USA with better and specific board level corporate governance system seem more sustainable.

1.4 Conclusion, discussion and future research needs

This chapter provides a brief description of the main results of this thesis and what they suggest for future research, but also for practitioners and policy makers. In this perspective, it also highlights some issues that might be criticized.

By applying different econometric estimations in the field of ownership concentration this thesis empirically show that for Germany, regarding the full sample, our results are in line with the studies of Siegel and Vitaliano (2007), Rees and Mackenzie (2011) and Rodionova and Rees (2015), while in the cases of the USA and the UK the results of the full sample are consistent with Neubaum and Zahra (2006) and Kappes and Schmid (2013). Moreover, in the case of the control variable i.e. ROA the results are in line with the findings of Dam and Scholtens (2012). The results of our thesis in the field of ownership concentration and sustainability suggest that the relationship between ownership concentration and sustainability is not a simple linear relationship and likely depends on the specific type of ownership and structures of control. We can infer that, in different countries, different types of ownership concentration have different impacts and preferences for sustainability, which is in line with our second and third hypotheses. Firms in Germany with a greater concentration of ownership seem to have a short-term approach focusing on shareholder wealth maximization. Thus the behavior of firms in Germany (without grouping firms by size) is in line with the prior studies (Barnea and Rubin, 2010; Mackenzie, Rees, and Rodionova, 2013; Rees and Rodionova, 2013; Rodionova and Rees, 2015). The fact that banks hold most of the equity of firms in Germany likely influences how much pressure those firms have to show short-term profits, as banks have to meet the demands of depositors for their own funds. The recent Volkswagen scandal reflects this short term approach as well, as a strategy for short-term cost savings was implemented despite the significant risk of financial penalties and a damaged public reputation. However, in the case of the USA and UK the effect reflects that the equity holders are not in so much of a hurry and are less interested in short-term gains; their objectives are rather to develop a long-term sustainable business in both their best interests and the interest of stakeholders.

By using subgroups of firms on the basis of scale this thesis finds that the large cap firms in the USA become less sustainable as they grow. In contrast, large cap firms in Germany become more sustainable the bigger they become. This demonstrates the differential effect of firm growth on sustainability, as in some contexts large firms can take advantage of their size to

transfer resources away from sustainability, while in other contexts this might be seen as too threatening to their reputation and brand image. Similarly, the medium cap firms become less sustainable as they grow in the cases of Germany and the UK, however in the USA medium cap firms increase in sustainability as their firm size increases. This is in line with the reasons given by Natarajan & Wyrick (2011) and the Center for Leadership in Global Sustainability (2014) who found that medium size manufacturers in the USA were able to improve their supply chain, their energy efficiency, and their relationships with their employees and suppliers which ultimately has influenced their sustainability positively. On the other hand, firms in Germany as well as the UK seem to demonstrate a transfer of firm resources from sustainability to profitability as they grow, driven especially in Germany by banks. The incentives for expanding businesses at this scale may be different between countries, particularly among family-owned firms. Expanding businesses, despite their increased market capitalization, require additional resources to finance this expansion which can put them under increased pressure from outside investors focused primarily on short-term returns. Moreover, the small cap firms in all countries of our study are more sustainable the bigger they get. This relationship is the strongest in the UK. Firms at this small scale likely see sustainability as a worthwhile investment in future profits, which the smallest firms cannot always afford. Based on our data, the question of how firms prioritize sustainability really only seems to emerge once firms have reached a certain level of market capitalization.

Banks in Germany, having a major stake in the ownership of German firms, prefer short-term approaches to investment over long-term preferences for sustainability as compared to the major equity held by investment companies, mutual funds and insurance companies respectively in the USA and UK. Thus the new practical insights we gain from the present study is that within institutional ownership approaches to sustainability may vary depending on the preferences of the type of ownership concentration in firms. While sustainability may seem to be a worthwhile goal, its priority among firms waxes or wanes as the firm expands dependent on these preferences. And while large firms overall tend to show the greatest preference for sustainability, this preference loses ground to other incentives as these firms grow in some cases, suggesting that, regarding sustainability, bigger is not necessarily better.

To the best of our knowledge this thesis is the first attempt to observe the impact of corporate governance on stakeholder risk in the USA, UK and Germany. This thesis addresses this gap in

the literature in the field of corporate governance and stakeholder risk. From the results of our thesis we infer that corporate governance significantly reduces the stakeholder risk in USA by improving ES indices. Further, our findings also suggest that it is also possible that a country where the stakeholder model of corporate governance is operational may be ineffective in protecting the stakeholder resources and efforts. Our results confirm this phenomenon as the active stakeholder model of corporate governance in Germany seems ineffective in controlling stakeholder risk. However, in the case of the USA where shareholder model of corporate governance is operating, it is effectively and significantly lowering the stakeholder risk by improving ES indices. Moreover, we also observed the validity of different attributes of board effectiveness to validate their importance under the stakeholder model of corporate governance to control stakeholder risk. Our results on different attributes of board effectiveness suggest that in the case of the USA the number of board meetings is a highly effective attribute of board effectiveness in controlling the stakeholder risk. However, board gender diversity in the USA and UK, rather than reducing the stakeholder risk, increases stakeholder risk by reducing ES indices. The reason may be that gender diverse boards in the USA and UK are increasing and their focus is more often on the narrow short-term goal of shareholder wealth maximization (Daily and Dalton, 2003; Adams and Ferreira, 2009; Joecks et al., 2013; Torea et al., 2016). It may be that the women most likely to join modern corporate boards are more economically conservative, leading to diverse boards taking on a more profit-driven overall approach. Moreover, because of the conservative approach to investment of highly diverse boards in the protection of interest of stakeholder may not be more important than shareholder well-being (Jia and Zhang, 2012; Croson and Gneezy, 2009; Bernasek and Shwiff, 2001; Sunden and Surette, 1998) and they do not seem as interested in protecting stakeholder risk and thus effectiveness is reduced leading to higher stakeholder risk. Alternatively, it may be that gender diversity does not necessarily translate directly to input on stakeholder risk. Among other ineffective features of board effectiveness regarding the reduction of stakeholder risk in the case of the UK we found that if the CEO also holds the position of chairman he or she uses their influence and power against the stakeholder and thus the contributions and resources of stakeholders are at risk in the UK. However, the validity of the rest of features of board effectiveness is still under question under the stakeholder model of corporate governance. In the case of Germany, the validity of different features of board effectiveness does not hold in controlling the stakeholder risk significantly. Thus, the acclaimed stakeholder model of

corporate governance in Germany demands a review of the different institution meant for governance within the corporate sector of Germany.

This thesis in the field of board level corporate governance and sustainability on the basis of empirical results concludes that corporate governance significantly and positively affects the sustainability level of firms in the USA, UK and Germany. However, in the case of the UK, the number of board meetings, one of the variables used as a proxy for corporate governance, showed a negative relationship with sustainability level of firms in UK. These results suggest that in the UK in board meetings discussion is on short term issues rather than long term issues of sustainability. Further, the UK does not follow one tier or two tier board level corporate governance system, unlike Germany and the USA, which may be another reason that board member committees in the UK are not actively responding to the issue of sustainability. On the basis of our results for the UK, we recommend that regulatory bodies in the UK declare a compulsory board level governance system to streamline firm level issues on sustainability. For control variables, the results of GMM show that firm size (MCAP) has a negative and significant relationship with sustainability. From these results our study concludes that firms in the USA may be becoming larger at the expense of sustainability, which does not seem a healthy sign for a developed economy like the USA which has already experienced the collapse of giants like Enron. Further, we may also conclude on the basis of these results that among these three economies corporate governance improve the sustainability more in Germany as compared to the USA and UK because of its two tier board level governance system.

In the next paragraphs, this thesis discusses the future research directions in the field of ownership concentration and sustainability, corporate governance and stakeholder risk and the last paragraph discusses future research directions in the field of corporate governance and sustainability.

Our study in the field of ownership concentration and sustainability is based on selected firms from the USA, UK and Germany where sustainability issues have received attention from legislators and the business community. However, sustainability has not been as much of a focus in many other economies, which means our findings are not generalizable to every economy. We observed the impact of ownership concentration on the sustainability level of different firms at different scales, but our methodology did not allow us to further analyse specific types of

ownership structure such as family owned firms, foreign ownership, public or private ownership which certainly vary based on scale as well as internationally. Thus in future work we would like to observe the impact of different ownership structures on the sustainability of firms at different level scales. Further analysis will also help us better understand the linkages between ownership concentration, ownership structures and sustainability at different level scales of firm. However, in the future, in the field of ownership concentration and sustainability at different scale of firms, we will introduce the different dummies for different type of ownership structure i.e. family owned firms, publicly owned firms, foreign ownership etc. in our econometric model of study for further in-depth analysis.

Our study is unique in our approach to observing the impact of corporate governance on stakeholder risk. We introduce a new measure of stakeholder risk by developing ES indices i.e. percentage change in average ES score from one year to another. This measurement covers almost all aspects of stakeholder well-being, however, in future we will continue to attempt to develop new measures of stakeholder risk. Additional measures of stakeholder risk will give us alternative options for analysing stakeholder risk. More measurements of stakeholder risk will help us further to reach a better conclusion and with other measures it may also be possible that in future we can capture the stakeholder risk from other remaining aspects of stakeholder well-being that may be missing in our current measurements. Improved measurement of stakeholder risk will also provide a clearer and better picture of the linkages between corporate governance and stakeholder risk.

In the field of corporate governance and sustainability we used a set of econometric methodologies varying from simple ordinary least square (OLS), random effect (RE) to binary logit models and Arellano-Bond GMM: this empirical approach seems to be missing in much of the previous literature. However, to capture the sustainability from a wide range of aspect in our future research we would like to use average environmental and social score (AESCO). Similarly, we would like to make it conclusive which of the corporate governance structures is more effective among one tier and two tier board systems. In future research in corporate governance structure we will enhance the board level corporate governance mechanisms from independent board structure, board meetings to CEO duality, board size etc. The recent work of Garcia-Torea et al. (2016) also validates CEO duality, board size, board meetings as a effective tools for improving stakeholder well-being. However, in our future research we will

extend the literature on sustainability by also observing the impact of the extended features of board structures on the sustainability of firms from the perspective of one tier and two tier board structures.

2. The Effects of Ownership Concentration on Sustainability: A Case of Listed Firms from USA, UK and Germany

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Abstract

Concentrated ownership has been speculated to play a direct role in leading firms to focus more on long-term sustainability. Concentrated ownership, however, can take many different forms, with some forms more common in certain countries, and we posit that the specific form of ownership mediates the impact on sustainability. Additionally, we posit that firms operating at different scales have fundamentally different characteristics which can further impact this relationship. Analyzing a sample of firms from the USA, UK, and Germany using Arellano-Bond GMM, we investigate the relationship between ownership concentration, firm growth and sustainability measures comparatively. Our results show that these relationships are not linear, but are rather dependent on the prevalent form of ownership concentration (determined by country) and the scale (small, medium or large) of the firm. Approaches to sustainability appear to be influenced by not just the owners / investors but also by the type of control and broader contexts, explaining differing national trends.

Keywords**:** Ownership Concentration, Sustainability, Firm Size, Arellano Bond GMM
JEL Classification codes: G30, G32

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2.1: Introduction

Firms with more concentrated ownership structure, such as family-owned firms, form a major part of most economies (Barontini and Caprio, 2006; Faccio and Lang, 2002; Morck et al., 2005). The previous research on sustainability and ownership structure (Barnea and Rubin, 2010; loannau and Serafeim 2010; Mackenzie, Rees and Rodinova 2011; Rees and Mackenzie 2011; Dam and Scholtens, 2012 and Rodionova and Rees, 2013) is primarily based on controlling ownership and its impact on corporate social responsibility and its various elements; this study further refines this approach by analyzing differential effects among firms of different scales.

Concentration of ownership has increased significantly over the last decades (OECD, 2014) and sustainability is a key factor in improving the relationship between corporations and their major stakeholders (Jo and Harjoto, 2012), because a major feature of equity holdings is the willingness of owners to decide for long-term or short-term incentives. Owners with a short-term focus prefer projects where they can maximize their benefits in the short-term without needing to wait for long-term gains and thus their decisions can have a negative effect on the long-term sustainability of firms (Siegel and Vitaliano, 2007; Rees and Mackenzie, 2011). We expect that firms with more concentrated ownership do not have only short-term interests in mind, and that investors, because of their tight control on management, emotional and personal attachments and financial associations with the company, prefer long-term viability and the continued existence of the company to short-term profits (Kappes and Schmid, 2013). Using a sample of firms from Germany, the UK and the USA for the period 2004-2014, we find that concentrated ownership is positively related to the sustainability of firms and that this relationship is more significant and stronger in the cases of the USA and the UK than for Germany. In addition, we find that within groupings of large firms in the USA and the UK firms became less sustainable as they became larger. This effect is even stronger in the case of the USA.

Further, this study diverges from prior studies on sustainability and ownership structure (Bernea and Rubin, 2010; Mackenzie, Rees, and Rodionova, 2013; Rees and Rodionova, 2011; Rodionova and Rees, 2015) in several ways. First we study the impact of ownership concentration on the sustainability of listed firms in the leading economies of the USA, UK and Germany in a comparative manner. Second, we observe the impact of concentrated ownership

on the sustainability of firms within the full sample of firms and subsequently organize the data from each country into subgroups of large, medium and small cap firms on the basis of market capitalization. This division of firms into three different subgroups is critical to understanding the different incentives and difference in approaches of owners at different scale firms. Our final contribution relates to the use of a series of estimation techniques ranging from simple OLS, quantile regression, and panel data techniques to dynamic panel models. Regarding the final results we rely on the panel dynamic GMM methods by Arrelano and Bond (1991). This estimation technique makes it possible to overcome the inherited problem of endogeneity in ownership structure data and some unobservable factors that might be correlated with independent variables and affect the dependent variable (Keasey et al. 2015). Further, panel dynamic models also captures the dynamic nature of variables relating to corporate finance (Flannery et al., 2013).

The remainder of the paper is structured as follows: Section 2 presents a literature review and hypothesis development. Section 3 provides the research methods. Section 4 describes findings and Section 5 presents our conclusions.

2.2 Literature review and research hypothesis

Ownership concentration indicates the percentage of shares held by insiders and large individual and institutional investors. In other words: the phenomenon of ownership concentration refers to how tightly the equity of the firm is held (Fama and Jensen, 1983; Morck et al., 1989; Claessen et al., 1996). The current literature on the concentration of ownership and sustainability suggests that investors who invest in firms with a higher ownership concentration have better control over management and have more power in decision-making to influence corporate behavior on environmental and social issues (Campbell, 2007; Kang and Moon, 2012).

Ownership concentration implies that a limited set of people are active as the major stakeholders of a firm, and that these people are more likely to be active in the day-to-day operations of the firm. The two most common forms of concentrated ownership are family-owned firms and big business groups. (La Porta et al., 1999) According to Faccio and Lang (2002) almost half of firms in western Europe demonstrate some form of concentrated family ownership. In the US one third of public firms are controlled by either big business groups or families (Anderson and

Reeb, 2003). In order to enhance operational efficiency corporations are often focusing on sustainability and also converging toward higher concentrations of ownership. That is why it is important to address the relationship between concentrated ownership and sustainability within corporations in developed economies (Berry and Rondinelli, 1998; Edmans, 2011). Moreover, it has been suggested that sustainable performance can be a source of competitive advantage (Aguilera et al., 2006; McWilliams and Siegel, 2001; Porter and van der Linde, 1995). Sustainable performance introduces strategic benefits by improving the relationship among different stakeholders e.g. consumers, suppliers and employees (Becker et al, 2010; Brekke and Nyborg, 2008; McWilliams and Siegel, 2001; Siegel and Vitaliano, 2007; Turban and Greening, 1997) and these strategic benefits ultimately increase the market value of a firm (Jo and Harjoto, 2011; Jo and Harjoto, 2012). Previous literature also highlights that majority equity holders closely monitor the management of the company they have a stake in in order to protect their interests and very often they go as far as also being part of the company's management (Burkart et al., 1997).

Thus taking a step forward we hypothesize that firms with more concentrated ownership are more tightly controlled thus reducing agency problems, and this can have a positive impact on the long-term sustainability of the firm.

Hypothesis 1: ***There is a positive relationship between the concentration of ownership and sustainability of a firm and its individual components of social and environmental performance.***

Furthermore, family owners are in a good position to oversee and monitor the operations of the firm, due to their personal interest in the firm's success, long-term involvement with the firm, and the fact that they are often directly involved in its management (Anderson and Reeb, 2003; Le Breton-Miller and Miller, 2009; Sraer and Thesmar, 2007). We diverge from the aforementioned studies by positing that it is important to consider the differences in type of ownership concentration (e.g. in form of investment companies, mutual funds and banks) that prevail in each country (USA, UK and Germany). Building on the aforementioned studies it is also important to differentiate between small, medium and large cap firms, while observing the impact of ownership concentration on sustainability of the firm. So far the existing literature has not sufficiently controlled for differences in concentrated ownership in regions/countries

and firm scale. The differences of scale that separate small, medium, and large firms affect so many aspects of their daily operation and decision-making and to such an extent that they can effectively be treated as different entities altogether. That is why the results on the connection between concentrated ownership and sustainability are still inconclusive. If we go into depth we find that in Germany most of the equity of firms is held by banks (Edwards et al., 2000; Hill and Thomas, 2015) whereas, in the UK and in the USA non-bank institutional investors have more stake in ownership compared to any other type of concentrated ownership (Mallin et al., 2005). Further, when we go into the details of the composition of institutional ownership concentration set up in the USA and UK, we see that in the UK insurance companies and pension funds hold most of the equity, while in the USA the most common institutional investors demonstrating concentrated ownership are investment companies (Binay, 2005 and Aguilera et al., 2006). Because of the difference in ownership concentration in USA, UK and Germany the impact of ownership concentration on sustainability of firms may also differ in each country. On the basis of this argument we make our second hypothesis.

Hypothesis 2: ***The impact of concentrated ownership on a firm's sustainability will differ based on the differing types of ownership in each respective country.***

Moreover, within each country the size of firms is also very important when we study the phenomenon of sustainability at the firm level in developed economies in a comparative manner. Previous studies (Bernea and Rubin, 2010; Mackenzie, Rees, and Rodionova, 2011; Rees and Rodionova, 2013; Rodionova and Rees, 2015) treat firm size as a singular variable that may correlate with firm outcomes. However, we argue that the management of firms at different scales i.e large cap, medium cap and small cap firms in the presence of certain ownership concentration may have different approaches and incentives for long-term sustainability. Models and strategies which work for small cap firms may not work for medium or large cap firms. Previous studies conclude that large firms provide better cash flows and demonstrate good performance in terms of profitability (La Porta et al., 2002; Stierwald, 2009). But what about the sustainability of large corporations? We posit that small and medium sized firms are easier to influence towards sustainability through concentrated ownership. With more stake in ownership the owners in such firms have more personal, emotional and financial attachment and can monitor the managers more easily (Burkart et al., 1997). Thus our final hypothesis of study is the following:

Hypothesis 3: ***Firm scale moderates a firm's sustainability given a certain type of concentrated ownership.***

2.3 Research Methods

2.3.1 Sample and data

To observe the impact of concentrated ownership on sustainability of firms in the USA, UK and Germany we collected data from Thomson Reuters Data Stream. The time period for our analysis is 2004-2014. To observe the impact of different size levels of firms on the sustainability of firms we divide the firms into the subgroups of large, medium and small cap firms on the basis of their market capitalization. We consider only manufacturing, utilities and industrial firms from the USA, UK and Germany. We exclude firms with less than five years of available data. We thus obtain an unbalanced panel of 22,900 observations. Further, we use the panel dynamic model which is the best solution for unbalanced panel data (Keasey et al., 2015) as some firms may be delisted as a result of bankruptcy and ultimately removed from the database over time.

2.3.2 Variables and their Definitions

Consistent with prior research on CSR we measure the sustainability with environmental and social factors, which were obtained from Thomson Reuter's Asset4 database (e.g., Cheng et al. 2014; Eccles et al. 2014; Eccles et al. 2015; Ioannou and Serafeim 2012; Mackenzie et al. 2013). The Thomson Reuters Asset4 data provides ESG factors. However, to avoid the endogeneity problem and to get robust results we ignored the governance factor, basically sustainability on the environmental and social factors. Contrary to the ESG data from KLD, Asset4 provides the data on CSR not only for the US but also for companies from Europe. Asset4 uses publicly available information to fill the more than 750 data points based on 280 ESG related key performance indicators (Thomson Reuter, 2015).

Company social performance consists of issues such as: safeguarding human rights, maintaining diversity in its workforce, providing equal opportunities to its workforce, offering quality working conditions, rendering healthy and safe work environments, commitments and efforts for introducing value added products and services, and offering development and training opportunities to workforce, while environmental performance includes aspects such as: the use of nuclear energy, amount of research and development expenditure on the environment,

CO_2, emissions, amount of total waste, withdrawal of total water, resource reduction, and the monitoring of environmental supply chain (Thomson Reuters 2015). We computed the sustainability score $(Sust_{it})$ for company *i* in year *t* as the equally weighted average of the environmental and social factors.

Return on assets (ROA_{it}) is measured as net income divided by total assets**.** Concentrated ownership (Cow_{it}) is measured as a percentage of shares held by all insiders and the top 5 percent shareholders.

Market capitalization ($MCAP_{it}$) measured as market price per share times the number of shares outstanding. It shows the size of each firm and it is subsequently used to obtain the scale subgroups of small, medium and large cap firms (Lo and Leung, 2009). A firm is considered large $(LCAP_{it})$ if its market capitalization is $\geqslant$ 8 billion. Similarly, a firm falls in the subgroup of medium cap firms $(MEDCAP_{it})$ if it has a market capitalization $\geqslant$ 1 billion and < 8 billion. A firm is considered small cap $(SCAP_{it})$ if its market capitalization is < 1 billion.

2.3.3 Estimation Methods

Initially we employ the following models on the full sample of each country. Subsequently we divide the firms for each country into subgroups of small, medium and large cap firms based on their market capitalization to test the third hypothesis of our study. This division of firms into different subgroups of firms extends the prior literature on corporate governance and firm performance (Leung, 2009).

$$Sust_{it} = \alpha + \beta_1 Cow_{it} + \beta_2 ROA_{it} + \beta_3 MCAP_{it} + \varepsilon_{it} \quad \textbf{(1)}$$

$$Ssc_{it} = \alpha + \beta_1 Cow_{it} + \beta_2 ROA_{it} + \beta_3 MCAP_{it} + \varepsilon_{it} \quad \textbf{(2)}$$

$$Esc_{it} = \alpha + \beta_1 Cow_{it} + \beta_2 ROA_{it} + \beta_3 MCAP_{it} + \varepsilon_{it} \quad \textbf{(3)}$$

Our initial results are based on OLS models. However, in case of simple OLS the estimates have an upward bias. This is because OLS estimates suffer from omitted variable bias and ignores the unobserved firm heterogeneity that leads to short panel bias in dynamic data (Flannery et al., 2013). Therefore, we use quantile regression to capture the relationship between concentrated ownership structure and firm sustainability. The reason for using quantile

regression is that it estimates conditional quantiles of a response variable distribution in a linear model that provides a comprehensive view of a possible causal relationship between variables (Cade and Noon, 2003). For example, if we find a positive relationship between concentrated ownership and sustainability it may be because of the effect of equity holders on sustainability – conversely, this may also represent that certain equity holders are drawn to sustainable firms. The latter case can be consistently ruled out if we can illustrate that firms with low sustainability are also adversely affected by concentrated ownership in different firms.

Thus, because of this causal relationship we use quantile regression to test the relationship between sustainability and explanatory variables at different quantiles of dependent variables. Thirdly, we move ahead and use the fixed effect models to control for the potential influence of omitted control variables. We hypothesize that those variables not included in the model may effect sustainability and concentrated ownership in general. Furthermore, using a fixed effect model assures that the explanatory power of the model is driven by the disparities between the firms and not by the presence of differences within the firms (Rees and Rodionova, 2015). Finally, we use the panel dynamic model to contribute to the literature and remove the acknowledged limitations of prior studies (Mackenzie, Rees, and Rodionova, 2013; Rees and Rodionova, 2015). The reason for using the panel dynamic model is that the corporate finance data used in the study was based on unbalanced panel data and has the feature of missing observations. Further, omitting lagged dependent variables like $Sust_{it-1,it-2}$ in the fixed effect model may result in autocorrelation and the panel data set of the study has a relatively short time frame (2004-2014) and a larger number of observations (n = 22900). According to Judson and Owen (1999) there is a severe bias in panel data even if the number of time periods (T) is greater than 30. Therefore, to avoid the short period panel bias and autocorrelation problem in fixed effect model we decided to use the Arrellano-Bond (1991) difference GMM estimator initially proposed by Holtz-Eakin, Newey and Rosen (1988).

To cope with the problems of fixed effects the difference GMM uses first difference to transform equations 1, 2 and 3 into the following equations 4, 5 and 6 respectively.

$$\Delta Sust_{it} = \beta_1 \Delta Sust_{i,t-1} + \beta_2 \Delta Cow_{it} + \beta_3 \Delta ROA_{it} + \beta_4 \Delta MCAP_{it} + \mu_{it} \quad \textbf{(4)}$$

$$\Delta Ssc_{it} = \beta_1 \Delta Sos_{i,t-1} + \beta_2 \Delta Cow_{it} + \beta_3 \Delta ROA_{it} + \beta_4 \Delta MCAP_{it} + \mu_{it} \quad \textbf{(5)}$$

$$\Delta Esc_{it} = \beta_1 \Delta Esc_{i,t-1} + \beta_2 \Delta Cow_{it} + \beta_3 \Delta ROA_{it} + \beta_4 \Delta MCAP_{it} + \mu_{it} \quad \textbf{(6)}$$

General transformation form of equation 4, 5 and 6 is given as follows:

$$\Delta y_{it} = \alpha \Delta y_{it-1} + \Delta x_{it} \beta + \Delta \mu_{it} \quad \textbf{(7)}$$

Further, fixed effects which are time invariant and related to the outside environment may be correlated with the explanatory variables. These fixed effects are enclosed in the error term in equation 1, 2 and 3 respectively, which consist of the unobserved firm specific effects $v_{i,}$ and specific error ε_{it} related with observations.

We can write this as:

$$\mu_{it} = v_i + e_{it} \quad \textbf{(8)}$$

However, the fixed firm specific effect is removed as it is time invariant with transforming the regressors by first differencing. Thus from equation 8 we get:

$$\Delta \mu_{it} = \Delta v_i + \Delta e_{it} \quad \textbf{(9)}$$

Or

$$\mu_{it} - \mu_{i,t-1} = (v_i - v_i) + (e_{it} - e_{i,t-1}) = e_{it} - e_{i,t-1} \quad \textbf{(10)}$$

2.4 Results and discussion

2.4.1 Descriptive Statistics

Table 1 provides the mean, standard deviation and minimum and maximum values of the variables used in the above models for Germany. The descriptive statistics indicate that among firms in Germany, the average ownership concentration is 39.74%, while the maximum level of ownership concentration is 90.50%. Table 2 reports the correlation matrix of key variables used in empirical models for Germany.

Table 3 provides the mean, standard deviation and minimum and maximum values of the variables used in above models for the UK. The summary statistics for the UK illustrate that on average, the ownership concentration in firms of UK is 63.57, while the maximum level of ownership concentration is 90.55. Additionally, Table 4 provides the correlation matrix for key variables used in empirical analysis for UK.

Table 5 provides the mean, standard deviation and minimum and maximum values of the variables used in above models for the USA. These descriptive statistics indicate that on average, ownership concentration is 45.77 in firms in the USA, while the maximum value of ownership concentration is 90.56. Further, table 6 illustrates the correlation matrix for key variables used in the empirical analysis for the USA.

2.4.2 Empirical Results.

Although we use various estimation techniques we will only discuss the results of GMM Arrellano-Bond since they best account for the dynamic nature of the variables employed in our study. As mentioned above the other estimation methods have inherent limitations and are thus only presented to allow comparisons to the existing literature.

Overall, the comparative descriptive results indicate that on average ownership concentration is high in the UK compared to the USA and Germany. Similarly, the descriptive results also show that on average firms in Germany seem more sustainable compared to the UK and the USA.

The results of Table 7 on the full sample of firms indicate that in the case of Germany, ownership concentration has a significant negative impact on sustainability level of firms, while in the cases of the USA and the UK this impact is significant and positive. These results illustrate that

without grouping firms on the basis of size, the firms in Germany with higher ownership concentration are less sustainable. Table 8 deals with the results of the subgroups of large cap firms in the USA, UK and Germany. According to these results ownership concentration has a highly significant and positive effect on sustainability in the case of the USA. In the case of the UK the impact of ownership concentration is also positive but not as strong as in the USA. These results are in line with the hypothesis of our study. Interestingly, firm growth among large cap firms in the USA has a significant negative impact on sustainability in contrast to Germany where growth among large cap firms has a significant positive impact on sustainability. The reason may be that big firms in the USA are focusing on the shareholder wealth maximization objective by preferring short-term gains over long-term sustainability, and it seems as if they are expanding their businesses by reinvesting their profits at the expense of sustainability. Furthermore, the results show that in the case of Germany and the UK ROA has a significant negative impact on sustainability, which is in line with the findings of Dam and Scholtens, (2012), while, in the case of the USA, ROA is not found to be significant.

Table 9 summarizes the results of the subgroup of medium cap firms, sorted by country. These results illustrate that in the USA ownership concentration has a significant and positive impact on the sustainability of a firm. Similarly, being a medium cap firm in the USA or the UK has also a significant and positive impact on a firm's sustainability. No significant relationship was found for firms in Germany.

Table 10 shows the results for the subgroup of small cap firms. Accordingly, ownership concentration in small cap firms has a positive impact on sustainability in UK and USA, with no significant effect in Germany. The effect of ROA on the sustainability of firms in the subgroup of small firms is significant and negative for Germany and the UK but positive and significant for the USA. These results regarding ROA in Germany and UK are in line with the prior study by Dam and Scholtens (2012), while in the case of the USA the results of ROA are in line with the findings of Rees and Rodionova (2015). Moreover, the results of Table 4 indicate that firm growth within small cap firms is positively and significantly associated with sustainability in the USA, UK and Germany.

Additional analyses were performed separating sustainability into its separate social and environmental components. The results did not reveal any significant differences between or within these factors, and these results have been omitted.

The results of the full sample indicate that in the case of Germany ownership concentration has a significant negative impact on the sustainability level of firms, while in the case of the USA and the UK this impact is significant and positive.

The positive impact of ownership concentration on sustainability remains significant for all subgroups in the UK and USA, whereas the results of the subgroups for Germany are not significant and thus inconclusive.

With respect to company size we only see a clear pattern of significant results regarding US companies. They become more sustainable the bigger they get with the exception of the large cap companies which seem to become less sustainable. In contrast, large cap firms in Germany become more sustainable the bigger they become, while medium cap firms become less sustainable.

2.5 Conclusion

This study investigates the impact of ownership concentration on the sustainability of firms in Germany, the USA and the UK at different levels of scale. In particular, we observed the impact of ownership concentration on sustainability firstly for the full sample of firms and secondly for subgroups of large, medium and small cap firms. We draw several conclusions from the results of our analysis.

For Germany, regarding the full sample, our results are in line with the studies of Siegel and Vitaliano (2007), Rees and Mackenzie (2011) and Rodionova and Rees (2015), while in the cases of the USA and the UK the results of the full sample are consistent with Neubaum and Zahra (2006) and Kappes and Schmid (2013). Moreover, in the case of the control variable i.e ROA the results are in line with the findings of Dam and Scholtens (2012).

Our first hypothesis is in line with our results for the UK and the US but not with the results for Germany, suggesting that the relationship between ownership concentration and sustainability

is not a simple linear relationship and likely depends on the specific type of ownership and structures of control. We can infer that, in different countries, different types of ownership concentration have different impacts and preferences for sustainability, which is in line with our second and third hypotheses.

Firms in Germany with a greater concentration of ownership seem to have a short-term approach focusing on shareholder wealth maximization. Thus the behavior of firms in Germany (without grouping firms by size) is in line with the prior studies (Barnea and Rubin, 2010; Mackenzie, Rees, and Rodionova, 2013; Rees and Rodionova, 2013; Rodionova and Rees, 2015). The fact that banks hold most of the equity of firms in Germany likely influences how much pressure those firms have to show short-term profits, as banks have to meet the demands of depositors for their own funds. The recent Volkswagen scandal reflects this short term approach as well, as a strategy for short-term cost savings was implemented despite the significant risk of financial penalties and a damaged public reputation. However, in the case of the USA and UK the effect reflects that the equity holders are not in so much of a hurry and are less interested in short-term gains; their objectives are rather to develop a long-term sustainable business in both their best interests and the interest of stakeholders.

By using subgroups of firms on the basis of scale we find that the large cap firms in the USA become less sustainable as they grow. In contrast, large cap firms in Germany become more sustainable the bigger they become. This demonstrates the differential effect of firm growth on sustainability, as in some contexts large firms can take advantage of their size to transfer resources away from sustainability, while in other contexts this might be seen as too threatening to their reputation and brand image. Similarly, the medium cap firms become less sustainable as they grow in the cases of Germany and the UK, however in the USA medium cap firms increase in sustainability as their firm size increases. This is in line with the reasons given by Natarajan & Wyrick (2011) and the Center for Leadership in Global Sustainability (2014) who found that medium size manufacturers in the USA were able to improve their supply chain, their energy efficiency, and their relationships with their employees and suppliers which ultimately has influenced their sustainability positively. On the other hand, firms in Germany as well as the UK seem to demonstrate a transfer of firm resources from sustainability to profitability as they grow, driven especially in Germany by banks. The incentives for expanding businesses at this scale may be different between countries, particularly among family-owned

firms. Expanding businesses, despite their increased market capitalization, require additional resources to finance this expansion which can put them under increased pressure from outside investors focused primarily on short-term returns. Moreover, the small cap firms in all countries of our study are more sustainable the bigger they get. This relationship is the strongest in the UK. Firms at this small scale likely see sustainability as a worthwhile investment in future profits, which the smallest firms cannot always afford. Based on our data, the question of how firms prioritize sustainability really only seems to emerge once firms have reached a certain level of market capitalization.

Banks in Germany, having a major stake in ownership of German firms, prefer short-term approaches to investment over long-term preferences for sustainability as compared to the major equity held by investment companies, mutual funds and insurance companies respectively in the USA and UK. Thus the new practical insights we gain from the present study is that within institutional ownership approaches to sustainability may vary depending on the preferences of the type of ownership concentration in firms. While sustainability may seem to be a worthwhile goal, its priority among firms waxes or wanes as the firm expands dependent on these preferences. And while large firms overall tend to show the greatest preference for sustainability, this preferences loses ground to other incentives as these firms grow in some cases, suggesting that, regarding sustainability, bigger is not necessarily better.

3. Corporate Governance and Stakeholder risk: A Case of Listed Firms of Germany

Zahid Irshad Younas[i], Christian Klein[i], Bernhard Zwergel[i]

Abstract

Motivated by the literature on corporate governance, we explore the effect of corporate governance on stakeholder risk. The results of our study illustrate that ineffective corporate governance does not reduce stakeholder risk. Furthermore, among the different individual components of corporate governance mechanisms we find that the number of annual board meetings significantly reduce stakeholder risk, while staggered board structure and if chairman is ex-ceo significantly increases stakeholder risk. Moreover, we are also the first to use a panel dynamic model in the field of corporate governance and stakeholder risk. Our study is the first to link corporate governance and its different firm level corporate governance mechanisms with stakeholder risk.

Keywords: stakeholder risk, corporate governance, panel dynamic model
JEL classification codes: G30; G34

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3.1 Introduction

In the past few years the question of whether corporate governance mechanisms affect other stakeholders beside shareholders received ample attention. Traditional research on corporate governance is based on the fundamental agency theory, focusing on the fact that managers are agents of shareholders and therefore should act in the interests of primary shareholders (Jensen and Meckling, 1976). This traditional view of corporate governance is based on the narrow single goal of wealth maximization for shareholders and the firm. The shareholder wealth maximization approach is based on the idea that the owners i.e shareholders take on risk through investing capital in the firm and thus they are the sole residual claimants, while other contributors, for example, employees, are compensated on the basis of their wages determined by the labour market. In the setting of the shareholder model, the governance mechanism controls the managers in the interest of owners (Berle and Means, 1932). Stakeholder theory suggests that the corporation is accountable to and must answer to all types of stakeholders (Arora and Dharwadkar, 2011; Letza et al., 2004). With reference to the shift of firms away from the shareholder approach towards the stakeholder approach, corporate governance mechanisms also shift from a principal focus to a team production focus. Under this broader model of corporate governance the task is not only to resolve the principal agent problem, but also to protect other stakeholders (Kochan and Rubinstein, 2000).

Under the stakeholder model, the visible contributions, resources and unseen efforts of a wide range of multiple stakeholders are also put at risk to achieve the goals of the firm (Blair 1995; Ayuso and Argandona, 2007). We call this stakeholder risk and posit that this risk could be mitigated by improving the level of corporate governance mechanism.

Better corporate governance ensures effective negotiations between all stakeholders, improves the firm reputation, and resolves conflict of interest between corporations and stakeholder (Ayuso and Argandona, 2007) and ultimately may also reduce the stakeholder risk in the future.

Based on this argument we hypothesize that:

H1: As the quality of a firm's corporate governance reduces it increases stakeholder risk.

According to the best of our knowledge in the field of corporate governance this is the first study to examine the links between corporate governance and stakeholder risk in Germany.

The Enron collapse in the USA and the Schlecker collapse in Germany left tens of thousands of employees jobless. The recent green fraud at Volkswagen highlighted that poor corporate governance not only leads to the destruction of the wealth of shareholders, but it may also bring manifold risks for other stakeholders and future generations.

Becchetti et al., (2015) define stakeholder risk as the deviation of the firm from stakeholder well-being in the domain of community, employee relations, human rights, environment, diversity and product quality. In the empirical part of our study we calculated the stakeholder risk by developing ES indices[3] (based on Asset4's environmental and social score) for each firm from 2004 to 2015. Downward fluctuations in ES indices serve as a proxy for stakeholder risk, while upward fluctuations represent a lack of stakeholder risk. We are the first to introduce this measurement of stakeholder risk and examine the impact of overall corporate governance mechanisms and the different firm level corporate governance mechanisms on stakeholder risk. Our empirical findings suggest that quality of corporate governance reduces the stakeholder risk.

3.2 Data and sample description

The data on environmental and social factors were obtained from Thomson Reuters' Asset4 database. Asset4 uses publicly available information to fill the more than 750 data points based on 280 ESG related key performance indicators (Thomson Reuter, 2015). These key ESG related performance indicators include various environmental and social factors. Environmental performance covers factor like carbon dioxide emissions, use of nuclear energy, quantity of total wastes and monitoring of environmental supply chain etc. Social factors include safeguarding human rights, maintaining diversity in its workforce, providing equal opportunities to its workforce, offering better work conditions and a healthy and safe work environment, commitments to and efforts for introducing value added products and services, offering development and training opportunities, and a wide range of corporate governance issues (Thomson Reuters, 2015)

[3] Asset4 ES scores cover all environmental and social dimensions of stakeholder well-being, which in turns reflects stakeholder risk.

The study sample is from 2004-2015, based on 127 observations from manufacturing, utilities and basic materials sectors in Germany. The details of the variables used in this study are provided in Table 11.

Table 12 provides summary statistics. The mean value of stakeholder risk (STARIS) calculated from ES indices is .061, which alongside standard deviation of .379 suggest that stakeholder risk may exist in a large number of cases.

3.3 Empirical Results

Table 13 illustrates the empirical results where stakeholder risk (STARIS) is a dependent variable. In Model 1, corporate governance (CGSCO) is an independent variable along with control variables. To control for endogeneity problems, serial correlation and autocorrelation we used panel dynamic model GMM Arellano Bond i.e generalized methods of moments[4].
The results of Model 1 indicate that corporate governance in Germany does not has a significant impact on stakeholders risk (STARIS) suggesting that as the quality of corporate governance increases it brings a negative change in the average ES score from one year to another and thus ultimately results in increase of stakeholder risk. These results are in line with the hypothesis of our study, as we were expecting that the average percentage change in ES score (STARIS) is an inverse function of corporate governance. To provide further insight, we also examined the effect of individual mechanisms of corporate governance on stakeholder risk and found that board meetings have a positive and significant impact on average percentage change in ES score and thus reduces stakeholder risk, while staggered board structure and chairman is ex-ceo have a significant and negative impact on percentage change in average ES score and thus increase stakeholder risk in firms of Germany.

3.4 Conclusion

Our results are in line with our hypothesis that corporate governance in Germany seems to fail in mitigating the stakeholder risk. Among the firm level mechanisms of corporate governance in Germany we also found that board meetings reduce the stakeholder risk. The reason for this may be that more board meetings result in more diverse perspectives and a more socially and

[4] We also check for reverse causality. However, we could not find any worth mentioning reverse causality in any model of study. We don't provide the results for reverse causality for brevity purpose. However, on request we can provide the results for reverse causality.

environmentally conscious corporate board. At the same time, staggered board structure and if chairman is ex-ceo increases stakeholder risk. This may reflect that although in staggered board structure board of directors have the protection against the removal by shareholders but still they are in hidden pressure of improving their wealth at the expense of stakeholder risk. Further, if the chairman of the board is the former CEO he can have a substantial influence in the decision making processes. Adding in the literature on the basis of our results we conclude that this type of influential status results in failure of controlling the stakeholder risk.

4 Corporate Governance and Stakeholders risk: A Case of Listed Firms in the USA, UK, and Germany

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Abstract

An extensive literature addresses the impact of corporate governance (i.e. different attributes of board effectiveness) under a shareholder perspective of the agency theory on corporate social responsibility and firm risk. However, there is still a missing link on the impact of corporate governance and different features of board effectiveness on stakeholder risk. This paper observes the impact of corporate governance and different features of board effectiveness on stakeholder risk using a stakeholder version of the agency theory. To observe this phenomenon we introduce a measure of stakeholder risk by developing ES indices (i.e percentage change in average Asset 4's environmental and social score) and assert an inverse relationship between corporate governance, (i.e. different measures of board effectiveness) and ES indices. Further, we also observe the impact of corporate governance and different attributes of board effectiveness in the USA, UK and Germany. Our results suggest that in the case of Germany neither corporate governance nor any feature of board effectiveness has a significant impact on stakeholder risk, while in the USA and UK, where a shareholder model of corporate governance is dominant, corporate governance is significantly contributing to controlling stakeholder risk. Among the different features of board effectiveness we also find that in case of the USA board meetings are an effective tool for managing stakeholder risk, while in both the UK and USA having a chairperson who is also ex-ceo of the board and high board gender diversity are associated with higher stakeholder risk.

Keywords: stakeholder risk, corporate governance, panel dynamic model, board effectiveness

JEL classification codes: G30; G34

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4.1 Introduction

An extensive and mounting literature associates corporate governance and the composition of the board of directors with the sustainability of a firm. We add into this literature by observing whether corporate governance and different features of board effectiveness affects stakeholder risk or not. This is an interesting question as traditional research on corporate governance is based on the fundamental agency theory understanding that shareholders provide capital and thus their interest should be protected (Manne, 1965; Jensen and Meckling, 1976). However, what about natural and human capital[5]? Those two are also important for sustainable businesses and sustainable society and they must be transferred to the next generations without depletion and deterioration. If natural and human capital are depleting and deteriorating it means that stakeholder risk is rising day by day and year by year. The incidents of Enron in the USA and MG Rover Group in the UK, left 30,000 people jobless. Similarly, the Schlecker collapse in Germany in 2011 left 52,000 employees jobless and Parmalat, the biggest corporate scandal in Europe, had severe consequences for the whole of Europe and reflected that poor corporate governance not only causes the destruction of the wealth of shareholders, but it may also bring manifold risks for other stakeholders. The best example of environmental destruction, deceiving all stakeholders and putting at risk the future of future generations and other stakeholders is the Volkswagen emission scandal that emerged in 2015. The company was involved in greenfrauding, its cars emitting up to 40 times the permitted level of nitrogen oxide pollution, and thus customers' trust was damaged and the company seriously violated government rules and health and well-being of people in the societies in which Volkswagen was doing business.

This paper analyses whether good corporate governance that proved its effectiveness in improving wealth of shareholders and controlling the firm risk, also proves to be effective in controlling stakeholder risk. The study of Letza et al. (2004) enlightens us that corporate governance has two perspectives: firstly the shareholder perspective and secondly the stakeholder perspective. From a shareholder perspective the role of corporate governance is to maximize the wealth of shareholders, while in a stakeholder perspective the role of corporate governance is to maintain the well-being of all stakeholders. Thus the stakeholder model of corporate governance extends the objective of the firm by equalizing the rights of stakeholders and shareholders (Money and Schepers, 2007). Here, we extend the literature and posit that a reduction in the well-being of stakeholders in the form of the destruction of natural capital and

[5]See Ian and William (2013).

human capital leads to stakeholder risk, which is a great challenge for corporate governance under a stakeholder approach to conducting sustainable business. The growing literature in the field of corporate governance highlights the critical role of corporate governance boards of directors in establishing corporate social responsibility (CSR) practices in firms (Garcia-Sanchez et al., 2015; Webb, 2004; Arman et al., 2014; Khan et al., 2013). The reason for this is that boards are effective tools for observing managers and designing strategies (Garcia-Torea et al., 2016). Prior literature associates the effectiveness of boards with shareholder well-being and thus mainly relied on the shareholder view of corporate governance (Van den Berghe and Levrau, 2004; John and Senbet, 1998; Finegold et al., 2007; Kiel and Nicholson, 2003). These studies conclude that board independence, the absence of CEO duality and more female board members are effective determinants of board effectiveness in increasing shareholder wealth and firm performance. However, scant literature is available on the impact of corporate governance and board effectiveness on stakeholder well-being: many studies only observe the impact of different limited board features on CSR (Lattemann et al., 2009; Parado-Lorenzo et al., 2009; Mallin and Michelson, 2011; Arman et al., 2014). The most recent study (Garcia-Torea et al., 2016) observes the impact of a few board characteristics on stakeholder interest and does not consider the deviation of firm from stakeholder well-being i.e stakeholder risk. However, our study is divergent from this paper as we observe the impact of corporate governance and extended features of board effectiveness on stakeholder risk. According to Letza et al. (2004), under the stakeholder model the scope of corporate governance has been widened. Thus it is necessary to determine whether corporate governance and board effectiveness mitigate stakeholders' risk as they are also non-investing shareholders (Ayuso et al., 2007).

Consistent with the approach of Becchetti et al., (2015) we define stakeholder risk as the deviation of the firm from stakeholder well-being and measure stakeholder risk by developing ES indices for firms. These ES indices indicate a percentage change in the average ES score (ASSET4's environmental and social score) of the firm over time. In fact upward and downward movements in ES indices i.e. percentage change in the average ES score of a firm are the proxy for increases and decreases in stakeholder risk over the years. We are the first to introduce this measure of stakeholder risk and examine the impact of overall corporate governance mechanisms and the different attributes of board effectiveness i.e. independent board structure, board meetings, board size, CEO duality, board diversity, staggered board structure, chairman is ex-chief executive on stakeholder risk.

To this end we measure stakeholder risk by developing ES indices for firms i.e. percentage change in average ES scores of firms from one year to another. To evaluate whether corporate governance mitigates stakeholder risk or not we use the corporate governance score obtained from Thomson Reuters ASSET4 data base. We measure board effectiveness based on several board characteristics, which have already been considered to be the best determinants under the shareholder approach of corporate governance. However, in mitigating stakeholder risk their legitimacy is still under question. Based on 2630 observations from the USA, the UK and Germany we find that in the USA and UK corporate governance mechanisms are effective in mitigating stakeholder risk. Further, among the various attributes of board effectiveness a higher number of annual board meetings is associated with decreased stakeholder risk in the USA. However, high board gender diversity in USA and UK is correlated with increased stakeholder risk. Among other features of board effectiveness, CEO duality also results in higher stakeholder risk. In the case of Germany neither corporate governance nor any attributes of board effectiveness affect stakeholder risk. This research paper makes several contributions in the field of corporate governance and stakeholder risk.

We are the first to observe the impact of corporate governance on stakeholder risk. We further contribute to and extend the literature by observing the impact of attributes of board effectiveness on stakeholder risk that contribute to the aim of corporate governance based on a shareholder perspective. Moreover, we also utilize a new measure of stakeholder risk by developing ES indices for firms. Our study is based on the USA, UK and Germany and in these economies, there are different forms of corporate governance and board systems. We consider these differences through looking at each country separately, while observing the impact of corporate governance and board effectiveness on stakeholder risk. This approach will help us to know which of the corporate governance system seems more effective in mitigating stakeholder risk.

We organize this paper in the following way. The next section articulates the literature review and hypothesis development. The third section provides detailed methodology. The fourth section describes results and lastly the final section concludes our paper.

4.2 Literature Review and Hypothesis Development

Theories on corporate governance have been differentiated into the perspectives of shareholders and stakeholders (Letza et al., 2004; Szwajkowski, 2000; Vinten, 2001). Shareholder and stakeholder views have different understandings regarding the purpose of and existence of corporations and related systems of corporate governance (Ayuso et al., 2007).
Further, it could be observed that current practices of good governance are concerned with agency theory, which is based on a shareholder perspective (Wheeler and Davies, 2004). This traditional view of corporate governance is based on the single narrow goal of wealth maximization for shareholders and the firm. The shareholder wealth maximization approach is based on the idea that owners i.e. shareholders take on risk by investing capital in the firm and thus they are the sole residual claimants, while other contributors, for example, employees, are compensated on the basis of their wages determined by the labour market. In the setting of the shareholder model, the governance mechanism is controlling the managers in the interest of owners (Berle and Means, 1932; Blair, 1995; Kochan and Rubinstein, 2000; Ayuso and Argandona, 2007). Further, under the shareholder perspective the major focus of controlling owners, managers and other corporate governance actors is to reduce the owners' risk and protect the capital of owners by elevating returns. (Arora and Dharwadkar, 2011; Mahoney and Thorn, 2006; McGuire et al., 2003; Neubaum, 2006).

This traditional view of agency theory is being challenged by stakeholder theory, which considers the corporation to be accountable and answerable to all types of stakeholders (Arora and Dharwadkar, 2011; Letza et al., 2004). According to stakeholder theory, corporations should develop their policies taking into consideration the concerns of individuals and groups (local communities, employees, creditors, suppliers, futures generations and customers) who are the cause of and affected by the organization's objectives (Freeman, 1984). With reference to the shift of firms away from the shareholder approach towards the stakeholder approach, corporate governance mechanisms also shift from a principal agent issue to a team production issue (Ayuso et al., 2007, Arora and Dharwadkar, 2011).. Under this broader model of corporate governance the task is not only to resolve the principal agent problem, but also to protect the interests of other parties (Kochan and Rubinstein, 2000; Ayuso and Argandona, 2007). Stakeholder theory was first introduced by Freeman (1984). According to the stakeholder model it is necessary to expand the focus of managers from shareholders to stakeholders who contribute indirectly to the wealth generating capacity of firms and thus they are also potential

beneficiaries and risk bearers (Post et al., 2002). Here we take a step forward and posit that the role of corporate governance is not only to reduce the agency problem and maximize the wealth of shareholders but also to control the risk of stakeholders as they are also the contributors of resources and their resources are also at stake because of the agency problem. In a stakeholder model the contributions, resources and unseen efforts of a wide range of stakeholders are put at risk to achieve the goals of the firm (Blair 1995; Ayuso and Argandona, 2007). Whenever a corporation collapses because of poor corporate governance mechanisms a crisis emerges in which stakeholders also must face the music and bear the consequences along-with shareholders in the form of unemployment in the community, decreased tax revenue, an increase in the number of suicides or other serious social problems, reduced social and infrastructural development, a lack of compensation for environmental deterioration, a lack of consumer trust and overall even bleaker prospects for future generations.

We call this risk of non-investing shareholders losing resources and opportunities stakeholder risk and posit that this stakeholder risk could be mitigated by improving the level of corporate governance mechanism.

Better corporate governance ensures effective negotiations between all stakeholders, improves cooperation and increases the reputation of the firm and participating actors. It can resolve conflicts of interest between corporations and stakeholders (Ayuso and Argandona, 2007) and ultimately may also reduce the potential for stakeholder risk in the future. Based on this argument we hypothesize that:

H1: As the quality of a firm's corporate governance improves stakeholder risk is reduced.

Corporate boards are answerable for their role of monitoring the management and setting strategic road maps for corporations. The previous literature suggests that research on board effectiveness has primarily focussed on older theories of corporate governance, for example agency theory, resource dependence and stewardship theories (John and Senbet, 1998; Van den Berghe and Levrau, 2004; Kiel and Nicholson, 2003; Finegold et al., 2007). These theories accept the shareholder perspective of corporate governance and board effectiveness and see effective corporate governance as focusing on maximizing shareholder wealth (Letza et al., 2004). Thus, this field of research asserts that board effectiveness rests on how well a board performs its role of advising, strategic management and monitoring (Forbes and Milken,1999;

Kroll et al., 2008; Adams et al., 2010 and Minichilli et al., 2012). The additional board roles of monitoring management and devising strategies are also seen as contributing to financial performance under the shareholder perspective (Dunchin et al., 2010). According to De Andres et al., (2005) board effectiveness can be categorized into the following three categories: board size, board composition and the internal functioning of the board.

With regards to board size corporate governance rating systems emphasize controlling the maximum numbers of board members. Larger boards are less efficient, while smaller boards increase the degree of involvement of board members and enhance board cohesiveness. However, the minimum number of board members should be determined in terms of diversity, authority and power (De Andres et al., 2005). According to Newell and Wilson (2002), the optimal board size is 5 to 9 members. Corporate governance practices in many countries (for example, Spain) establish minimum and maximum limits for board size. Research findings suggest both positive and negative relationships between board effectiveness and board size in different contexts (Finegold et al., 2007).

Similarly, research on board composition regarding board effectiveness differentiates three major factors: CEO duality, board independence, and the presence of women on the board.

CEO duality suggests considerable power for the CEO / chairperson, as this dual role allows that person to base board meeting agendas on his or her own interests and thus use his / her power and influence illegitimately and refrain the board from thorough monitoring (Jensen, 1993; Tuggle et al., 2010). Previous literature echoes that CEO duality has a negative impact on firm financial performance (Orlizky et al., 2003; Rechner and Dalton, 1991; Coles et al., 2001). Further, Tuggle et al., (2010) assert that CEO duality deteriorates the relationship between inferior prior performance and attention to monitoring. Similarly, Daily and Dalton (1994) conclude that firms with CEO duality endanger their own corporate existence and ultimately become bankrupt.

Another feature of board effectiveness is the presence of female directors on the board. Prior research (Daily and Dalton, 2003; Smith et al., 2006; Joecks et al., 2013) illustrates that boards with a higher proportion of females demonstrate improved financial performance, which ultimately leads to a reduction in firm risk (Sila et al., 2016). Suggested explanations for this

claim are that female members attend board meetings more regularly and also promote the attendance of board members, perform more strongly in monitoring roles, and are generally more sensitive, considering the interest of multiple parties and have less appetite for risk (Adams and Ferreira, 2009; Terjesen et al., 2009; Berger et al., 2014; Barber and Odean, 2001). The other pillar of board effectiveness is the internal functioning of the board, which has been analysed using the number of board meetings as a proxy. According to De Andres et al.(2005) the frequency of board meetings is related to the internal administrative board structure, and in previous studies it has been used as a proxy of board activism (Van den Berghe and Levrau, 2004). Similarly, the previous literature on board meetings confirms that years with more frequent board meeting lead to improved firm performance in subsequent years (Vafeas, 1999).

A staggered board structure or classified board structure prevents the removal of board directors by shareholders (Cohen and Wang, 2013). One school of thought argues that staggered board structures provide protection through insulating incumbent directors from removal and enable them to deviate from shareholder interest (Manne, 1965). Furthermore, a staggered board structure can discourage a potential acquirer from a takeover that would have been fruitful to the shareholders. Thus on one side a classified board is beneficial as it acts as an effective anti-takeover measure and on other side it is expensive for shareholders as they cannot record their opinion on the performance of individual directors or remove them to better protect their own interests each year (Stulz, 1988; Cohen and Wang, 2013). The other school of thought asserts that under the staggered board structure, after getting protection from removal, the protected directors concentrate on long-term value creation rather than the short term (Stein, 1988). The long term approach of directors within a staggered board structures may increase board effectiveness and this may prove beneficial in controlling stakeholder risk.

Further, if the chairman of the board is the former CEO he can have a substantial influence in the decision making processes. This phenomenon is highlighted by Lehn and Treml (2000). According to their theoretical narrative, if the CEO is retired and after retirement attains the position of chairman he does not refrain from involving in daily activities at the expense of his board activities. Adding in the literature on board effectiveness we posit that this type of influential status can reduce the board effectiveness in controlling the stakeholder risk.

With the change of focus from shareholder well-being to stakeholder well-being, academics argue that there must be a shift in scope of corporate governance from the shareholder perspective to team production issues (Kochan and Rubinstein, 2000; Ayuso and Argandona, 2007; Letza et al., 2004). Torea et al. (2016) observe the validity of board effectiveness under the stakeholder perspective of corporate governance and conclude that board size, CEO duality, board independence and board meetings are effective tools of board effectiveness whether the firm itself follows a stakeholder or shareholder model. We argue that if board effectiveness is valid in terms of board size, board independence, CEO duality, board gender diversity and board meetings in protecting the interests of stakeholders under a stakeholder perspective of corporate governance, then it should also mitigate stakeholder risk. It is an important question for the validity of the broader perspective of board effectiveness in the field of corporate governance and stakeholder risk. On the basis of this argument, our second hypothesis is:

H2: Board effectiveness based on the stakeholder perspective of corporate governance reduces stakeholder risk.

Corporate governance is a system through which organizations are directed and controlled (Berle and Means, 1932). Among corporate governance systems, board structure is a focal point to protect the interest of shareholders. There are two dominant forms of board structures operating in Germany, UK and USA: One Tier and Two Tier. These two different board structures are like other important institutions of societies and prioritize different corporate norms (Salacuse, 2003). In Germany, two tier structures predominate while in the USA and UK one tier board structures are more common. These two different board structures also reflect the different board features and preferences for controlling the corporations. Major difference in these two board structures are in the form of board size, number of board meetings, board independence, and shareholder versus stakeholder interests. In Germany, boards are larger compared to the USA and UK. Accordingly, in a one tier board structures, in the USA and UK, there are more frequent board meetings as compared to the two tier board structure of Germany. Similarly, the German two tier board structure is based more on stakeholder norms as compared to the US one tier board which is focused more on shareholder interested specifically (Block and Gerstner, 2016). Under the dominance of these two different systems in the USA, UK and Germany, the impact of board effectiveness in terms of various board features in controlling stakeholder risk needs further exploration. The reason is that it is possible that two tier systems

designed to protect the stakeholder do not effectively control their potential stakeholder risk. On the basis of this argument follows is the final hypothesis of our study:

H3: Board effectiveness in reducing stakeholder risk differs under one tier or two tier board systems.

4.3 Methodology

4.3.1 Data and sample description

We measured the stakeholder risk by developing ES indices i.e percentage change in average environmental (ESCO) and social (SSCO) score from one year to another. This percentage change in yearly average ES score of the firms illustrates when stakeholder risk is increasing or decreasing from year to year. If this change is positive it means that stakeholder risk has been reduced and vice versa. Thus the measurement of stakeholder risk is based on environmental and social factors, which were attained from Thomson Reuters ASSET4 data base. The Thomson Reuters ASSET4 data provides ESG factors, however, to avoid the endogeneity, reverse causality and simultaneity problem and to get robust results we excluded the governance factors, while measuring the stakeholder risk as a dependent variable. Contrary to the ESG data from Kinder, Lydenberg and Domini's (KLD), ASSET4 provides the data on ESG factors not only for the US but also of companies from Europe. Asset 4 uses publicly available information to fill more than 750 data points based on 280 ESG related key performance indicators (Thomson Reuters, 2015).

The data on social performance of the company consists of issues such as safeguarding human rights, maintaining diversity in its workforce, providing equal opportunities to its workforce, offering quality working conditions, rendering healthy and safe work environment, commitments and efforts for introducing value added products and services and offering development and training opportunities to its workforce (Thomson Reuters, 2015a).

The data on environmental factors of the company consists of subjects such as the usage of nuclear energy, amount of research and development expenditure on environmental issues, CO_2, emissions, amount of total waste, withdrawal of total water, resource reduction and monitoring of environmental supply chains (Thomson Reuters, 2015).

To measure the quality of corporate governance data on corporate governance was also obtained from Thomson Reuters Asset 4 data base. The data on corporate governance score (CGSCO) is based on governance factors including the effectiveness of board functioning and activities in the form of establishment of various committees, balancing the board structure, compensation policies, integrating the financial and non-financial aspects of the corporation in corporate strategies and not the least the protection of shareholder rights (Thomson Reuters, 2015).

The initial sample was collected from 2004-2015. The sample is comprised of firms from manufacturing, utilities and basic materials. However, as we are measuring the stakeholder risk as a percentage change in average ES score from year to year data for 2004 and 2015 was excluded. Thus our final period of study is from 2005-2014. Further, we also dropped the firms in case of missing informations on any variable in any year used in this study. Thus final sample of study is based on 1687 observations from USA, 816 observations from UK and 127 observations from Germany.

4.3.2 Estimation of empirical model

We model the following relationships:

$$STARIS_{it} = \alpha_O + \beta_1 CGSCO_{it} + \beta_2 SIZE_{it} + \beta_3 ROA_{it} + \beta_4 LEV_{it} + \beta_5 LIQ_{it} + \beta_6 DIPS_{it} + \beta_7 FIG_{it} + \varepsilon_{it}$$

Firstly, we estimate panel data regression models of stakeholder risk ($STARIS_{it}$) as a function of corporate governance and other control variables (see section 3.3 for definitions). We conduct several robustness tests to observe whether ordinary least square (OLS) is appropriate or not. However, the results of a Breusch-Pagan test show the existence of heteroskedasticity in the data. Thus in the presence of heteroskedasticity estimates are not best linear unbiased estimates and ultimately results obtained from (OLS) are not suitable. This is because OLS estimates suffer from omitted variable bias and ignore the unobserved firm heterogeneity that leads to short panel bias in dynamic data (Flannery et al., 2013). Therefore, we use panel model estimations to mitigate these issues.

A basic distinction within panel data models is the one between fixed effects (FE) and random effect (RE) models. The two approaches differ in the assumptions about the panel-unit-specific disturbance term. While the fixed effect model allows for arbitrary correlation of all time invariant predictors with the firm-specific error terms, the random effects model assumes strict exogeneity of these factors. The former model basically removes the effects of time-invariant

characteristics that vary across firms, so we can assess the unbiased effect of the time-varying predictors on the outcome variable. The main disadvantage that comes with the FE model is that it is based on within-firm variance only, rendering the estimator inefficient. If the stronger assumption of the RE model holds, then the latter is the efficient estimator and should therefore be used. While selecting, which of the two methods is appropriate we conduct the Hausman test. The test is based on the difference between the parameters of a consistent (FE) and an efficient (RE) estimator. If the results are significant, indicating systematic differences between the two sets of paremeters, then we run the consistent fixed effect regression. Contrary to this if the results of the Hausman tests are insignificant then we consider the random effect model to be appropriate (Green, 2008). In the light of above argumentation we repeat this test for each of our empirical models to decide between the FE or RE specification. Thus, our results are based on either the fixed or random effect models as appropriate.[6]

In our first model we regressed overall quality of corporate governance i.e. $CGSCO_{it}$ on stakeholder risk along with firm specific characteristics. However, in our subsequent analysis we replaced the overall corporate governance score with different features of board effectiveness i.e board meetings (BOM_{it}), board size ($BOSI_{it}$), ceo duality ($CEOD_{it}$), independent board structure ($INDBOA_{it}$), chairman is ex-ceo ($CHEXCEO_{it}$), staggered board structure ($STAGBOA_{it}$), board gender diversity ($BOGED_{it}$). The following subsection discusses these variables and their definitions.

4.3.3 Variables and their definitions

Stakeholder risk represents the deviation of the firm from stakeholder well-being in the domain of community, employee relations, human rights, environment, diversity and product quality. In the empirical portion of our study we calculate the stakeholder risk by developing[7] ES indices

[6] It is worth mentioning here that a panel dynamic model could also be used. Dynamic panel models introduced by Bond (2002) containing a lagged dependent variable (as in our case $staris_{it-1}$) as an explanatory variable for example can also be estimated by using Generalized Method of Moments. We have also investigated using this methodology. However, we found that the Durbin Score statistics and Wu Hausman F statistics, testing endogeneity, were insignificant. Thus we did not opt for GMM estimation but rather used fixed effect and random effect as an appropriate estimation. Moreover, Elsayed and Parton (2005) also suggest that permitting for unobserved firm heterogeneity is more important than opting for dynamic effects.

[7] ASSET4 ES scores cover all environmental and social dimensions of stakeholder well-being, which in turn reflects stakeholder risk.

(based on ASSET4's environmental and social score) for each firm from 2004 to 2015. Downward fluctuations in ES indices (STARIS) serve as a proxy for stakeholder risk, while upward fluctuations represent a lack of stakeholder risk. We are the first to introduce this measurement of stakeholder risk and examine the impact of overall corporate governance mechanisms and the different features of board effectiveness on stakeholder risk.

Overall corporate governance quality was measured by collecting the corporate governance score from Thomson Reuters data base. CGSCO is based on the governance factors including the effectiveness of board functioning and activities in the form of the establishment of various committees, balancing the board structure, compensation policies, integrating the financial and non-financial aspects of corporation in corporate strategies and the protection of shareholders rights (Thomson Reuters, 2015).

Several factors were used as proxies of board effectiveness. Board meetings (BOM) are measured as the number of board meetings held in a given year in the company. Board size (BOSI) is measured as the total number of board members. Independent board structure (INDBOA) is the percentage of non-executive board members. CEO duality (CEOD), applies when the CEO is also chairman of the board (1=true). Board gender diversity is the proportion of women on the board (BOGED). Chairman as ex-CEO (CHEXCEO) applies in cases where the chairman of the board has previously served as CEO (1=true). Staggered board structure (STAGBOA) applies when shareholders do not have the right to remove board members on the basis of their performance (1= true).

Among the control variables we used were ROA i.e return on assets and measured as a percentage of net income/ total assets. LEV, the leverage level of a company is calculated as the ratio of total debt/ total assets. LIQ, the liquidity available with the firm is calculated as current assets / current liabilities. DIPS, the dividend per share is calculated as total dividend/ shares outstanding, and SIZE, the size of the firm is based on market capitalization. We measured market capitalization for all countries of study in millions of US dollars for homogeneity purpose. Our last control variable is FIG, firm growth and we calculate the firm growth as a ratio of capital expenditures/ total assets.

The control variables used in this study are in line with the previous literature on corporate governance and sustainability (John and Senbet, 1998; Van den Berghe and Levrau, 2004; Kiel and Nicholson, 2003; Finegold et al., 2007, Kochan and Rubinstein, 2000; Ayuso and Argandona, 2007; Letza et al., 2004, Torea et al. 2016)). The next section provides results.

4.4 Results

4.4.1 Descriptive Statistics

Table 14 provides summary statistics for our sample. We measure stakeholder risk as the percentage change in average ES score from one year to another year for each firm. The minimum value of this percentage change in average ES score (STARIS) is -86.9% which shows the existence of stakeholder risk in our sample. However, on average the percentage change is 18.7% for the US, 8.3% for the UK and 6.1% for Germany which reflects that within our sample the average yearly potential of increased stakeholder wellbeeing is highest in the US and lowest in Germany. . This is not very surprising since average ESCO and SSCO are lowest in the USA and highest in Germany therefore US firms have the most room for improvement in their stakeholder relations. Additionally Table 15 to 17 provide correlation coefficients between dependent variables, corporate governance variables used as a measure of board effectiveness under the stakeholder perspective and different firm level characteristics for each country separately. Further, in Table 15 correlation coefficients for the USA are provided. According to these coeffecients consistent with the coeffecients of Germany there is a positive association between corporate governance and STARIS. This means that as corporate governance in Germany and USA improves it also improves ES indices and thus lowers stakeholder risk. Moreover, the correlation coefficients show that the highest correlation coefficient is 0.366 (between leverage and liquidity), which is still judicious. Further, Table 16 provides correlation coefficients for the UK. According to these results unlike Germany and USA the association between corporate governance and stakeholder risk is negative. The results of the correlation matrix for Germany in Table 17 shows that he highest value for the correlation coefficients is 0.465 (between CEOD and CHEXCEO) which is still moderate. Among the results 0.524 is the highest correlation coefficient (between BOSI and SIZE) for the UK. To check for the existence of multicollinearity we calculated variance inflation factor (VIF) for the

three countries[8]. If the value of VIF is higher than 10 it suggests the existence of multicollinearity problems in the data. However, in our sample of firms from USA, UK and Germany the value of VIFs do not exceed 1.79, which suggests that multicollinearity should not distort the estimation results.

4.4.2 Empirical results

Tables 18, 19, and 20 provide the results of fixed and random effect for the USA, UK and Germany. According to these results overall corporate governance in USA has a significant and positive impact on ES indices i.e. stakeholder risk. Thus, the impact of corporate governance appears stronger in the case of the USA, while in the case of Germany and the UK the impact of corporate governance ($CGSCO_{it}$) on stakeholder risk is positive but insignificant. These results indicate that as corporate governance improves the ES score in the USA it in turn also leads to a reduction of stakeholder risk. Thus from these results we conclude that corporate governance systems in the USA are working beyond the narrow goal of wealth maximization for shareholders. Corporate Governance additionally seems to protect the efforts and contributions of stakeholders by mitigating potential stakeholder risk. These results are in line with our first hypothesis.

Further, from these results we also infer that although in Germany the stakeholder model of corporate governance is implemented, it seems to have had no significant impact on stakeholder risk. However, in contrast to the USA where apparently, the shareholder model of corporate governance has been adopted it seems effective in mitigating the stakeholder risk by improving ES indices. These results are also in line with our third hypothesis. Furthermore, the results show that in case of UK and USA the control variable SIZE has a significantly negative impact on stakeholder risk in model 1 and all the other models. These results for firm size indicate that as the firm increases in size it concentrates less on stakeholder well-being since ES indices decrease and stakeholder risk rises. Previous studies assert that large firms provide better cash flows and demonstrate good performance in terms of profitability (La Porta et al., 2002; Stierwald, 2009). However, as their sustainability is concerned it reduces as the firms in USA and UK get bigger in size (Younas et al., 2017) because as the firm increase in size the personal and emotional attachment and monitoring by owners reduces (Burkart et al., 1997) due to which

[8] For brevity purpose we don't show the results of VIF in the form of table. However, on request we can provide the results of VIF.

we further infer that stakeholder risk also rises. Among other control variables for Model 1 none of them showed significant impact on stakeholder risk in the cases of the UK and USA, while in the case of Germany in Model 1 all of the variables showed insignificant impacts. In subsequent models we used different proxies for board effectiveness in mitigating stakeholder risk in the form of board independence **(**INDBO), board size (BOSI), board meetings (BOM), board gender diversity (BOGED), staggered board structure (STAGBOA) , ceo duality (CEOD) and chairman is ex-chief executive officer (CHEXCEO).

In our third model we introduce board meetings (BOM) as a tool of board effectiveness and regress this variable against stakeholder risk to observe its validity under a stakeholder approach to corporate governance. The results reflect that (BOM) has a significant and positive impact on stakeholder risk in the USA, while contrary to this in the cases of the UK and Germany the impact of (BOM) on stakeholder risk is negative and insignificant. It means that in the USA as the number of board meetings increase from one year to another the ES indices also improve and thus stakeholders risk is reduced from one year to another.

In our fourth model we used BOSI as a tool of board effectiveness under the stakeholder model to observe whether it is effective in minimizing the stakeholder risk or not. However, the coefficient is not statistically significant in any of the three countries. The same is true for STAGBOA (model 6) and CHEXCEO (model 8).

In Model 5 we regressed board gender diversity (BOGED) as a tool of board effectiveness against stakeholder risk. Our results show that BOGED has a significant negative impact on stakeholder risk in case of USA and UK. However, this relationship is stronger in the case of the USA. These results suggest a correlation between boards with a higher proportion of women in the USA and a decreased concern for stakeholder concerns. Moreover, boards with higher proportion of female are more aggressive and focus on short term gains and wealth maximization objective of firm (Daily and Dalton, 2003; Adams and Ferreira, 2009; Joecks et al., 2013; Torea et al., 2016).

In Model 7 we introduce CEOD as an attribute of board effectiveness. Our results show that CEO duality has a negative and significant impact on stakeholder risk in the case of the UK. This suggests that if the CEO also is chairperson in the UK then he or she may use this power

in exploiting the resources and efforts of stakeholders and introducing an additional source of risk for stakeholders. Furthermore, the behavior of all control variables is consistent with our previous models in three respective countries.

4.5 Conclusions

To the best of our knowledge we are the first to observe the impact of corporate governance on stakeholder risk in the USA, UK and Germany. We address this gap in literature in the field of corporate governance and stakeholder risk. Our results are in line with our hypothesis that corporate governance significantly reduces the stakeholder risk in USA by improving ES indices. Further, in line with third hypothesis of study it is possible that a country where apparently stakeholder model of corporate governance is operational may be ineffective in protecting the stakeholder resources and efforts. Our results confirm this phenomenon as the active stakeholder model of corporate governance in Germany seems ineffective in controlling stakeholder risk. However, in the cases of the USA where shareholder model of corporate governance is operating, it is effectively and significantly lowering the stakeholder risk by improving ES indices. Moreover, we also observed the validity of different attributes of board effectiveness to validate their importance under stakeholder model of corporate governance to control stakeholder risk. Our results on different attributes of board effectiveness that in the case of the USA the number board meetings is a highly effective attribute of board effectiveness in controlling the stakeholder risk. However, board gender diversity in the USA and UK rather than reducing the stakeholder risk increases stakeholder risk by reducing ES indices. The reason may be that the number of women on boards in the USA and UK is increasing and their focus is more often on the narrow short term goal of wealth maximization of shareholder wealth (Daily and Dalton, 2003; Adams and Ferreira, 2009; Joecks et al., 2013; Torea et al., 2016). Moreover, because of their conservative approach for them investment in the protection of interest of stakeholder may not be more important than shareholder well-being (Jia and Zhang, 2012; Croson and Gneezy, 2009; Bernasek and Shwiff, 2001; Sunden and Surette, 1998) and they do not seem as interested in protecting stakeholder risk and thus their higher prevalence on boards reduces its effectiveness and leads to higher stakeholder risk. Among other ineffective features of board effectiveness regarding the reduction of stakeholder risk in the case of the UK we found that if the CEO also holds the position of chairman he or she uses their influence and power against the stakeholder and thus the contributions and resources of stakeholders are at risk in the UK. However, the validity of the rest of features of board effectiveness is still under

question under the stakeholder model of corporate governance. In the case of Germany the validity of different features of board effectiveness does not hold in controlling the stakeholder risk significantly. Thus, the acclaimed stakeholder model of corporate governance in Germany demands a review of the different institution meant for governance within corporate sector of Germany.

5 Corporate Governance and Sustainability. A case of listed firms from the USA, UK and Germany.

Zahid Irshad Younas[i]

Abstract:

We examined the impact of corporate governance on sustainability in the developed economies of the USA, UK and Germany. Further we examined this relationship in the light of different board level governance systems prevailing in these three developed economies, which seems to be unobserved in the prior literature on sustainability and corporate governance in country specific studies. Moreover, we also used different estimation techniques varying from OLS, Fixed Effects/ Random Effects, Maximum logit binary model and dynamic panel models to limit the biases and to get robust results. Among the control variables we introduced return on assets as a measurement of firm performance and market capitalization i.e. as a proxy of firm size in both panels for each country. The results illustrate that corporate governance significantly affect the sustainability in each country of study. However, from a board level governance system perspective for sustainability of its firms, it may be beneficial for the UK to introduce specific board level corporate governance system like the USA and Germany. Interestingly, in the USA, among control variables, firm size showed a significant negative relationship with sustainability, which reflects that in the USA firms tend to become less sustainable as their size increases.

Key words. Corporate governance, Sustainability, One tier vs two tier board structures, Arellano Bond GMM.

JEL Classification codes. G30, G32

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5.1 Introduction:

We find that a firm's sustainability policy is significantly influenced by board level corporate governance systems in the developed economies of the USA, UK and Germany. We further explore in a nationally comparative manner how it may be beneficial for theUK to introduce the type of specific board level corporate governance systems found in Germany (two tier) and the USA (one tier.) We also find, surprisingly, that in the USA firms are getting larger and growing in size at the expense of sustainability, which may not be a healthy sign for future generations in the USA.

Although a remarkable volume of research has been conducted regarding the issue of corporate governance, its effects on sustainable performance are not completely understood in a country specific and in comparative manner. One reason is the inability to control the effect of omitted variables while observing the effect of corporate governance on the financial sustainability of firms. Another reason is ignoring the structural corporate governance differences among the developed countries while estimating the relationship between financial sustainability and board level corporate governance system. Thus we hypothesize that corporate governance effect financial sustainability if we control for the effect of omitted variables. Further, Exploiting the variations in board level corporate governance mechanisms in the USA, UK and Germany we estimate the effect of corporate governance variables on sustainable performance of firm and find that corporations in a country with better and specific board level corporate governance system enjoy more sustainable performance. Although the OECD has been very successful in harmonizing the corporate governance systems in different regions of the world, there are still disparities in board level corporate governance mechanisms in developed economies like the USA, UK and Germany (Schneider and Chan, 2001, OECD, 2014**).** This country specific and comparative approach seems to be missing in prior studies of Hoffman and Bansal (2012) and Shrivastava and Addas (2014).

According to the best of our knowledge we are the first to shed light on the issue of corporate governance and financial sustainability with consideration of these disparities prevailing in the USA, UK and Germany.

The idea of sustainable performance is relatively new. Corporations that declare themselves sustainable do this to satisfy stakeholders and regulatory bodies.Their sustainability measures encompass publishing reports documenting their efforts to fight climate changeby, for example, increasing energy efficiency, employing an environmentally friendly supply chain management policy and adhering to the rules set forth by global compact. To increase the sample size and competitiveness of our data set we use the energy efficiency policy and whether or not a firm is a global compact signatory as a proxy for a firm's sustainable performance.

After the collapse of Enron in the USA the board structure was found culpable and as a result of this crisis the Sarbanes-Oxley Act (SOX) of 2002 and the NYSE and Nasdaq exchange listing rules were introduced in the USA with more emphasis on independent directors in board composition (Kirkpatrick, 2009). Similarly, the previous studies of Zahra and Pearce (1989), Yermack (1996), Hutchinson (2002), Choi et al. (2007), Adams (2005) and Jameson et al. (2014) confirm the role of independent directors as an effective controlling mechanism in modern corporations and financial institutions. Thus, in line with the above cited studies, we also use percentage of independent board members in the board of a company as a proxy of the quality of board level corporate governance system.

Moreover, in agreement with Vafeas (1999) we also believe that board activity may be an important tool in improving the monitoring mechanism. That's why we used the information on number of board meetings in a year as another proxy of board level corporate governance systems, as it reflects the board activism and on other side more meetings of board members may also result in better decisions to improve sustainable performance.

We are also aware of the possible endogeneity bias that can be attributed to unobservable firm characteristics. Certain firm characteristics not included in the model may influence both sustainability and corporate governance, possibly leading to spurious results. To ensure that our results are not confounded by the omitted variable bias, we confirm the presence of endogeneity by using two-stage least square then we execute a series of estimations techniques spreading from simple OLS to complex binary model techniques and from simple panel data estimation techniques i.e fixed effects to Dynamic panel data models. However, more consistent and meaningful results are obtained from dynamic panel models.

Dynamic panel model controls the unobservable heterogeneity and endogeneity problem which is the inherent feature of variables of corporate governance and corporate finance (Wintoki et al., 2012; Flannery and Hankins, 2014). Thus, our study also seems to be a contribution to the field of corporate governance and sustainable performance in light of the improved estimation techniques we used. The remainder of this article is organized as follows. Section II briefly reviews the relevant literature on corporate governance and sustainable performance. Section III describes the sample formation and different alternative estimation techniques we used in this paper. In Section IV we provide descriptive statistics, empirical results and conclusions along with policy recommendations.

5.2 Literature Review on Corporate Governance and Sustainability

The divorce of ownership and control within the Modern Corporation is the basic reason for corporate governance. The interests of managers and owners are not always aligned and as a direct result agency problems can arise. To minimize the agency problem a specific governance system is required to meet the shareholders objectives by managers (Fama and Jensen 1982). In its report in 1998, the OECD pronounced fundamental principles of corporate governance. According to this report corporate governance is a nexus of relationship between a company's management, its shareholders and other stakeholders. In addition to it, governance structure assist in formulating effective corporate strategies and in monitoring corporate performance. Better corporate governance facilitates in introducing incentives for managers to protect the interest of shareholders, effective monitoring and providing the equitable treatment for all other stakeholders (Cadbury 1992; Monks and Minow 2004; OECD 2004). The governance system of modern corporations include control mechanisms and accountability procedures, board structure, audit and compensations committees, takeover defenses and corporate disclosures and financial transparency measures.

In the United States and Germany modes of board level corporate governance are drastically different. These differences are reflected in one tier vs two tier corporate board structures respectively in the USA and Germany. In the USA the "Anglo-American" model of a one-tier board structure is largely a reflection of the neo-liberal norms of shareholder primacy and free market capitalism. In contrast, the German two-tier model represents stakeholder primacy, managerialism and codetermination (Block and Gerstner, 2016).

In recent years transparency and accountability has been given more preference in corporate governance. The reason for this preference is several corporate scandals and failures instigated by fraudulent accounting and lacking of monitoring mechanisms. Big corporate failures include Enron Corporation and WorldCom in the USA, Parmalat in Italy and HIH and OneTel from Australia. After the failures of these corporate giants regulatory bodies across the world introduced new levels of transparency disclosures, accountability and governance responsibilities to avoid corporate misrepresentation, fraud, corruption, bribery and unethical and illegal practices. At present corporate governance plays an important part in modelling the basic purpose of business in defining its objectives and meeting the interests of its stakeholders. Because the scope of corporate governance has been widened with the implementation of business ethics in the value chains, addressing human rights and protecting the environment and society (Elkington 2006), governance has become more challenging in the modern era.

The World Commission on Economics and Development first defined sustainability in 1987 as meeting the needs of existing generation without destroying the abilities of incoming future generations to meet their needs.

For a modern corporation sustainability lies in the triple bottom line. Sustainability demands that a company must perform well on social, economic and ecological parameters. Nowadays for a corporation it is not enough to be just profitable; they also have to meet the needs of other stakeholders (Savitz and Weber 2006).

A radical change has occurred in the expectations of society from corporations in the last two decades. Now it's a known fact from the corporation's side that they have to address all those environmental and social risks which are arising because of their business activities. However, for their existence and survival in modern system they need to address these issues with democratic management and equitable distribution of risk which may only be the result of good corporate governance (Benn and Dunphy 2007). That's why it is very difficult to discuss these issues of sustainability, performance and governance in isolation.

The study of Aras and Crowther (2008) asserts that corporate governance and sustainability both are essential for any corporation to continue their business. To investigate this relationship they used the data of FTSE 100 companies. However, their study was based on a qualitative

analysis of reporting process and they did not quantify the empirical relationship between the corporate governance and sustainability. Thus our study fills the gap in the literature on corporate governance and sustainability while extending the analysis by using different empirical estimation and considering the developed economies like USA, UK and Germany, which reflects different corporate governance features for thoughtful insights of academia and policymakers.

5.3 Methodology

5.3.1 Data and Data Sources:

To observe the impact of corporate governance on sustainability this study considered the most developed economies of the world i.e.the USA, UK and Germany. The data on the corporate governance variables and on sustainability factors has been obtained from the Thomson Reuter Asset 4 data base. The Thomson Reuter Asset 4 data base is reporting data on ESG factors, firm level variables and corporate governance variables for the firms from all over the universe. However, for sample compatibility we considered only the developed economies of the world, due to the recognition and acknowledgement of sustainability issue by firms from these three economies. In order to assure sustainable investment, the corporations in these developed economies are also reporting sustainable factors in their annual reports as well for stakeholder's satisfaction. Further, for homogeneity purpose we used one data base for data collection. Firstly, we considered financial and non-financial firms. However, for robust results we dropped the financial firms from the sample because of their different nature of business. Similarly, we also dropped those firms which did not report sustainable factors since 2001 in their report or who were not reporting the sustainable factors from the last five years. The sample of the study is based on the period from 2001-2013 and comprised of the firms from manufacturing sectors, basic materials and utilities covering the chemical, cement, textile and food and beverage industries from USA, UK and Germany. Moreover, the detailed sample selection criterion is provided in Table 21.

5.3.2 Estimation of Models:

Firstly, we used the OLS to observe the impact of corporate governance on sustainability of firms. The results of OLS illustrated that there is no significant relationship between corporate governance and sustainability. Moreover, we also found an autocorrelation problem in data. To remove the autocorrelation problem we introduced AR (1) term in our both panels of study.

However, consistent with the prior studies of Bond (2002), Boone et al. (2007), Coles et al. (2008) and Flanner and Hankins (2014) in corporate finance we find that the magnitude of the effect from OLS regression suggest that OLS estimates are biased because of the combination of unobservable heterogeneity and dynamic endogeneity. Moreover, the OLS based estimation in both panels indicate that sustainability is determined endogenously rather than driven by corporate governance.

Equation 1 and Equation 2 given below illustrate the Panel A and Panel B for each country of study.

$$RESE = \alpha + \beta_1 INDBOA + \beta_2 Bom + \beta_3 ROA + \beta_4 MCAP + AR(1) + \varepsilon \quad (1)$$

$$GCOSIG = \alpha + \beta_1 INDBOA + \beta_2 Bom + \beta_3 ROA + \beta_4 MCAP + AR(1) + \varepsilon \quad (2)$$

Secondly, we used the fixed effect and random effect model estimation technique as it incorporates the panel structure of data. However, it produces downward biased parameters and also ignores the correlation between regression error and lagged dependent variables (Nickel, 1981; Flanner and Hankins, 2014). Although the estimated β are biased from both the OLS and fixed and random effects. However, in the fixed and random effect model parameters seems less biased from OLS estimates, because the random effect removes the unobservable heterogeneity; but due to dynamic endogeneity they are still biased. Moreover, the random effects and fixed effects bias reduces as the time period increases. However, the findings of Judson and Owen (1999) suggest that bias of the fixed and random effect will remain quite significant even with $T \geq 30$.

Thirdly, because of the binary nature of our dependent variables in both of the panels, we used the maximum likelihood binary logit model to test the likeliness of embeddedness of sustainability on firm level corporate governance mechanisms. However, in most of the cases we find the no cause and immediate effect relationship and conclusive results, which motivates us to proceed further for panel dynamic models which seems more reliable for dynamic nature of variables in corporate finance and corporate governance.

Fourthly, we used the dynamic GMM panel estimator that was introduced by Holtz-Eakin, Newey and Arellano and Bond (1991). The dynamic GMM panel estimator is widely suggested where the dynamic relationship exist between the dependent and explanatory variables rather

than immediate cause and effect relationship. The examples include corporate governance and firm performance (Wintoki and Linck, 2009) estimating a relationship between intermediary demand and growth (Levine et al., 2000). Thus, like Wintoki and Linck, (2009) we also assert that current practices and policies may affect future actions.

Our basic estimation procedure consists of following steps for Panel A and Panel B in each country of study. Firstly, we write a dynamic model in first differenced form.

$$\Delta S_{it} = \alpha + \mathrm{K}_{p} \sum_{p} \Delta S_{it} - p + \beta \Delta X_{it} + \gamma \Delta Z_{it} + \Delta \varepsilon_{it,} \qquad p \geq 0 \qquad (3)$$

So, after the first difference we estimated the equation 3 for both panels in each country by GMM using lagged values of explanatory variables as an instrument for the current explanatory variables. Using lagged variables as instruments for the present values of these variables controls for potential simultaneity and reverse causality. In addition, this estimation procedure allows all the explanatory variables i.e. the variables for governance and all control variables to be treated as endogenous (Schmid et al., 2010). However, in Panel A forthe USA in the presence of *p* lags of sustainability, any older information from the firm's history may not have direct effect on current sustainability of the firm. This phenomenon suggested to us that USfirms' history for Panel A beyond period *t – p* may be exogeneous for noises and surprises in both current and upcoming periods. Thus, for exogeneous assumption we rewrite Panel A for the USA in orthogonality condition and re-estimated the model. The orthogonality form is mentioned below in equation 4.

$$\mathrm{E}(\mathrm{X}_{it-s}\, \varepsilon_{it}) = \mathrm{E}(Z_{it-s} \varepsilon_{it}) = \mathrm{E}(S_{it-s} \varepsilon_{it}) = 0, \qquad \forall \quad s \geq p \qquad (4)$$

Further, the table 22 provides the information on the variables and their descriptions.

5.3.3 Descriptive Statistics

The descriptive statistics for the USA, UK and Germany are illustrated in Table 23, 24 and 25 respectively. The comparative analysis of these descriptive statistics reports that on average the numbers of board meetings held in the USA is 39.92 which is greater than the average number held in Germany (25.74), but less than the average number held in the UK (46.59). Similarly, in the USA the average percentage of board members on a board is 80.96, which is greater than the UK (54.74), but less than Germany (85.21).This means that in Germany the average percentage of independent board members is more than the average percentage of independent

board members in USA and UK. Similarly, among the sustainability variables; on average the firms in Germany are more efficient in terms of energy and resources compared to the USA and UK and thus seem more sustainable comparatively. Similarly, in terms of performance i.e. ROA on average the firms in the UK seem more profitable compared to the firms in the USA and Germany.

In Tables 26, 27 and 28 we illustrate the pairwise correlations for the USA, UK and Germany respectively. According to Table 26, for the USA there is a positive correlation between sustainability and corporate governance variables. However, among the control variables ROA illustrates a negative correlation with efficiency of energy and resources and board meetings, which suggests that firms are focusing on the maximization of the wealth of shareholders at the expense of sustainability in the USA.

Similarly, Table 27 shows the pairwise correlations for the UK and according to this table independent board members and board meetings have a positive correlation with the efficiency of resources and energy. However, among the control variables there is a positive correlation between ROA and efficiency of resources and energy,

Further, Table 28 illustrates the pairwise correlation for Germany. According to this table variables on corporate governance has a positive correlation with sustainability variables. Moreover, among the control variables ROA has a negative correlation with one of the sustainability variable i.e. RESE and has positive correlation with other variable of sustainability i.e. GCOSIG. However, the strength of these correlations is not very strong.

5.3.4 Empirical Results:

Table 29 illustrates the Panel A results for the USA. According to this table results obtained from OLS, RE/FE and ML Binary logit models are inconsistent with financial theory and spurious because of the inbuilt limitations of these estimation techniques. However, the results of GMM indicate that among the corporate governance variables there is a significant and positive relationship between independent board members in USA and the sustainability factor. Among the control variables, interestingly, ROA shows a negative relationship with the sustainability factor. These results show that governance seems essential for sustainability in USA but firm performance may not be reliable sign for investors to consider US firms

sustainable. Similarly, the results of table 30 show that both of the corporate governance variables significantly and positively affect the sustainability of USA firms. However, among the control variables of Panel B in the USA in table 30, market capitalization (MCAP) used as a proxy of firm size, shows a significant and negative relationship with sustainability, which reflects that firms in the USA may be expanding their business without giving attention to sustainability issues that impact future generations. Moreover, it may be wake up time for the policy makers in USA and a last chance to consider it seriously to avoid collapses like Enron, which was also a giant among the corporation of its time. Further for brevity purposes, we explain the results of GMM only.

The Table 31 and Table 32 shows the results of Panel A and Panel B for the UK respectively. According to the GMM results of Panel A illustrated in Table 31, among the corporate governance variables independent board members (INDBOA) show a positive and significant relationship with sustainability. Further, among the control variables return on assets (ROA) shows a significant and positive relationship with sustainability. This means that firm performance and sustainability are running parallel in the UK.

The results of Panel B in Table 32 shows that among the corporate governance variables board meetings (BOM), used as a proxy for board activity, shows a negative relationship with sustainability. The reason may be that in board meetings the board members are more involved in discussing the short term gains rather than long term sustainability issue. Moreover, among control variables, ROA and MCAP both showed a positive and significant relationship with the sustainability of UK firms.

Tables 33 and 34 illustrate the result of Panel A and Panel B for Germany. According to the GMM results provided in Tables 33 and 34 for Panel A and Panel B respectively, both of the corporate governance variables showed a positive and significant relationship with sustainability. Similarly, both of the control variables ROA and MCAP also showed a significant and positive relationship with sustainability. These results assert that, along with corporate governance variables, firm level features also contribute to the sustainability of firms in Germany.

5.4 Conclusions and Recommendations.

The purpose of our study was to find the impact of corporate governance on sustainability in the USA, UK and Germany. On the basis of the descriptive statistics and empirical results we conclude that corporate governance significantly and positively affect the sustainability level of firms in the USA, UK and Germany. However, in the case of the UK, BOM, one of the variables used as a proxy for corporate governance, showed a negative relationship with sustainability level of firms in UK. These results suggest that in the UK in board meetings board members may involve more discussion of short term issues rather than long term issues of sustainability. Further, as the UK does not follow any board level governance system, unlike Germany and the USA, which may be another reason that board member committees in the UK are not actively responding to the issue of sustainability. On the basis of our results for the UK, we recommend that regulatory bodies in the UK declare a compulsory board level governance system to streamline firm level issues on sustainability. For control variables our GMM results for the USA illustrated that MCAP in Panel A showed a negative and significant relationship with sustainability. From these results we can conclude that firms in the USA may be becoming larger at the expense of sustainability, which does not seem a healthy sign for a developed economy like the USA which has already experienced the collapse of giants like Enron. Further, we may also conclude on the basis of these results that among these three developed economies corporate governance is yielding more sustainability in Germany as compared to the USA and UK because of its two tier board level governance system.

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Appendix A: List of Tables

Table 1: Summary Statistics for Germany

Variables	Mean	Std.dev.	Min.	Max.
Sustainability	73.216	24.54	11.22	97.67
Social Performance	71.306	26.82	6.30	98.53
Environmental Performance	75.12	26.39	9.520	97.02
Return on Assets [%]	49.32	20.94	0.00	100.00
Concentrated Ownership [%]	39.743	29.82	0.00	90.50
Market Capitalization [billion Euro]	13714	18097	0.91	91970

Table 2: Correlation matrix for Germany

	SUS	ROA	COW	MCAP	LCAP	MEDCAP	SCAP
SUS	1						
ROA	-0.16	1					
COW	0.08	-0.11	1				
MCAP	0.40	-0.00	0.02	1			
LCAP	0.49	-0.02	0.01	0.70	1		
MED CAP	-0.39	0.07	-0.08	-0.56	-0.82	1	
SCAP	-0.03	-0.10	0.07	-0.15	-0.17	-0.20	1

Table: 3 Summary Statistics for UK

Variables	Mean	Std. dev.	Min	Max
Sustainability	61.62	23.69	8.09	97.51
Social Performance	63.39	24.44	6.44	98.32
Environmental Performance	59.86	26.98	9600	97.14
Return on Assets %	56.91	21.25	0.00	100.00
Ownership Concentration %	63.57	27.07	0.00	90.55
Market Capitalization [billion in pounds]	5943	2037	0.001	20000

Table 4: Correlation matrix for UK

	SUST	ROA	COW	MCAP	LCAP	MEDCAP	SCAP
SUST	1						
ROA	-0.09	1					
COW	0.30	-0.05	1				
MCAP	0.23	0.11	-0.02	1			
LCAP	0.37	0.08	0.06	0.60	1		
MEDCAP	0.15	0.05	0.08	-0.13	-0.28	1	
SCAP	-0.37	-0.11	-0.11	-0.25	-0.31	-0.78	1

Table 5: Summary Statistics for USA

Variables	Mean	Std. dev.	Min	Max
Sustainability	48.17	29.63	6.08	97.970
Social Performance	48.56	31.08	3.43	98.88
Environmental Performance	47.77	31.75742	8.570	97.34
Return on Assets %	46.87	24.40	0.00	100.00
Ownership Concentration %	45.77	32.85	0.00	90.56
Market Capitalization [billion in Dollar]	50000.	0.006	0.001	300000

Table 6: Correlation matrix for USA

	SUST	ROA	COW	MCAP	LCAP	MEDCAP	SCAP
SUST	1						
ROA	0.04	1					
COW	0.18	0.11	1				
MCAP	0.03	0.04	-0.05	1			
LCAP	0.22	0.05	-0.03	0.09	1		
MEDCAP	-0.11	0.01	0.05	-0.07	-0.76	1	
SCAP	-0.17	-0.10	-0.034	-0.03	-0.37	-0.31	1

Table 7: Results with Full Sample of Firms.

	Germany				UK				USA			
	OLS	**QR**	**FE**	**AB**	**OLS**	**QR**	**FE**	**AB**	**OLS**	**QR**	**FE**	**AB**
ROA	-0.182	-0.096	-0.161	-0.200	-0.124	-0.131	-0.049	-0.890	0.027	0.004	0.040	-0.207
	(0.001***)	(0.16)	(0.000***)	(0.000***)	(0.000***)	(0.002***)	(0.034**)	(0.000***)	(0.000***)	(0.774)	(0.000***)	(0.082*)
COW	0.048	-.003	0.091	-0.152	0.264	0.358	0.045	0.372	0.170	0.299	0.141	0.284
	(0.224)	(0.939)	(0.033**)	(0.057*)	(0.000***)	(0.000***)	(0.1190)	(0.079*)	(0.000***)	(0.000***)	(0.000***)	(0.000***)
MCAP	0.005	0.003	0.005	-0.004	0.003	0.002	0.008	0.004	0.002	0.082	0.002	1.00
	(0.000***)	(0.000***)	(0.4681)	(0.3731)	(0.000***)	(0.000***)	(0.1271)	(0.2192)	(0.000***)	(0.023**)	(0.000***)	(0.017**)
R^2	0.19		0.84		0.16		0.76		0.03		0.10	
No. of Observations	353	353	353	187	1317	1317	1317	873	21230	21230	21230	12061

This table provides coefficients and p-values from panel least square (OLS), quantile regression (QR), fixed effect models (FE) and Arrelano-Bond panel dynamic models (AB). Concentrated ownership (COW) is measured as percentage of shares held by all in. The above results are obtained by employing the full sample for each country. We use market capitalization (MCAP) as a measure of size and in subsequent tables we form subgroups of large, medium and small cap firms on the basis of market capitalization. All variables including return on assets (ROA) as a control variable are defined in the methodology section of our study under the heading of variables and their definitions. We used GMM estimation to remove endogeneity . The intercepts are not included in table and p- values are reported in parentheses, ***, ** and * illustrate the significance level at 1 percent, 5 percent and 10 percent respectively.

Table 8: Results on Sustainability for Subgroups of Large cap firms

	Germany				UK				USA			
	OLS	**QR**	**FE**	**AB**	**OLS**	**QR**	**FE**	**AB**	**OLS**	**QR**	**FE**	**AB**
ROA	-0.170	-0.099	-0.190	-0.167	-0.129	-0.107	-0.046	-0.879	0.012	0.008	0.025	0.344
	(0.001***)	(0.151)	(0.005**)	(0.000***)	(0.000***)	(0.006**)	(0.045)	(0.000***)***)	(0.122)	(0.577)	(0.001***)	(0.009)
COW	0.052	0.002	0.039	-0.009	0.237	0.275	0.044	0.464	0.176	0.281	0.147	0.582
	(0.163)	(0.960)	(0.296)	(0.892)	(0.000***)	(0.000***)	(0.126)	(0.02**)	(0.000***)	(0.000***)	(0.000***)	(0.000***)
MCAP	24.391	21.345	24.289	6.513	26.9030.	24.923	9.601	-3.483	13.791	23.785	13.162	-30.102
	(0.000***)	(0.000***)	(0.000***)	(0.000***)	(0.000***)	(0.000***)	(0.001***)	0.8813	(0.000***)	(0.000***)	(0.000***)	(0.000***)
R^2	0.27		0.32		0.23		0.77		0.09		0.15	
No. of Obs.	185	185	185	98	651	651	651	432	13780	13780	13780	7829

The p- values are reported in parentheses, ***, ** and * illustrate the significance level of variable at 1 percent, 5 percent and 10 percent respectively.

Table 9: Results on Sustainability for Subgroups of Medium cap firms

	Germany				UK				USA			
	OLS	**QR**	**FE**	**AB**	**OLS**	**QR**	**FE**	**AB**	**OLS**	**QR**	**FE**	**AB**
ROA	-0.1590	-0.094	-0.181	-0.1577	-0.100	-0.141	-0.053	-0.872	0.031	0.019	0.044	O.332
	(0.005**)	(0.168)	(0.001***)	(0.000***)	(0.005**)	(0.009)	(0.023**)	(0.000***)	(0.000***)	(0.250)	(0.000***)	(0.032**)
COW	0.032	0.015	0.020	-0.068	0.249	0.357	0.041	0.480	0.174	0.297	0.145	0.673
	(0.421)	(0.710)	(0.611)	(0.177)	(0.000***)	(0.000***)	(0.158)	(0.013**)	(0.000***)	(0.000***)	(0.000***)	(0.000***)
MCAP	-18.948	-19.019	-18.466	-8.525	6.659	7.139	2.619	-4.851	-7.613	-12.241	-7.291	37.739
	(0.000***)	(0.000***)	(0.000***)	(0.000***)	(0.000***)	(0.001***)	0.036	(0.000***)	(0.000***)	(0.000***)	(0.000***)	(0.000***)
R^2	0.23		0.22		0.12		0.77		0.05		0.11	
No. of Obs.	97	97	97	51	345	345	345	228	4070	4070	4070	2312

The p- values are reported in parentheses, ***, ** and * illustrate the significance level of variable at 1 percent, 5 percent and 10 percent respectively

Table 10: Results on Sustainability for Subgroups of Small cap firms

	Germany				UK				USA			
	OLS	**QR**	**FE**	**AB**	**OLS**	**QR**	**FE**	**AB**	**OLS**	**QR**	**FE**	**AB**
ROA	-0.193	-0.171	-0.220	-0.323	-0.138	-0.147	-0.057	-0.879	0.009	0.001	0.023	0.525
	(0.002***)	(0.029**)	(0.000***)	(0.000***)	(0.000***)	(0.000***)	(0.014**)	(0.000***)	(0.255)	(0.884)	(0.003***)	(0.000***)
COW	0.058	0.013	0.041	0.118	0.220	0.294	0.035	0.485	0.165	0.274	0.136	0.592
	(0.177)	(0.725)	(0.337)	(0.174)	(0.000***)	(0.000***)	(0.232)	(0.012**)	(0.000***)	(0.000***)	(0.000***)	(0.000***)
MCAP	-7.249	-14.480	-6.866	25.378	-17.164	-21.303	-4.533	4.322	-14.261	-18.859	-13.531	20.979
	(0.260)	(0.087)	(0.282)	(0.024**)	(0.000***)	(0.000***)	(0.001***)	(0.000***)	(0.000***)	(0.000***)	(0.000***)	(0.041**)
R^2	0.03		0.09		0.13		0.76		0.06		0.12	
No. of Obs.	71	71	71	38	321	321	321	213	3380	3380	3380	1920

The p- values are reported in parentheses, ***, ** and * illustrate the significance level of variable at 1 percent, 5 percent and 10 percent respectively

Table 11: Description of Variables.

Variable Name	Description	Unit
Stakeholder risk (STARIS)	Percentage change in average environmental and social score	Percent
Corporate Governance (CGSCO)	The overall quality of corporate governance from all aspects	Score
Board Independence (INDBOA)	Percentage of non- executive board members	Percent
Board Size (BOSI)	Total number of board members	Number
Board Meetings (BOM)	Number of board meetings annually	Number
Board Gender Diversity (BOGED)	Percentage of women on board	Percent
Staggered board structure (STAGBOA)	Shareholders able to remove board of directors based on their performance (1= true)	1, 0
CEO duality (CEOD)	CEO is also chairman (1=true)	1, 0
Concentration of ownership (COW)	Percentage of shares held by insiders and top owners.	Percent
Chairman is ex-ceo (CHEXCEO)	Chairman is ex-ceo (1=true)	1, 0
Return on Assets (ROA)	Net income/ total assets	Percent
Firm Size (SIZE)	Market value of the firm	Dollar value
Dividend per share (DIPS)	Dividends / shares outstanding	Percent
Leverage (LEV)	Total debt / total assets	Percent
Liquidity (LIQ)	Current assets /current liabilities	Ratio
Firm Growth (FIG)	Capital expenditures / total assets	Percent

Table 12: Descriptive Results.

Variables	Mean	Std. Dev	Minim	Maxim
CGSCO	36.634	21.308	3.42	93.29
STARIS	6.1	37.9	-64	331.6
ESCO	77.162	25.092	10.58	96.78
SSCO	73.409	26.872	6.48	98.53
AESSCO	75.286	24.298	10.65	97.655
INDBOA	84.895	2.277	67.44	86.95
BOM	5.598	1.619	4	11
BOSI	16.055	4.652	3	22
BOGED	6.998	7.996	0	30.77
STAGBOA	0.259	0.44	0	1
CEOD	0.157	0.365	0	1
CHEXCEO	0.157	0.366	0	1
COW	46.62	29.270	0.260	89.70
SIZE	19740	24671	946	119784
ROA	54.436	17.972	22.15	98.49
LEV	56.126	21.642	12.87	88.99
DIPS	36.241	18.609	2.8	96.77
LIQ	1.511	0.649	0.34	4
FIG	6.008	4.415	0.76	22.39

Notes: The stakeholder risk calculation is based on the data from Thomson Reuters ASSET4 data base. Data on CGSCO and other control variables was also obtained from Thomson Reuters ASSET4 data base. Independent board structure (INBOA) , board size (BOSI) , number of board meetings (BOM) , board gender diversity (BOGED) , staggered board structure (STAGBOA) , ceo duality (CEOD) , and chairman is ex-ceo (CHEXCEO) are used as different measurements of board effectiveness under a stakeholder perspective of corporate governance. Among the other variables this table also provide the results on different firm level characteristics: fim size,(SIZE), leverage (LEV) , dividend per share (DIPS) liquidity position of firm (LIQ), firm growth (FIG).

Table 13: Empirical Results for Impact of corporate governance on stakeholder risk in Germany

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
STARIS (-1)	-0.237*	-0.186	-0.3413	0.464**	-0.179	0.130***	-0.326	0.037	-0.257
	(0.129)	(0.211)	(0.264)	(0.231)	(0.154)	(0.018)	(0.284)	(0.187)	(0.153)
STARIS	-.256***	-0.326*	-0.126	-0.222	-0.182**	0.037*	-0.184*	0.139	-0.196***
(-2)	(0.077)	(0.185)	(0.076)	(0.164)	(0.071)	(0.016)	(0.068)	(0.183)	(0.065)
CGSCO	-0.031	----------	----------	---------	--------	--------	----------	---------	-------
	(0.019)								
INDBOA	----------	-0.475	----------	----------	---------	---------	----------	---------	-------
		(0.35)							
BOSI	----------	----------	-1.058	----------	----------	----------	----------	---------	-------
			(0.769)						
BOM	----------	----------	---------	0.525**	----------	----------	----------	---------	-------
				(0.25)					
BOGED	----------	----------	----------	----------	-0.098	----------	----------	---------	-------
					(0.114)				
STAGBOA	----------	----------	----------	----------	----------	-0.224*	----------	---------	-------
						(0.107)			
CEOD	----------	----------	----------	----------	----------	----------	7.63	---------	-------
							(5.627)		
CHEXCEO	-------	-------	-------	-------	-------	-------	-------	-1.430*	-------
								(0.818)	
COW	-------	-------	-------	-------	-------	-------	-------	-------	0.017
									(0.016)
SIZE	6.88E-06	1.38E-05	3.82E-06	-1.34E-05	3.76E-06	7.61E-06*	-1.37E-05	-1.76E-07	-2.03E-06
	(5.88E-06)	(1.23E-05)	(7.97E-06)	(1.33E-05)	(-5.43E-06)	(-3.51E-06)	(-2.33E-05)	(-5.03E-06)	(-6.89E-06)
LEV	-0.014	-0.017***	-0.029	-0.006	-0.023*	-0.001	-0.027*	-0.014	-0.039***
	(0.013)	(0.003)	(0.017)	(0.005)	(0.012)	(0.005)	(0.01)	(0.01)	(0.013)
ROA	0.012	-0.011	0.0438	0.092**	0.025	0.004	0.049	-0.005	0.025*
	(0.012)	(0.031)	(0.025)	(0.033)	(0.026)	(0.007)	(0.036)	(0.018)	(0.013)
DIPS	0.013*	0.018**	0.018	0.056***	0.01	0.023**	0.024**	-0.001	0.009*
	(0.007)	(0.007)	(0.012)	(-0.014)	(-0.007)	(0.008)	(0.01)	(0.013)	(0.003)
LIQ	0.468	0.893	-1.122	0.364	0.388	0.805	-0.3	-0.014	0.208
	(0.513)	(1.079)	(1.200)	(-0.600)	(-0.989)	(0.905)	(1.213)	(0.978)	(0.269)
FIG	-0.215**	-0.242**	-0.272	-1.077***	-0.234	0.027	-0.238*	-0.429*	-0.114*
	(0.109)	(0.128)	(0.174)	(0.248)	(0.160)	(0.092)	(0.125)	(0.21)	(0.045)
AR(1)-p value	0.298	0.386	0.648	0.312	0.795	0.931	0.36	0.807	0.639
AR(2)-p value	0.336	0.997	0.385	0.348	0.322	0.619	0.618	0.53	0.361

Notes: This table reports the results of the analysis of corporate governance and various firm level corporate governance mechanisms on stakeholder risk using GMM Arellano Bond i.e. panel dynamic models. This table shows that there is dynamic trend in stakeholder risk (STARIS) in seven models out of nine m We did not include the constant in this table. In Model 1 (CGSCO) is the independent variable, with control variables, while in the rest of the models individual firm level corporate governance mechanisms are independent variables with control variables. Standard errors are reported in parentheses, and *,**,*** represent significance levels at 10%, 5 % and 1% respectively. The p-values of AR(1) and AR(2) test results show that the models are correctly specified. .

Table 14: Summary Statistics

Variables	USA (obs = 1687)				UK (obs = 816)				GERMANY (obs = 127)			
	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max
CGSCO	79.439	13.010	7.940	97.530	74.528	14.891	14.060	96.740	36.634	21.308	3.42	93.29
STARIS	18.7	62.4	-86.9	681.9	8.3	31.8	-64	280.5	6.1	37.9	-64	331.6
ESCO	54.335	31.737	9.270	97.130	62.915	25.933	10.690	97.090	77.162	25.092	10.580	96.780
SSCO	55.754	28.596	4.260	98.730	65.337	23.755	6.470	98.320	73.409	26.872	6.480	98.530
AESSCO	55.045	28.571	7.600	97.720	64.127	22.813	10.465	97.515	75.286	24.298	10.605	97.655
INDBOA	68.582	10.398	24.340	86.500	34.658	15.347	5.900	84.950	84.895	2.277	67.440	86.950
BOM	8.063	3.329	0.000	45.000	8.944	3.031	4.00	33.00	5.598	1.619	4.00	11.00
BOSI	10.364	2.147	4.000	25.000	9.099	2.187	4.000	17.00	16.055	4.652	3.00	22.00
BOGED	13.630	8.955	0.000	60.000	6.530	8.177	0.000	62.500	6.998	7.996	0.000	30.770
STAGBOA	0.463	0.498	0.000	1.00	0.775	0.417	0.000	1.00	0.259	0.440	0.000	1.00
CEOD	0.627	0.483	0.000	1.00	0.019	0.138	0.000	1.00	0.157	0.365	0.000	1.000
CHEXCEO	0.497	0.500	0.000	1.00	0.099	0.299	0.000	1.00	0.157	0.366	0.000	1.000

SIZE	15865	32749	170	377569	8788	22405	78	233549	19740	24671	946	119784
ROA	56.329	20.589	0.000	100.000	58.247	19.893	0.000	100.000	54.436	17.972	22.15	98.49
LEV	51.677	26.368	0.000	89.100	55.679	19.893	0.000	90.160	56.126	21.642	12.87	88.99
DIPS	24.622	24.428	0.000	100.000	36.868	22.611	0.000	99.290	36.241	18.609	2.8	96.77
LIQ	2.043	1.424	0.000	13.650	1.719	1.208	0.380	13.970	1.511	.649	.34	4.000
FIG	4.609	3.891	0.000	51.260	6.383	7.488	0.000	65.390	6.008	4.415	.76	22.39

Note: The stakeholder risk (STARIS) calculation is based on the data from Thomson Reuters ASSET4 data base. Data on corporate governance score (CGSCO) and other control variables was also obtained from Thomson Reuters ASSET4 data base.Independent board structure (INDBOA) , board size (BOSI) , number of board meetings (BOM) , board gender diversity (BOGED) , staggered board structure (STAGBOA) , ceo duality (CEOD) , and ceo is ex chief executive officer (CHEXCEO) are used as different measurements of board effectiveness under a stakeholder perspective of corporate governance. Among the other variables this table also provide the results on environmental score (ESCO), social score (SSCO), average environmental and social score (AESSCO) and different firm level characteristics i.e :fimsize,(SIZE), leverage (LEV) , dividend per share (DIPS) liquidity position of firm (LIQ), firm growth (FIG).

Table 15: Correlation Matrix for the USA.

	STARIS	CGSCO	INDBOA	BOSI	BOM	BOGED	CEOD	CHEXCEOSTAGBOA	SIZE	ROA	LEV	LIQ	DIPS	FIG
STARIS	1													
CGSCO	0.0310	1												
INDBOA	0.006	0.257	1											
BOSI	0.011	0.207	0.279	1										
BOM	0.044	0.128	0.005	0.013	1									
BOGED	0.000	0.235	0.149	0.264	0.013	1								
CEOD	-0.021	0.029	0.186	0.083	-0.121	0.157	1							
CHEXCEO	0.035	0.008	-0.090	0.047	-0.082	0.090	0.142	1						
STAGBOA	0.017	-0.127	0.002	-0.013	-0.028	-0.123	-0.013	-0.024	1					
SIZE	-0.065	0.208	0.008	0.248	0.092	0.178	0.058	0.029	-0.205	1				
ROA	0.003	0.003	-0.111	-0.033	-0.175	0.003	-0.021	0.098	-0.041	0.166	1			
LEV	0.003	-0.087	-0.234	-0.229	-0.078	-0.147	-0.118	0.035	-0.036	0.039	0.233	1		
LIQ	-0.003	-0.194	-0.301	-0.300	-0.072	-0.186	-0.190	-0.008	-0.005	-0.088	0.154	0.366	1	
DIPS	-0.034	0.172	0.199	0.314	-0.060	0.243	0.162	0.047	-0.068	0.134	0.021	-0.310	-0.237	1
FIG	0.008	0.021	-0.003	0.058	0.010	0.022	0.035	0.019	0.015	-0.021	0.066	-0.085	-0.075	0.096	1

Table 16: Correlation Matrix for UK

	STARIS	CGSCO	INDDBOA	BOSI	BOM	BOGED	STAGBOA	CEOD	CHEXCEO	SIZE	ROA	LEV	LIQ	DIPS	FIG
STARIS	1														
CGSCO	-0.037	1													
INDBOA	-0.045	0.184	1												
BOSI	-0.048	0.234	0.136	1											
BOM	-0.045	0.1470	0.001	-0.068	1										
BOGED	-0.087	0.276	0.074	0.137	0.016	1									
STAGBOA	0.009	-0.052	-0.090	-0.006	-0.019	-0.024	1								
CEOD	-0.057	-0.134	-0.072	-0.046	-0.052	-0.026	0.012	1							
CHEXCEO	0.017	-0.047	-0.098	0.024	-0.038	-0.075	0.001	0.071	1						
SIZE	-0.079	0.213	0.298	0.524	0.009	0.177	-0.085	-0.045	-0.067	1					
ROA	0.025	-0.060	0.073	-0.040	-0.113	-0.021	0.053	0.013	-0.105	0.092	1				
LEV	0.039	-0.059	-0.071	-0.041	-0.055	-0.088	0.029	0.014	0.105	0.014	0.243	1			
LIQ	0.030	-0.112	0.037	-0.134	-0.165	-0.132	-0.050	-0.027	-0.014	-0.124	0.087	0.233	1		
DIPS	-0.026	0.120	0.042	0.022	0.067	0.089	-0.006	-0.090	-0.007	0.043	0.037	-0.226	-0.270	1	
FIG	0.050	-0.114	0.037	0.055	-0.106	-0.1406	-0.067	-0.046	-0.171	0.064	0.148	-0.087	0.110	-0.183	1

Table 17: Correlation matrix for Germany

	STARIS	CGSCO	INDBO	BOM	BOSI	BOGED	STAGBOA	CEOD	CHEXCEO	SIZE	ROA	LEV	LIQ	DIPS	FIG
STARIS	1														
CGSCO	0.060	1													
INDBOA	0.051	-0.072	1												
BOM	-0.078	0.299	-0.034	1											
BOSI	-0.024	0.154	0.044	-0.085	1										
BOGED	-0.004	0.348	-0.081	0.204	-0.057	1									
STAGBOA	-0.090	-0.013	-0.031	0.002	0.217	-0.013	1								
CEOD	0.100	0.089	-0.114	0.134	0.069	-0.181	0.138	1							
CHEXCEO	0.009	.038	-0.049	0.054	0.004	-0.204	0.236	0.465	1						
SIZE	-0.022	0.614	-0.066	0.222	0.389	0.114	0.141	0.074	0.004	1					
ROA	-0.018	-0.128	-0.025	0.020	-0.555	-0.053	-0.252	0.155	0.014	-0.154	1				
LEV	-0.051	-0.168	-0.048	-0.109	-0.285	-0.028	-0.273	0.158	0.127	-0.222	0.504	1			
LIQ	0.036	-0.205	0.078	-0.173	-0.068	-0.024	-0.197	0.148	0.113	-0.240	0.367	0.517	1		
DIPS	-0.061	0.235	-0.035	0.171	0.264	0.173	0.078	-0.091	0.014	0.220	-0.437	-0.248	-0.179	1	
FIG	-0.049	-0.149	0.055	-0.052	0.064	-0.278	0.095	0.090	0.001	-0.091	-0.066	-0.258	-0.045	0.053	1

Table 18: Fixed effect/ Random effect results for the USA

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
CGSCO	.002***							
	(.001)							
INDBOA		.001						
		(.002)						
BOM			. 009***					
			(.005)					
BOSI				.012				
				(.008)				
BOGED					-.010***			
					(.004)			
STAGBOA						.004		
						(.031)		
CEOD							-.021	
							(.032)	
CHEXCEO								.046
								(.030)
SIZE	-1.42e-06***	-1.24e-06***	-1.38e-06***	-1.41e-06***	-2.55e-07	-1.23e-06*	-1.24e-06*	-1.25e-06*
	(1.68e-06)	(4.79e-07)	(4.82e-07)	(4.91e-07)	(1.68e-06)	(4.88e-07)	(4.79e-07)	(4.78e-07)
ROA	-9.71e-06	.000	.000	.000	-.003*	-.000	-.000	-.0000
	(.001)	(.001)	(.001)	(.001)	(.002)	(.001)	(.001)	(.001)
LEV	-.001	-.001	.001	.001	-.000	.001	.001	.000
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
DIPS	-.001	-.001	-.001	-.001	-.000	-.001	-.001	-.001
	(.001)	(.001)	(.001)	(.001)	(.002)	(.001)	(.001)	(.001)
LIQ	-.005	-.007	-.007	-.005	-.014	-.008	-.009	-.007
	(.012)	(.012)	(.012)	(.011)	(.029)	(.012)	(.012)	(.012)
FIG	.001	.001	.001	.001	.016	.001	.001	.001
	(.012)	(.003)	(.004)	(.004)	(.010)	(.004)	(.003)	(.004)

Adj. R-squared	0.008	0.006	0.008	0.007	0.012	0.006	0.005	0.007
Hausman test	0.031	0.222	0.104	0.269	0.020	0.213	0.245	0.220
FE/ RE	FE	RE	RE	RE	FE	RE	RE	RE
D-W	2.370	1.949	1.952	1.950	2.408	1.949	1.950	1.955
obs	1687	1687	1687	1687	1687	1687	1687	1687

This table provides the results from fixed (FE) and random (RE) effect regression. Which of the two models is to be selected depends upon the results of the Hausman test. Insignificant effect of the Hausman test shows that random effect model is to be selected otherwise the fixed effect model is selected. We did not report a constant in the above table. Coeffecients are reported and in parenthesis we reported standard errors. Furthermore we report the results of the Durbin Watson test.(D-W) According to the results of Durbin Watson there is no first order autocorrelation in any model. Thus all modelsare correctly estimated. *** , ** and * ′show the level of statistical significance at 1% , 5 % and 10 % respectively. Independent board structure (INBOA) , board size (BOSI) , number of board meetings (BOM) , board gender diversity (BOGED) , staggered board structure (STAGBOA) , ceo duality (CEOD) , and ceo is ex chief executive officer (CHEXCEO) are used as different measurements of board effectiveness under a stakeholder perspective of corporate governance.

Among the other variables this table also provide the results on differentfirmlevelcharacteristics :fimsize,(SIZE), leverage (LEV) , dividend per share (DIPS) liquidity position of firm (LIQ), firm growth (FIG).

Table 19: Fixed Effect/Random Effect Results for the UK

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
CGSCO	.001							
	(.001)							
INDBOA		-.000						
		(.001)						
BOM			-.004					
			(.004)					
BOSI				-.001				
				(.007)				
BOGED					-.003*			
					(.002)			
STAGBOA						.004		
						(.028)		
CEOD							-.157*	
							(.085)	
CHEXCEO								.031
								(.042)
SIZE	-1.24e-06**	-1.14e-06*	-1.21-06**	-1.18e-06*	-1.04e-06*	-1.20e-06*	-1.25e-06**	-1.18e-06**
	(5.97e-07)	(6.16e-07)	(5.92e-07)	(6.78e-07)	(5.94e-07)	(5.93e-07)	(5.95e-07)	(5.92e-07)
ROA	.001	. .000	.000	.000	.000	.000	.000	.000
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)

LEV	.000	.000	.000	.000	.000	.000	.000	.000
	(.000)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
DIPS	-.000	-2.73e-06	-3.62e-06	-.000	-4.59e-06	-7.04e-06	-.000	-7.13e-06
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
LIQ	.001	.001	.001	-.001	-.000	.001	-.000	.001
	(.011)	(.010)	(.011)	(.010)	(011)	(.010)	(.010)	(.011)
FIG	.002	.002	.002	.002	.001	.002	.002	.002
	(.002)	(.002)	(.001)	(.002)	(.002)	(.001)	(.002)	(.002)
Adj. R-squared	0.011	0.012	0.013	0.011	0.016	0.012	0.015	0.012
Hausman test	0.409	0.912	0.894	0.833	0.960	0.917	0.626	0.309
FE/ RE	RE	RE	RE	RE	RE	RE	RE	RE
Durbin Watson	2.399	2.393	2.398	2.396	2.394	2.397	2.387	2.387
obs	816	816	816	816	816	816	816	816

Table 20:. Results of fixed and random effect in Germany

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
CGSCO	.002							
	(.002)							
INDBOA		.006						
		(.015)						
BOM			-.016					
			(.022)					
BOSI				-.005				
				(.010)				
BOGED					-.001			
					(.005)			
STAGBOA						-.095		
						(.082)		
CEOD							.128	
							(.097)	
CHEXCEO								.019
								(.096)
SIZE	-1.46e-06	-3.38e-07	-2.05e-07	5.85e-09	-3.59e-07	-2.15e-07	-6.78e-07	-3.82e-07
	(1.80e-06)	(1.49e-06)	(1.50e-06)	(1.64e-06)	(1.49e-06)	(1.49e-06)	(1.50e-06)	(1.49e-06)

ROA	-.002	-.002	-.000	-.001	-.002	-.003	-.002	-.002
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
LEV	-.001	-.001	-.002	-.002	-.001	-.001	-.001	-.001
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
DIPS	-.002	-.002	-.001	-.002	-.002	-.002	-.002	-.001
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
LIQ	.056	.049	.047	.062	.053	.049	.046	.052
	(.063)	(.064)	(.064)	(.065)	(.063)	(.063)	(.063)	(.064)
FIG	-.005	-.007	-.007	-.006	-.007	-.006	-.008	-.007
	(.008)	(.008)	(.008)	(.008)	(.009)	(.008)	(.008)	(.008)
Adj. R-squared	0.0293	0.021	0.024	0.022	0.020	0.031	0.033	0.020
Hausman test	0.366	0.488	4.89	0.569	0.601	0.682	0.449	0.607
FE/ RE	RE	RE	RE	RE	RE	RE	RE	RE
D-W	2.989	2.991	2.993	2.987	2.982	3.013	3.004	2.992
Obs	127	127	127	127	127	127	127	127

Table 21: Sample Selection Criteria.

Selection Criteria	USA	UK	Germany
Initial Sample of Study	572	243	81
Less: Firms did not report sustainable factors			
Used in the study since 2001	-06	-07	-02
Less: missing information on sustainable factors			
In any year in last five years	-13	-21	-11
Less: missing information on firm level variables	-09	-04	-10
Less: missing information on corporate			
governance variables	-05	-03	-06
Final Sample of study	539	208	52

Table 22: Variables and their Description.

Variable Name	Description	Unit
RESE	Binary variable equal to one if the firm is resource and energy efficient otherwise zero	1, 0
GCOSIG	Binary variable equal to one if the firm if the firm is UN global compact signatory otherwise zero	1, 0
BOM	Number of board meetings held in a year in each company	Number
INDBOA	Percentage of independent board members to total board members	Percent
MCAP	Market capitalization: Market price of equity * no. of shares outstanding. The market capitalization is converted into US dollar for each country.	Dollar value
ROA	Return on assets: Percentage of net income divided by total assets. It is incorporated in models of study as a firm level variable to capture the performance of firm.	Percent

Table 23. Descriptive Statistics for the USA.

Variables	Mean	Median	Maximum	Minimum	Std.Dev	Skewness	Kurtosis	No.of Obs
RESE	0.540	1.000	1.000	0.000	0.498	-0.162	1.026	6432
GCOS	0.046	0.000	1.000	0.000	0.210	4.308	19.56	6432
BOM	39.932	34.28	100.000	2.550000	19.902	1.110	3.732	6432
INDBOA	80.969	84.62	100.000	0.000	13.460	-2.439	12.238	6432
MCAP	10899611	4246845	500000000	10.698	26435165	9.106	115.636	6432
ROA	53.25040	52.385	100	0.000	20.417	-0.063	3.130	6432

Table24: Descriptive Statistics for the UK.

Variables	Mean	Median	Maximum	Minimum	Std.Dev	Skewness	Kurtosis	No.of Obs
RESE	0.718	1.000	1.000	0.000	0.449	-0.972	1.945	2495
GCOS	0.134	0.000	1.000	0.000	0.341	2.140	5.581	2495
BOM	46.592	42.490	100.000	5.80	18.865	0.773	3.289	2495
INDBOA	54.742	54.550	100.000	0.000	12.636	0.341	3.728	2495
MCAP	9670174	1784750	20000000	1137.0	28594903	5.540	37.004	2495
ROA	56.390	54.810	100.0000	0.000	19.331	0.056	3.301	2495

Table 25: Descriptive Statistics for Germany.

Variables	Mean	Median	Maximum	Minimum	Std.Dev	Skewness	Kurtosis	No.of Obs
RESE	0.865	1.000	1.000	0.000	0.341	-2.138	5.572	623
GCOS	0.380	0.000	1.000	0.000	0.485	0.492	1.242	623
BOM	25.748	23.450	77.320	7.330	11.063	1.986	8.120	623
INDBOA	85.219	86.010	86.960	11.870	4.358	-11.899	170.715	623
MCAP	12824406	4361002.	13325600	3638.000	20.333	2.715	10.993	623
ROA	45.571	43.890	100.000	0.210	16.652	0.404	3.878	623

Table 26: Pairwise correlations for the USA.

	RESE	GCOSIG	INDBOA	BOM	MCAP	ROA
RESE	1					
GCOSIG	0.162***	1				
	(0.000)					
INDBOA	0.120***	0.009***	1			
	(0.000)	(0.466)				
BOM	0.009	-0.004	0.027**	1		
	(0.446)	(0.730)	(0.029)			
MCAP	0.072***	0.065***	0.041***	0.090***	1	
	(0.000)	(0.000)	(0.001)	(0.000)		
ROA	-0.016	0.049***	0.008	-0.205***	0.070***	1
	(0.175)	(0.000)	(0.487)	(0.000)	(0.000)	

p- Values are provided in parenthesis. ***, ** and * show the significance level at 1%, 5% and 10% respectively.

Table 27: Pair wise correlations for the UK

	RESE	GCOSIG	INDBOA	BOM	MCAP
RESE	1				
GCOSIG	0.173***	1			
	(0.000)				
INDBOA	0.142***	0.137***	1		
	(0.000)	(0.000)			
BOM	-0.041**	-0.070***	-0.018	1	
	(0.038)	(0.000)	(0.364)		
MCAP	0.056***	0.202***	0.019	0.011	1
	(0.005)	(0.000)	(0.339)	(0.553)	
ROA	0.0557***	0.127***	0.087***	-0.077***	0.004
	(0.005)	(0.000)	(0.000)	(0.000)	(0.825)

p- Values are provided in parenthesis. ***, ** and * show the significance level at 1%, 5% and 10% respectively.

Table 28: Pairwise correlations for Germany.

	RESE	GCOSIG	INDBOA	BOM	MCAP
RESE	1				
GCOSIG	0.144***	1			
	(0.000)				
INDBOA	0.037	0.004	1		
	(0.349)	(0.904)			
BOM	0.029	0.039	-0.014	1	
	(0.454)	(0.330)	(0.726)		
MCAP	0.093**	0.063	-0.042	-0.088**	1
	(0.020)	(0.114)	(0.284)	(0.027)	
ROA	-0.043	0.043	-0.066*	-0.102*	-0.106**
	(0.274)	(0.273)	(0.096)	(0.010)	(0.007)

p- Values are provided in parenthesis. ***, ** and * show the significance level at 1%, 5% and 10% respectively.

Table 29: Panel A Empirical Results for the USA.

Variables	Model 1 OLS	Model 2 RE/ FE	Model 3 LOGIT	Model 4 GMM
BOM	0.0001	-0.0003	-0.0003	0.0001
	(0.768)	(-0.957)	(-0.422)	(0.001)
INDBOA	0.0006	0.0044	0.0113	0.0065
	(1.715*)	(10.102***)	(9.347***)	(0.001***)
MCAP	-0.0006	0.0009	0.0003	1.001
	(1.152)	(2.401***)	(5.489***)	(0.333)
ROA	0.0046	-0.0003	-0.0014	-0.001
	(-2.218**)	(-1.020)	(-1.869*)	(0.001)
R^2	0.6972	0.0169	----	----
Adj R^2	0.6970	0.0163	----	----
MF- R^2	----	----	0.0146	
D-W	2.1516	----	----	----
Haus Test	----	1.8983 (0.754)	----	----
Total Obs	5891	6432	6432	3748

In the above table estimation of models vary from simple OLS to GMM_{AB}. The OLS is the ordinary least square, while RE is the random effect model in cross sections or periods in panel data. LOGIT is the Binary model while GMM_{AB} is the dynamic panel model. In OLS and RE the t-statistics are reported in parenthesis. For LOGIT and panel Dynamic Model GMM_{AB} z-statistics and standards errors are respectively presented in parentheses. *, ** and *** shows the statistical significance at 10 percent, 5 percent and 1 percent respectively.

Table 30: Panel B Results for the USA

Variables	Model 1 OLS	Model 2 RE	Model 3 LOGIT	Model 4 GMM
BOM	0.0056	-0.0044	-0.0040	0.0017
	(0.486)	(0.767)	(0.778)	(0.000***)
INDBOA	0.0004	-0.0001	-0.0017	0.0043
	(0.000***)	(0.3860)	(0.360)	(0.000***)
MCAP	0.0024	0.0005	0.0003	-0.0002
	(0.117)	(0.000***)	(0.000***)	(0.000***)
ROA	0.0001	0.0004	0.0049	0.0043
	(0.095*)	(0.000***)	(0.000***)	(0.042***)
R^2	0.7972	0.0061	----	----
Adj R^2	0.7970	0.0055		
MF- R^2	----	----	0.0133	----
D-W	2.050			
Haus Test	----	6.8168 (0.145)	----	----
Total Obs	5908	6449	6449	5369

In the above table estimation of models vary from simple OLS to GMM_{AB}. The OLS is the ordinary least square, while RE is the random effect model in cross sections or periods in panel data. LOGIT is the Binary model while GMM_{AB} is the dynamic panel model. In OLS and RE the t-statistics are reported in parenthesis. For LOGIT and panel Dynamic Model GMM_{AB} z-statistics and standards errors are respectively presented in parentheses. *, ** and *** shows the statistical significance at 10 percent, 5 percent and 1 percent respectively.

Table 31: Panel A Results for the UK.

Variables	Model 1 OLS	Model2 RE	Model 3 LOGIT	Model 4 GMM_{AB}
BOM	0.0002	-0.0007	-0.0027	0.0001
	(0.431)	(-1.605)	(-1.949**)	(0.001)
INDBOA	0.0025	0.004477	0.0149	0.0136
	(3.595***)	(6.398***)	(6.858***)	(0.001***)
MCAP	9.0000	0.0008	3.0009	1.0002
	(1.613)	(2.683***)	(2.850***)	(0.563)
ROA	0.0007	0.0010	0.0029	0.0029
	(1.638)	(2.244**)	(2.065**)	(0.018**)
R^2	0.5628	0.0232	----	----
Ad. R^2	0.5619	0.0217		
MF-R^2	----	----	0.0230	----
D-W	2.199			
Haus Test	----	3.6447 (0.4562)	----	----
No. of Obs	2286	2495	2495	2079

In the above table estimation of models vary from simple OLS to GMM_{AB}. The OLS is the ordinary least square, while RE is the random effect model in cross sections or periods in panel data. LOGIT is the Binary model while GMM_{AB} is the dynamic panel model. In OLS and RE the t-statistics are reported in parenthesis. For LOGIT and panel Dynamic Model GMM_{AB} z-statistics and standards errors are respectively presented in parentheses. *, ** and *** shows the statistical significance at 10 percent, 5 percent and 1 percent respectively.

Table 32: Panel B Results for the UK.

Variables	Model 1 OLS	Model2 RE	Model 3 LOGIT	Model 4 GMM_{AB}
BOM	-0.0004	-0.0011	-0.0120	-0.0092
	(-2.064**)	(-3.218***)	(-3.341)	(0.0006***)
INDBOA	0.0009	0.0033	0.0291	0.0078
	(2.965***)	(6.365***)	(6.242)	(0.001***)
MCAP	4.0009	2.4000	1.0036	9.0099
	(0.308)	(10.406***)	(8.549)	(1.008***)
ROA	0.0003	0.0019	0.0186	0.0003
	(0.104)	(5.740***)	(5.778)	(0.000***)
R^2	0.8124	0.0763	----	----
Ad. R^2	0.8119	0.0748		
MF-R^2	----	----	0.0828	----
D-W	2.0116			
Haus Test	----		----	----
No. of Obs	2286	2495	2495	2079

In the above table estimation of models vary from simple OLS to GMM_{AB}. The OLS is the ordinary least square, while RE is the random effect model in cross sections or periods in panel data. LOGIT is the Binary model while GMM_{AB} is the dynamic panel model. In OLS and RE the t-statistics are reported in parenthesis. For LOGIT and panel Dynamic Model GMM_{AB} z-statistics and standards errors are respectively presented in parentheses. *, ** and *** shows the statistical significance at 10 percent, 5 percent and 1 percent respectively.

Table 33: Panel A Results for Germany.

Variables	Model 1 0LS	Model 2 RE	Model 3 LOGIT	Model 4 GMM_{AB}
BOM	0.0019 (1.602)	0.0031 (2.500**)	0.0055 (0.978)	0.0029 (0.000***)
INDBOA	0.0031 (0.993)	0.0023 (0.795)	0.0134 (1.073)	0.0129 (0.001***)
MCAP	0.0013 (1.181)	0.0192 (2.031**)	0.0001 (2.413**)	0.0289 (0.000***)
ROA	0.0003 (0.417)	-0.0005 (-0.700)	-0.0022 (-0.585)	0.0030 (0.000***)
R^2	0.3594	0.0188		
Ad. R^2	0.3492	0.0125		
MF-R^2	----	----	0.0199	----
D-W	2.1253			
Haus Test	----	5.5986 (0.231)	----	----
No. of Obs	572	572	572	520

In the above table estimation of models vary from simple OLS to GMM_{AB}. The OLS is the ordinary least square, while RE is the random effect model in cross sections or periods in panel data. LOGIT is the Binary model while GMM_{AB} is the dynamic panel model. In OLS and RE the t-statistics are reported in parenthesis. For LOGIT and panel Dynamic Model GMM_{AB} z-statistics and standards errors are respectively presented in parentheses. *, ** and *** shows the statistical significance at 10 percent, 5 percent and 1 percent respectively.

Table 34: Panel B. Results for Germany.

Variables	Model 1 OLS	Model2 RE	Model 3 LOGIT	Model 4 GMM_{AB}
BOM	0.0017 (1.672*)	0.0022 (1.272)	0.0096 (1.285)	0.0130 (0.001***)
INDBOA	-0.0003 (-0.152)	0.0014 (0.312)	0.0060 (0.306)	0.0197 (0.019***)
MCAP	0.0014 (1.219)	0.0178 (1.830*)	0.0743 (1.832*)	0.0959 (0.001***)
ROA	0.001 (1.735*)	0.0016 (1.421)	0.0072 (1.431)	0.0063 (0.000***)
R^2	0.7598	0.0009	----	----
Ad. R^2	0.7576	0.0029		
MF-R^2	----	----	0.0069	----
D-W	2.1258			
Haus Test	----	3.4791 (0.481)	----	----
No. of Obs	570	623	623	465

In the above table estimation of models vary from simple OLS to GMM_{AB}. The OLS is the ordinary least square, while RE is the random effect model in cross sections or periods in panel data. LOGIT is the Binary model while GMM_{AB} is the dynamic panel model. In OLS and RE the t-statistics are reported in parenthesis. For LOGIT and panel Dynamic Model GMM_{AB} z-statistics and standards errors are respectively presented in parentheses. *, ** and *** shows the statistical significance at 10 percent, 5 percent and 1 percent respectively.

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Kassel, 03.05.2017

Zahid Irshad Younas