Università
Ca'Foscari
Venezia

Scuola Dottorale di Ateneo

Graduate School

Dottorato di Ricerca in Economia Aziendale-Management

Ciclo: 28

Anno di discussion: 2016

Titolo

Determinants and Consequences of Corporate Sustainability Performance and Disclosure

SETTORE SCIENTIFICO DISCIPLINARE DI AFFERENZA: SECS-P / 09

Tesi di Dottorato di: Nazim Hussain **Matricola: 956033**

Coordinatore del Dottorato

Prof.ssa Anna Comacchio

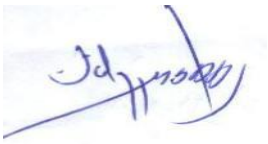
Tutore del Dottorando

Prof. Ugo Rigoni

Co-tutore del Dottorando

Prof. Andrea Stocchetti

The undersigned, Nazim Hussain, in his capacity of doctoral candidate for a Ph.D. degree in Management granted by the Università Ca' Foscari Venezia certifies that the research exposed in this dissertation is original and that it has not been and will not be used to pursue or attain any other academic degree of any level at any other academic institution, be it foreign or Italian.



Nazim Hussain

Abstract

Since the UN Conference on the Human Environment, held in Stockholm in 1972 and following the great resonance of the Bruntland report issuance in 1987, corporate sustainability has climbed the ranking of governance priorities. Sustainability and or Corporate Social Responsibility (CSR) performance and reporting have become increasingly relevant topic in business and academia. The body of knowledge about the determinants of sustainability performance and reporting has grown in last two decades. Similarly, last couple of decades has witnessed a huge amount of research trying to establish that how company's sustainability performance (SP) is related to financial performance (FP). Researchers have applied various methods and frameworks to investigate this relationship but results are still fragmented and competing.

Keeping in view the fragmented results in the domain of corporate sustainability research, I develop three related studies on determinants and consequences of corporate sustainability performance and disclosure. In first study, I present a systematic review of 201 outcomes from 49 studies published in business, management, and accounting journals from year 1992 to 2014. Based on the discursive review and analytical results, I recognize the need of theory development to explain the underlying relationship. The findings provide concrete bases for theorizing the underlying relationship and development of a new comprehensive theoretical framework which can provide rationale to explain existing and future empirical evidences. Theoretically, my research contributes towards dominant paradigms of governance research, i.e. agency, stakeholder and legitimacy theory. I highlight the complementarities of three frameworks and partly take the agency, stakeholder, and legitimacy theory perspective in hypotheses development in subsequent studies because no single theory can fully explain the hypothesized relationships.

In the second study, I empirically examine the relationship between different corporate governance mechanisms and various dimensions of sustainability performance in the context of dominant theories in CG and CSR nexus. The study is a first attempt to quantify the sustainability performance using specific performance criteria. I apply manual content analysis on sustainability reports of US based companies and measure triple bottom sustainability performance. The empirical findings reveal that some particular governance mechanisms are very important to foster triple bottom line performance of company. The most important implication for practitioners is the support for sustainability practices, which may be gained through implementation of specific governance mechanisms.

In the third essay, I analyze the relationship between SP measures and FP. Differently from existing literature, in this study sustainability disclosure (SD) and SP are considered jointly through a composite index. The compliance of sustainability report with Global Reporting Initiative (GRI) guidelines ensures a high degree of comparability and quality of information provided by the companies. Results obtained from fixed effect regression models reveal that the impact of environmental and social dimensions of sustainability remains relevant and significant across different measures of FP. No evidence shows any relation between SP and capital structure. The use of control sample further corroborates the relevance of sustainability dimension to explain changes in FP. Overall; my research focusses on the determinants and consequences of corporate sustainability performance and disclosure. The results of my research significantly support the idea of environmental and social performance of the firm. Results of my studies further strengthen the "revisionist view" which contends that firms adopting sustainability practices face lesser problems and have more growth opportunities.

ACKNOWLEDGMENT

First and foremost is my acknowledgment of ALLAH (Subhan Hu Watallah) for his blessings and kindness upon me.

I am thankful to my supervisors Prof. Ugo Rigoni & Prof. Andrea Stocchetti, for their continuous support, guidance and encouragement throughout the research process and thesis writing. I am also thankful to Prof. Paolo Parego from Erasmus University in Rotterdam and Dr. René Orij from Leiden University, The Netherlands, for their support and guidance during my period abroad in Netherlands.

I would also like to acknowledge Prof. Francesco Zirpoli, for his consistent guidance and moral support during my PhD.

Nazim Hussain

DEDICATION

I would like to dedicate this thesis to my Parents whose prayers open every door of success for me.

Contents

List of Tables

CHAPTER 1

CORPORATE GOVERNANCE AND SUSTAINABILITY PERFORMANCE DISCLOSURE: A META ANALYTICAL REVIEW

1.1. Introduction and Background

Few years before the famous Brundtland report, the concept of unsustainability of the state of human development had been made clear by the evidence of the non-linearity of the relationship between population growth and consumption of non-renewable resources (Ehlrich and Holdren, 1971; Meadows *et al*., 1972). This initial idea of unsustainability was mainly circumscribed to the trend in the availability of resources and population growth. Then, the sinister evidences of the ecological environment depletion, together with the socio-economic threats related to the possible rapid impoverishment of wide ranges of population, has moved almost all categories of scholars and decision makers to take into consideration the concept of sustainable development with the breadth it is known today. Above all, United Nations and other supporters of environmental safety worked separately for the preservation of ecological sustainability. Then the World Commission on Environment and Development (WCED) was appointed to strive jointly for the sustainability and it issued its very well-known first report in 1987 *"Our Common Future"* (WCED, 1987; Kemp, Prato, and Gibson, 2005), also known as Bruntland report, named after the Norwegian Prime Minister Gro Harlem Brundtland who chaired the commission.

Although the concept of unsustainability was clearly defined already in the early ‘70s, the sustainable development one remained vague for long time (Lele, 1991) and strongly connected to the macro-economic perspective, probably induced by the original field of analysis where the sustainability problem was raised (natural science) and by the standing of the primary actors involved in the spread of the concern, who identified in the economic governance the main lever for the reorientation of behaviors toward a sustainable path.

In this new era (for the first time representatives of a significant part of humanity agree worrying about long-term issues) the world of corporate and business in general is a major, if not the main culprit to blame. This new challenge, however, did not fall on deaf ears but, on the contrary, within the debate on Corporate Social Responsibility (CSR) (Bowen, 1953), that started long before the Bruntland Report and even before the works by Ehlrich and Holdren on the sustainability of the population growth. Therefore, at the time of the WCED recommendation, business theory had already started worrying about the gap between human responsibility and the action of the corporate:

> “Social responsibility moves one large step further by emphasizing institutional actions and their effect on the whole social system. (…) A business-man can lead a model personal life, but continue to justify his organization's pollution of a river because no direct personal consequence is involved. (…) The idea of social responsibility, however, requires him to consider his acts in terms of a whole social system and holds him responsible for the effects of his acts anywhere in that system”. (Davies, 1967, p.46)

The CSR debate is rooted into the corporate governance domain, differently from the Bruntland report and the principles established in 1972 conference in Stockholm, that basically assign a dominant role to regulation and to the macro-level policies. The CSR debate, although it started on ethical premises, has evolved in the sense of a long-term strategic perspective, through the contributions of strands of thoughts as the agency theory and stakeholder theory. In this regard, the management science welcomed the concept of social responsibility much more positively than the mainstream economic thinking, whose prominent scholars as Friedman and Levitt did label the company social responsibility in terms like danger and narrow ideas "letting the country in for a nightmare" (Levitt, 1958, p. 42), threats to freedom (Friedman, 1962) and even a "fundamentally subversive doctrine in a free society" (Friedman, 1970, p. 124).

It is just in last couple of decades that some underlying points of the concept have been cleared, thanks to the efforts of practitioners and academicians. Kemp *et al.* (2005) highlighted points of common understanding. These include unsustainability of current development path, role of sustainability, multiplicity and interconnectedness of sustainability, integration of sustainability axes, requirement of elaboration of context specific rules, and diversity of context specific solutions. The other points they highlight are; multidimensional nature of sustainability, stakeholder engagement, understanding of tradeoff between losses and gains, and sustainability as never ending process.

Similarly, a recent NASA funded study based on Human and Nature Dynamics Model (HANDY) says:

> "Global industrial civilization could collapse in coming decades due to unsustainable resource exploitation and increasingly unequal wealth distribution…this offers a highly credible wake-up call to governments, corporations and business - and consumers - to

recognise that 'business as usual' cannot be sustained, and that policy and structural changes are required immediately" (Ahmed, 2014).

The statement calls nations' serious attention towards issues and challenges of sustainable growth.

Previously, Wilson (2003) argues that corporations and industries are the biggest consumers of human, natural, and economic resources. These corporations and industries in proportion to their consumption of resources must be socially, environmentally, and economically responsible for sustainable growth of the society. These opinions provide rationale for the increased stakeholders' demand of higher corporate transparency and accountability. Hill and Jones, (1992) consider that directors of corporate governance board are the supreme stakeholders of a business firms and it the duty of board to align the goals of management with those of the wide variety of stakeholders. One of the approach meet stakeholders' expectation is reducing information asymmetry and increasing firm transparency. Sustainability reporting serves this purpose. Reporting sustainability performance shows firm commitment towards sustainable development which resultantly provides legitimacy to the firms (Cong and Freedman, 2011).

1.1.1. Evolution of Corporate Sustainability Reporting

Recent research has shown that corporations are under strict public scrutiny for their operations (Chen and Wang, 2011). Stakeholders are increasingly demanding firms to be transparent and accountable (Haniffa and Cooke, 2005). To meet these emerging challenges, organizations use sustainability reporting as a tool as to encounter stakeholders' growing requests for disclosure. Issues regarding sustainability and Corporate Social Responsibility reporting have become an increasingly relevant topic in recent business studies (see for review, Molina-Azorín *et al.*, 2009).

Since early 1990's the term sustainability is used as a synonym for the ability of a corporation to survive under growing social and environmental pressures. During 1990s, sustainability reporting was extended to economic performance reporting, environmental performance reporting, and social performance reporting. Later, this was termed as triple bottom line reporting by Elkington (1997). The World Business Council for Sustainable Development (WBCSD) coined the term "eco-efficiency" to represent environmental and economic sustainability. Porter (1991) and Porter and Van der Linde (1995) act as founder of revisionist view and termed sustainability as "higher efficiency".

On the bases of similar idea Global Reporting Initiative (GRI), the first formal organization with headquarter in Amsterdam, the Netherlands, was established to develop a sustainability reporting framework. This organization operates with strategic partnership of UNEP, UN global compact, OECD, and International Organization for Standardization (IOS). GRI launched its first reporting framework in year 2000. The second generation of Guidelines, known as G2, was unveiled in 2002 at the world summit on sustainable development in Johannesburg. Thanks to the multi-stakeholder approach used in development of reporting guidelines which results the launch of most comprehensive G3 Guidelines in 2006. Although, GRI launched updated version of G3 guidelines 2011 which is followed by the development of G4 generation of guidelines but G3 framework is still valid for reporting.

Traditional financial reporting and sustainability reporting are considered as distant cousins with very few things in common (Slater and Gilbert, 2004). The former have been evolved with continuous improvement in last more than 100 years. The later has recently got more attention than ever before. Slater and Gilbert highlight the importance of sustainability reporting and its link with economic outcomes for firm. They argue that firms should disclose sustainability

performance information in relation to their economic performance so that the investors can make a fully informed investment decisions.

Although the focus of their contribution remain on the importance of integrated reporting but they also note an increasing trend of standalone sustainability reports production by companies all over the world. Dhaliwal *et al*. (2011), with many others maintain that sustainability reporting is a way to enhance transparency and create value for firms. Empirical literature on sustainability reporting highlights many benefits for reporters. These include; improved relations with stakeholders and compliance with regulations, adherence to societal norms and social responsibility higher shareholders value, larger market share, better access to new markets, improved competitiveness, and better profitability by reducing cost and premium pricing. These empirical evidences from different perspectives provide managerial rationale for external and internal governance mechanisms to promote full disclosure strategy.

1.1.2. Corporate Governance and Sustainability Reporting

The literature on corporate governance unanimously agrees on the fact that, generally speaking, the commitment to increase accountability and transparency on company's activities other than economic and financial ones has rapidly grown among major companies and has become a relevant issue for corporate management. Several recent contributions have investigated the trustworthiness of the relationship between factors describing the governance structure and the various manifestation of disclosure through statistical analysis. Fewer contributions went beyond, exploring the actual managerial rationale for such a phenomenon and/or tried to frame it into a theoretical perspective.

Before examining the wide managerial literature on the issue, two premises are needed in order to give significance to studying the relationship between corporate governance and sustainability

disclosure. The first premise requires framing the analysis within a theory in which it makes sense for a firm to disclose about social and environmental commitment: *Why should a company care about (voluntary) sustainability disclosure?* The numerous reasons for this are often repeated as a mantra, but beyond the ethical reasons this issue is the focus of a broad and fertile debate that, over time, has deeply marked the theory of the firm.

A second premise stands in the rationale for the relationship between corporate governance and sustainability disclosure. Given that – as I will see later - such disclosure is a legitimate concern: *Why should corporate governance structure affect the degree of sustainability disclosure (at least as for its voluntary part)*? In other words, I am wondering for which logical reason the composition of the board of directors should have systematic effects on the mode and quality of sustainability reporting. If the individual variables of decision makers were investigated, then many interpretations (ethical, psychological, behavioral) of the sustainability commitment could be provided. In this case, however, the theoretical challenge is to explain if and why, for instance, the size of the board or its independence is related to different sustainability disclosure policy, independently from the personality of the directors.

The two conceptual issues above are in fact strictly interrelated. Once outlined the overall framework of reference for corporate decisions, the rationale for interpreting the relationship between governance and disclosure will emerge.

There are good reasons for this quest for a logical premise that the majority of the literature seems to assume implicitly, with few exceptions like "The fact that companies increasingly use CSR committees does not explain why they do so and in which direction CSR-governance structures might evolve" (Spitzeck, 2009, p. 502), "dominant paradigms in corporate governance research such as agency theory fall short in explaining why and/or how social targets should be

included in corporate strategic goals" (Walls, Berrone, and Phan, 2012, p.886). As it will be discussed in the next section, empirical evidences are very variegate, often contradictory and the support from theoretical background is seldom decisive in the explanation of results, while all kind of explanation are given for all possible kind of result.

Therefore, in this brief introduction I will focus on those two premises that I think are useful in order to get a better view about the logic of the research question investigated in this study. The next section will deepen the literature review on the relationship between corporate governance and sustainability disclosure.

Back to the basics, in a political economy perspective, the commitment towards voluntary social and/or environmental disclosure cannot be explained otherwise than through the existence of a positive relationship between disclosure and economic performance. Within such perspective transparency brings benefits up to a certain point after which the trade-off between costs and benefits cause an overall decrease of the convenience to disclose (Hermalin and Weisbach, 2007).

In managerial literature the positive relationship is often accepted without the support of a theoretical background. For instance, it is the key argument of the "triple bottom line" concept that sees in the business sustainability a long-term prerequisite for durable competitive advantage and the opportunity for a positive-sum game involving the company and its business ecosystem (Elkington, 1998; Salzmann *et al.*, 2005; Schaltegger *et al.*, 2012). At its birth the concept of the triple bottom line (TPL) had no theoretical ambitions. It was proposed and spread outside of the academic environment with some success, such as to suggest that it could be the catalyst for a more widespread need in the business world.

In fact, there is not a theory behind TBL but rather a series of findings - sometimes expressed in a rather messy way - about various kinds of consequences deriving from unrest and from the increasing pressure towards social and environmental consequences of business (Elkington, 1998). The argument provided more frequently is a long-term coherence between the objectives of the company and those of the traditional shareholder perspective (see e.g. Hart and Milstein, 2003) in fact an attempt to explain the sustainability commitment and disclosure through a, somehow enlarged, perspective of economic rationality.

Curiously, the contributions on TBL often ignored the already well-known debates on CSR- which was born even before the debate on sustainability - and on the Stakeholder Theory (ST), although in practice much of the rationale behind TBL is definitely overlapping with the latter. Therefore, despite its popularity, especially in the consultancy sector, the scientific community has welcomed this particular idea with the skepticism that receives allegedly new concepts which appear evolved from scientific debate. Among criticism, it has been said that the TBL is a useless superstructure in the debate on CSR and, moreover, it has been strongly criticized for attempting to apply the criteria of "objective" measurability to environmental and social aspects (Norman and MacDonald, 2004), so as to spread a compliance-oriented vision of the sustainability issue and providing shortcuts to detour from a responsible assessment of sustainability impact (Sridar and Jones, 2013).

The approach known as "Business Case for Sustainability" (BCS) presents several similarities with the TBL since it deals in a more structured way with the issue of the relationship between sustainability and business performance. "The business case for CSR refers to the arguments that provide rational justification for CSR initiatives from a primarily corporate economic/financial perspective" (Carrol *et al.*, 2010, p. 101)

As TBL, the BCS approach starts from the premise that in the long-term an un-sustainable behavior endangers the existence of the corporate itself. Natural capital and social capital are critical assets whose protection and growth is as important as that of financial capital. Differently from TBL, this approach clearly states that the three different kinds of capitals have to be managed and measured in different ways; specifically, economic capital cannot substitute natural or social capital once they have been depleted (Dyllick and Hockerts, 2002). Moreover, it tries to investigate the presence of actual links between areas of sustainability and specific advantages. But again, also BCS does not provide an actual alternative to the traditional economic theory or to the CSR-related theories. Moreover, the BCS concept is not unequivocally supported by empirical evidences (Salzmann *et al.*, 2005; Schreck, 2011).

Above all, both TBL and BCS proposals do not critically debate the issue of the rationale for company's sustainability, and do not even provide an acknowledged sustainability reporting system, like, for instance, GRI and Global Compact do. As well as other arguments that simply connect the sustainability disclosure to improved economic performance, TBL and BCS are not able to explain the phenomenon of corporate commitment to the social and environmental improvement in the absence of evident economic benefit. As a consequence, a recurring argument in the majority of papers is that the relationship between the sustainability performance and the firm performance is largely perceived unclear and in fact it is (Goyal *et al.*, 2013).

On the other hand, this literature has the ethical merit to give emphasis to the complementarities that there are or may be between business management and sustainability in a cultural context where the prevailing economic theory meet difficulties in relating responsible business practices with else apart an increase in costs (see for instance the review in Prado-Lorenzo and Garcia-Sanchez, 2010, pp.393-396).

In literature, the relationship between governance and disclosure has been mainly interpreted from three different theoretical perspectives: the stakeholder theory, the legitimacy theory, and the agency theory. Here I will focus on these three perspectives. Comparatively few authors (e.g.: Bansal, 2005; Fodio and Oba, 2012; Ntim and Soobaroyen, 2013; Amran *et al*, 2014 and Sharif and Rahid, 2014) rely on different theoretical frameworks, namely; the resource-based view, resource dependence theory, slack resources theory, the institutional theory neo-institutional theory and stewardship theory.

Premises, concepts and conclusions of these various approaches have a large areas of overlap with the general debates on CSR, a vast territory that cannot be uniquely defined (see for instance Van Marrewijk, 2003; Dahlsrud, 2008) and that includes numerous theories whose conclusions lead in various ways to the obligation to reduce the company negative impact on society (see e.g. Garriga & Melé, 2004). Similarly, the corporate governance is vested with the responsibility of, and conceived by managers as, the necessary pillar for pursuing the goals in the CSR territory (Jamali *et al*, 2008). The CSR approach, however, lies in the domain of a normative vision rooted into ethics. From a managerial standpoint, the answers to the questions I posed at the beginning of the this discussion which represent the basis for this research must be sought in the field of the corporate governance theoretical debate, where the three main theoretical frameworks mentioned above appear more frequently: the stakeholders theory, the legitimacy theory and the agency theory.

Steurer *et al* (2005) see in the stakeholders' theory the key passage from the normative concept stated by the CSR approach to an actual theory of the firm: "While CSR describe the relationship between business and the larger society (…) in rather general terms, 'Stakeholders theory' is about actually managing business society relations in a strategic way" (Steurer *et al*., 2005, 265).

Freeman and Reed (1983) explicitly introduce the idea that the concept of stakeholders can be the key to explain the corporate decisions. The authors, with reference to a previous unpublished contribution, refer to stakeholders as "those groups without whose support the organization would cease to exist" (Freeman and Reed, 1983, p. 89).

Although researchers have used the agency theory framework for explaining the governance-CSR link, this framework seems unable to cover all the aspects of this given relationship. There are good reasons for the quest for a logical premise that the majority of the literature seems to assume implicitly, with few exceptions: “The fact that companies increasingly use CSR committees does not explain why they do so and in which direction CSR governance structures might evolve” (Spitzeck, 2009, p. 502). This shows that agency theory cannot fully explain the CG-CSR link. Furthermore, the basic premise of agency theory is to align and safeguard the shareholders’ interest and it is unable to cover the goals of a wider variety of stakeholders. This limitation seeks theoretical aid to explain CG-CSR relationship.

Agency theory, stakeholder theory and legitimacy theory complement each other in a way that all the three advocate the alignment of stockholder, stakeholder and management goals. The given frameworks discourage the opportunistic behaviour of management (Michelon & Parbonetti, 2012). Walls *et al*. (2012) contend that one theory independent of other is unable to explain why and/or how social targets should be included in corporate strategic goals. It is also evident from my literature review that most of the researchers use more than one theories to hypothesize about the relationship between CG and CSR dimensions (see table 1). This provides the rationale of combining both theories to explain the CG-CSR link.

In the stakeholders theory perspective the management commitment for voluntary disclosures occurs in analogy with, and overlapping the, commitment on reporting about financial results

towards shareholders. In both cases managers are supposed to guarantee the compliance of company's activities with the set of regulatory and/or ethical norms in force, and to ensure that both stock and stake-holders are ensured that their capital (financial, natural and societal) is protected from depletion and produce returns.

The inclusion of broader set of stakeholders, other than shareholders, have a twofold significance: a) a consequence of the increasing orientation towards considering the overall effect of sustainability reporting on corporate performances; b) a way to show the correctness of management decisions towards shareholders (Hart and Milstein, 2003).

The driver of sustainability disclosure in the legitimacy perspective partially overlaps the stakeholder approach explanation to the extent that reads such disclosure as a duty to be played towards a general community – while stakeholders are identifiable groups distinct on the basis of the relationship with the company (Freeman and Reed, 1983) - and that provide benefits improving company's reputation (Lee, 2012), showing company's focus on excellence (Hardjono and van Marrewijk, 2001). The disclosure of information is also a way to reduce possible legitimacy gaps before they create adverse consequences and the degree of disclosure depends on the level of threat perceived by the management (Haniffa and Cooke, 2005).

The agency-based perspective on corporate governance emphasizes the separation of ownership and governance which induces extended mechanism of control. "In most agency relationships the principal and the agent will incur positive monitoring and bonding costs (non-pecuniary as well as pecuniary), and in addition there will be some divergence between the agent's decisions and those decisions which would maximize the welfare of the principal" (Jensen & Meckling, 1976, p. 308).

Governance disclosure is seen an answer to the need for investors to have a way to assess and control the protection of their investment and the attainment of adequate returns (Shleifer & Vishny, 1997). Environmental and social disclosure responds to the concerns of ownership about sustainability issues as a long-term threat for earnings. Specifically, institutional investors (e.g. bankers, pension funds, insurance companies, etc.) are particularly sensitive to the competitiveness and profitability in the long run (Johnson & Greening, 1999) but their interest goes even beyond the mere financial performance and extend to instrumental, moral and relational motives (Aguilera, 2006). Through enhanced reporting the company show a "social responsiveness" coherent with the shareholder vision of which strategic decisions should be adopted in order to proactively deal with threats and opportunities (Freeman and Reed, 1983; Dyllick, & Hockerts, 2002).

Alternatively, the disclosure rationale stands in the agency mechanism occurring between directors and shareholders, which also occur between directors and stakeholders in relation to the social responsibility of the company. It is worth noticing that in both the principal-agent and the stakeholder theoretical frameworks a direct correlation between disclosure and financial performance is not actually a prerequisite in order to explain the governor's commitment towards sustainability disclosure.

These two theoretical perspectives have similar arguments to answer to the question, *why should a company care about (voluntary) sustainability disclosure?* Pressures from the external ecosystem interest groups, as well as decision from legislative institutions, changes in the framework of reference for the company's approach to disclosure to the extent the company's impact is perceived relevant as for the specific issue (e.g. pollution, employment, etc.). "Corporate governance mechanisms are economic and legal institutions that can be altered

through the political process -sometimes for the better." (Shleifer & Vishny, 1997, p. 738). Such situations, and other similar ones, provide a series of strategic challenges for the company, who responds through adopting an instrumental perspective that includes a larger group of referents. The normative and ethical, value-based implications at the root of the CSR approach might be present also in the stakeholders theory, but they are not necessary to explain that company board invest resources in being sustainable and disclose it.

As for the second premise *"why should corporate governance structure affect the degree of sustainability disclosure"*, several studies investigate this relationship supporting with empirical findings the hypotheses of positive relationships between the first and the latter, but without actually providing a rationale for it and rather offering *ex-post* explanations.

In the CSR perspective the sustainability disclosure is an ethic, value-based imperative and in such context a significant relationships between, for instance, culture or personal attitudes of board members and disclosure, it would makes sense. But CSR does not provide the logic for empirical findings referring to the composition of the board (e.g.: board size, board independence, CEO duality, family members, women on board, etc.).

The quest for the relationship between CG and SD is therefore an important issue that trace back to the critical topic of the relationship between type of governance and performance, whose debate dates back to the work of Vance (1978). This author, to my knowledge, first correlate the "corporate governance" - intended as a set of characteristics relevant for the description of the "directorate dimension" of a company – to performance and methods of performance disclosure, within the context of a relationship that pertains to the institutional role of the board.

The early conception of the board role focused on the compliance with the law and of the financial reporting. In particular, the agency theory sees in the monitoring and disclosure

functions of the governance the key for protection against opportunistic behavior by managers (Jensen and Meckling, 1976). Then the governance role has been extended to that of guarantor of the overall effectiveness of corporate decisions. Indeed, the relationship between the company and its ecosystem the board of directors acts as a guarantor of the behavior of corporation: "The primary function of a board is to oversee, monitor and evaluate the activities of a firm and its top management so that the firm operates responsibly and effectively" (McKendall *et al.*, 1999, p. 205).

In the disclosure process the selection of what is relevant and what is not is only partially mandatory, often depending on the area (e.g. finance versus sustainability), while part of the information is entered at the discretion of the board. Voluntary disclosure, in particular, is expressive of an evaluation by the board about the relevance of the information provided for strategic purposes. Through voluntary reporting the board assigns relevance to various topics beyond the mandatory and managers are made aware of the relevance given to these various topics and, consequently, motivated towards performance. Indeed, a recent review on the connection between board composition and social reporting quality unravel the results of previous researches at the light of the span and quality of control of the board upon managers (Amran *et al.*, 2014).

The link between board structure and voluntary sustainability reporting is therefore readable as a link between "good corporate governance" and increased attention to the balance between short term profits and long term sustainability benefits (Aras and Crowther, 2008) or, at least, to the compliance with regulations (McKendall *et al.*, 1999). A good governance increasingly address the issue of sustainability as the benefits for the company's value become clearer (Amran *et al.*, 2014; Aras and Crowther, 2008), since a value maximization focus circumscribed to

shareholders brings systemic effects that in the long run affect the competitiveness of the economic system and, consequently, endanger the profitability of the companies (Lazonick and O'sullivan, 2000). Moreover, the relationship between corporate governance and sustainability has been proved above the mixed findings by Walls *et al.* (2012), who however claim that prevailing theories do not solve the complexity of the interactions between governance and performance as a whole.

Remainder of the paper is organized in following way: The next section will deepen the literature review on the relationship between corporate governance and sustainability disclosure. I present discursive review of existing literature. Section 1.3 comprises discussion of methodology applied in this study. I present results and discussion in section 1.4. In section 1.5, I conclude the argument and provide some future research directions.

1.2. Literature Review

The amount of contributions on the relationship between governance and disclosure is huge. Unfortunately, browsing the multitude of previous studies, it is possible to find positive, negative and insignificant relationship with degree and quality of sustainability disclosure for almost all variables descriptive of the corporate governance structure taken into consideration. Therefore, one of my first concerns is to extricate from the embarrassing multiplicity of arguments, results and related explanations. I have then decided to select a number of studies that have in common the use of a relatively uniform statistical methodology (regression analysis) and published management journals. This choice does not entail a uniformity of results, but I hope this leads at least to acceptable uniformity in terms of methodological rigor.

The variables most frequently used in the literature to describe the structure of corporate governance are board independence and board composition, defined through parameters like

CEO duality, percentage of external directors, directors' ownership, and women in the board and size of the board. The presence of a CSR committee and/or a CSR director is also often considered as affecting the quality and level of disclosure.

This meta-analysis focuses on these variables. Of course, several other variables have also been investigated, (for instance the board competence, the presence of family members in the board, weight of the institutional ownership, the presence of an audit committee, and so on), however less frequently than those previously mentioned. Overall results are controversial, both from the standpoint of the statistical correlation and from the point of view of the explanations which are given to justify the (mixed) results.

Several reasons are at the roots of the variety in results, like for instance the country factors (e.g. Halme and Huse, 1997), since expressive of the differences in the socio-economic, and the regulatory and cultural environment connected to the variety of countries in which the investigations were carried; (e.g. Gul and Leung, 2004, Haniffa and Cooke, 2002, Cheng and Courtenay, 2006). The numerous interrelations existing between the factors describing the corporate governance structure and decisions have been mentioned as complexity factors affecting the results of the analysis (Arcay and Vàzquez, 2005), and in fact Walls *et al*. (2012) found that the relationship between three domains of the governance (board, ownership and management) are relevant in order to describe environmental concern. Among the rest, economic crisis is mentioned among exogenous factors virtually reshaping the attitude and of the relevance awareness of both directors and management about voluntary disclosure (Ghazali and Weetman, 2006)

I believe that the variety of statistical results in literature depend mainly from differences in the samples and in particular: in the industry and firm characteristics e.g. size, which involve

differences in quality and scope of disclosure (Rupley *et al*., 2012); in the time of the survey, considering that over time the attention devoted to disclosure and CSR has generally increased.

The diversity of explanations for similar results, in my view, depends on the different theoretical perspectives adopted by the authors. The case of the relationship between the independence of the board and disclosure is illustrative. The independence of the board refers to the ability of the board of not being influenced in their choices of disclosure by the ownership or by the management. Variables like CEO duality, board composition and director ownership are actually used as proxy of board independence. Despite of the several studies on this issue and despite of several interpretations about the seemingly reasonable link between independence and transparency, such relationship is still unclear.

In the stakeholder framework the independence of the board is expected to be positively associated with higher level of disclosure since external directors are realistically less subjected than internal ones to pressure from shareholders and managers. Moreover, since external to the organization they are invested with a responsibility towards a wider audience and have higher reputational costs with respect to internal directors (Lim *et al.*, 2007; Prado-Lorenzo and Garcia-Sanchez, 2010). On the other hand, it has been said that in the legitimacy perspective internal directors are supposed to have a higher commitment than external ones towards the reduction or elimination of legitimacy gaps. Therefore, in such a view it is reasonable to assume a positive relationship between high percentage of internal directors and disclosure (see for instance Haniffa and Cooke, 2005). However, I find this position not convincing. Of course there are several studies confirming that the quest for legitimacy is positively related to disclosure and CSR transparency, but I found no contributions showing that external and independent directors have less attention to legitimacy than the internal ones.

Independent directors could be prominent persons whose personal visibility and whose personal social environment can be even more demanding, in terms of legitimacy, than the internal ones. Therefore, there is no reason to think that a general rule about directors' legitimation inclination could be found. Prado-Lorenzo and Garcia-Sanchez (2010) highlight that the actual relationship between board independence and disclosure should be interpreted at the light of the existing macro-context, since the actual propensity of the board to disseminate information in a specific situation depends on more or less temporary factors like risk of litigation and risk of damage to economic results or to reputation.

Strictly speaking, the decisions of an independent board could hardly be read in the light of the agency theory, because it lacks the principal-agent relationship. In such framework, however, the independence can be seen as the absence of a particular interest in reducing the transparency objectives of shareholder value, which could instead have a board that is not independent. As a whole, the main perspectives are generally inclined towards a positive relationship between independence and disclosure and for this reason, I expect a similar result. On the other hand, the evidences gathered are indeed very confusing. Some authors found significant relationship between independence and disclosure (for instance, Lim *et al.*, 2007; Rupley *et al*, 2012), while other found no relationship (see for instance Ghazali and Weetman, 2006), or even negative (e.g. Barako *et al.*, 2006).

The double chair of the CEO and its prospective influence on the governance board is one of the most commonly cited argument in the definition of board independence, but the role of this variable is also controversial, since there are both arguments in support and against the appropriateness of the CEO as chairman in the board.

On one hand, common sense suggests that the CEO presence hypothetically implies a prospective managerial control on the board, as well as a pressure towards short-term financial and income results (McKendall *et al.,* 1999), therefore it is expected to negatively affect the voluntary disclosure (Gul and Leung, 2004). In the agency perspective the double chair would create an untimely concentration of power like to let CEO interests to prevail on shareholders' ones (Jensen and Meckling, 1976). However, other studies (Arcay and Vàzquez, 2005; Cheng and Courtenay 2006; Prado-Lorenzo and Garcia-Sanchez 2010), found no significant relationship between disclosure and CEO duality. In my opinion there is a peculiar ambiguity in the CEO role as an agent, since for CEO and executives the set of incentives adopted to reduce opportunism (e.g. stock options, long-term contracts, etc.) blur the boundary between the role of the principal and of the agent. If this is true, I would expect to find little or no explanatory power in the CEO duality in itself, while it is rather the structure of incentives that can reasonably have a role, to the extent that it align the goal of the agent to those of the principal.

Board Composition has been interpreted in several ways that usually relate to size, diversity between the components in terms of gender, percentage of insiders versus outsiders. The predictive capability of this variable allegedly stands in the weight, as for the decision making processes, of the short-term *versus* long-term perspective and in the weight of the relevance given by directors to non-economic utilities, like for instance CSR activities (Coffey and Wang, 1998). Diversity in the board is also correlated to a broader set of objectives pursued by the reporting: Liao *et al.* (2014) specifically refers to divergent perspective between members of the board as a characteristic that enhance the representativeness of the governance.

Board size is taken into consideration mainly from the perspective of agency theory as a feature that induces less optimal monitoring processes and less effectiveness in company governance as

the size increase (De Andres *et al.,* 2005; Amran *et al.,* 2014). The role of size in itself (number of directors) is indeed controversial, since some authors find no relationship between number of directors and SD (Halme and Huse, 1997; Cheng and Courtenay, 2006; Amran *et al.,* 2014), but other note a positive relationship between the board size and the quality of sustainability reporting (for instance Amran *et al.,* 2013).

Authors who have found an association between board size and disclosure debate that board size allows broader diversity and the presence of directors with a significant experience, who are usually in favor of the integration of various reports, to enhance information completeness and transparency (Frias-Aceituno *et al.,* 2013). In this perspective, the board size is not directly expressive of the orientation towards the disclosure but it's a factor that potentially triggers a more effective board composition to the extent it leads to greater diversity.

In fact, diversity among directors is in general positively associated to the endorsement of transparency. The different personal experience of each director is reflected in peculiar point of views about issues like social diversity, values, relevance of information, and so on. Greater diversity is then associated with wider perspectives and, ultimately, to the influence of different networks within the board (Post *et al.,* 2014; Liao *et al.,* 2014).

As it regards, in particular, the percentage of external versus internal directors, the former are believed more oriented to provide information to investors than the later, given that they are less aligned to the management (Eng and Mak 2003). Specifically, a higher proportion of external directors can moderate the negative effect on disclosure brought by CEO duality (Gul and Leung, 2004). Moreover, the ratio between externals and internals appear to be positively correlated with higher attention to non-economic utilities, (Wang and Coffey, 1992; Coffey and Wang, 1998). On the other hand, other studies found that an increase in the percentage of

external directors negatively affects the voluntary disclosure (Eng and Mak, 2003; Gul and Leung, 2004) and do not favor the integration of disclosed information (Frias-Aceituno *et al*, 2013).

The presence of women in the board of directors has been positively associated with an increased orientation towards social responsiveness (Wang and Coffey, 1992; Williams, 2003; Orij, 2010; Galbreath, 2011). Interpretations of this correlation are connected to differences in the prevailing background (law, humanities, education) that push women to be more sensitive towards giving, towards philanthropic initiatives and CSR in general (Williams, 2003) and to differences in behaviors induced by sex inequalities in the job environment (Galbreath, 2011). This interpretation is discussed by Giannarakis *et al*., (2014) who, as well as others before them, found no significant relationship between the presence of women on board and sustainability disclosure.

The interpretation of these authors is that in developed economies there is greater uniformity in terms of access to education, training and career, consequently men and women and have more similar perspective on governance issues. However, to my view such issue remains somewhat controversial and the duality between developed and developing countries is not supported elsewhere. In my research I found that the number of studies who found a positive correlation between gender diversity and disclosure is overall higher than those who do not find any relationship.

I have initially taken into considerations 22 studies with geographic characterization. Among these, sixteen have been conducted in developed Countries (e.g.: US, Australia, UK, Spain) and in half of the cases there is a positive associations between women on board and disclosures, while in the other half the relationship is not significant. No study documented negative

relationship. On the other hand, as for the five studies conducted in developing Countries, four out of five found a positive relationship. The impression one gets from this is that a positive relationship exists and yet the explanation of this is due to the more general benefits provided by diversity in the background and specialization of directors, as discussed above. Therefore, I expect to find a positive relationship between variables that are expressive of board diversity and CSR disclosure.

The presence of CSR committee and/or a CRS director represents a way to guarantee the company's diligence through the institutionalization of the sustainability goals in the corporate strategy. On the other hand it would be difficult to justify the presence in the board of a role specifically dedicated to CSR if it is not then accompanied by a corresponding attention to CSR reporting. Therefore, the wide majority of scholars who have studied the issue found a positive relationship between this role and the quality of CSR disclosure (see for instance Amran *et al*., 2014). However, it is plausible that over time this relationship becomes less observable, as the sustainability principles are spread and the sustainability reporting is more and more considered indispensable, on a par of the economic and financial reporting.

1.3. Methodology

Discursive literature review remains unable to provide objective assessment of substantive importance of empirical evidences (Wolf, 1986). To overcome this limitation, researchers develop meta-analysis technique (Glass, 1976; Field, 2005). Although the objectivity of meta-analysis is limited due to selections biasness and omitted information but this is the most comprehensive method of logically analyzing the importance of substantive importance of empirical effects. The objective of literature review is to systematically review the relations, trends, and gaps in the existing literature. The dominant technique used for logical review of

existing findings is meta-analysis. The meta-analysis enables systematic analysis of exiting findings on a particular topic for studying the development made in a specific relationship nexus. This technique is famous to analyze the overall impact of different methodological and data characteristics on reported results (Rosenthal, 1991). Meta-analysis serves the purpose of summarizing results of existing studies based on systematic analysis of outcomes.

In this study I apply meta-analysis technique to study the results of most relevant researches presented in the corporate governance and CSR and or corporate sustainability disclosure nexus. The relationship of corporate governance and CSR disclosure has been topic of many studies in last two decades. Qualitative literature review reveals that board size, board independence, CEO duality, gender diversity, board composition (existence of non-executive directors), and existence of corporate social responsibility committee are the most studied characteristics of corporate governance in this research vein.

1.3.1. Literature Search

Keeping in view the objective of study I identify study sample on the bases of extensive literature search during period of September to December, 2014. For internet search I use web of science, Google scholar, ScienceDirect, Ebscohost, and Econolit. For this search I use keywords and their combinations (‘sustainability reporting’, ‘corporate social responsibility’, ‘voluntary’, ‘nonfinancial disclosure’, ‘environmental reporting’, ‘corporate governance’, ‘board independence’, ‘board size’, ‘board diversity’, ‘CEO duality’, ‘CSR committee’, ‘board composition’). Additionally, I examined the references of recent published research articles.

My search yielded 78 articles initially. These include all type of research studies i.e. empirical, conceptual, and methodological only. For measuring effect size of each contribution I include only empirical studies in my final sample. My final sample includes 49 studies (see table 1.1).

The exclusion of any study from my final sample is based on following reasons; first, the studies do not include individual governance variables but composite governance index (e.g. Shahin and Zairi, 2009; Stuebs and Sun, 2015), second, the studies does not test the relationship empirically (e.g. Ricart *et al.*, 2005; Aras and Growther, 2008), third, the correlation matrix is not presented (see for instant, Barako *et al.*, 2006; Garcia-Sanchez *et al.*, 2014), and lastly, the study does include nonfinancial information but does not include social or environmental disclosure in empirical model analysis (e.g. Ho and Wong, 2001; Donnelly and Mulcahy, 2008).

Table 1.1: Summary of Primary Studies

Study	Independent Variable *(Results in Parenthesis)	Dependent variable	Measurement of dependent variable	Data source	Theory	Country of study	Sample size	Outcomes used
Wang & Coffey (1992)	BINDP (+), WOB (0)	Corporate Philanthropy	Donation Information	Annual reports	Agency theory	US	78	2
Halme and Huse (1997)	BSIZE (+)	Environmental Disclosure	Disclosure score	Annual reports	Agency theory	European countries	40	1
Johnson & Greening (1999)	BINDP (+)	CSR Disclosure	Disclosure score	KLD Survey	Agency Theory	US	252	2
Hanifa & Cooke (2002)	NONEXEC (-), CEOD (0), BINDP (-)	Social and Environmental Disclosure	Disclosure score	Annual Reports	Agency theory & Stewardship theory	Malaysia	139	3
Eng & Mak (2003)	BINDP (-)	social disclosure	Disclosure score	Annual reports	No Specific theory	Singapore	158	1
Williams (2003)	WOB (+)	Corporate Philanthropy	Donation Information		No specific Theory	US	185	1
Gul & Leung (2004)	BINDP (-), CEOD (-), NONEXEC (0)	Social and Environmental Information	Disclosure score	Annual reports	Agency & Stewardship theory	Hong Kong	385	3
Arcay & Vázquez (2005)	BINDP (+), CEOD (0), BSIZE (0)	voluntary corporate disclosures	Disclosure score	Annual reports	Agency theory	Spain	91	3
Hanifa & Cooke (2005)	BINDP (+), NONEXEC(-)	CSR Disclosure	Disclosure score	Annual reports	Legitimacy theory	Malaysia	133	2
Brammer & pavelin (2006)	BINDP (0)	Voluntary Environmental Disclosures	Disclosure score	PIRC Survey data	Stakeholder & Legitimacy theory	UK	447	1
Huafang & Jianguo (2007)	BINDP (0), CEOD (0)	CSR Disclosure	Disclosure score	CCER China Survey	Agency & signaling theory	China	559	2
Lim *et al.* (2007)	BINDP (+)	CSR Disclosure	Disclosure score	Annual reports	Agency Theory	Australia	181	1
Rashid & Lodh (2008)	NONEXEC (+)	CSR Reporting	Disclosure score	Annual reports	Agency & resource dependence theory	Bangladesh	21	1
Akhtaruddin *et al.* (2009)	BSIZE (+), NONEXEC(+)	Voluntary Disclosure	Disclosure Score	Annual reports	Agency Theory	Malaysia	94	2

Table 1.1 continued…

Table 1.1 continued…

Dunn & Sainty (2009)	BINDP (+)	CSR Performance information	Disclosure score	CSI Canada Database	Agency theory	Canada	50	1
Said *et al.* (2009)	BSIZE (+), NONEXEC (+), CEOD (0)	CSR disclosure index	Disclosure score	Annual reports and websites	Agency Theory	Malaysia	150	3
Buniamin *et al.* (2010)	BINDP (+), CEOD (0), BSIZE (+)	Environmental Disclosure	Disclosure score	Annual reports	Legitimacy theory	Malaysia	243	3
Prado-Lorenzo & Garcia-Sanchez (2010)	BSIZE (-), CEOD (+), WOB (+), BINDP (+)	Environmental Disclosure	Disclosure score	Questionnaire	Agency & Stakeholder theory	28 Countries	283	5
Khan (2010)	BINDP (+), WOB (0)	CSR reporting	Disclosure score	Annual Reports	Legitimacy theory	Bangladesh	30	2
Arora & Dharwadkar (2011)	BINDP (+)	CSR disclosure	KLD data	KLD survey	behavioral theory	US	1522	2
Cormier *et al.*(2011)	BINDP (0), BSIZE (+)	Environmental and Social Disclosure	Disclosure score	Websites	Legitimacy Theory	Canada	137	4
Adawi & Rwegasira (2011)	BSIZE (+), NONEXEC (+)	Best practices of CSR disclosure	Binary measurement	National Investor data Base	Agency and resource dependence theory	UAE	64	2
Jo & Harjoto (2011)	CEOD (0), BSIZE (0), BINDP (+)	CSR Combined Score	KLD Survey	KLD Survey	Agency Theory	US	2952	3
Post *et al.* (2011)	CEOD (0), BSIZE (0), BINDP (+), WOB (0)	Disclosure score	KLD Survey	KLD Survey	Agency theory	US	78	4
Galbreath (2011)	BSIZE (0), BINDP (+), WOB (+)	Quality of disclosure and	Annual reports	Annual reports	Agency Theory	Australia	151	6
Abdullah *et al.* (2011)	BINDP (0)	Quantity and quality of Disclosure	Annual reports	Annual reports	Resource dependence theory	Malaysia	100	2
Esa & Ghazali (2012)	BSIZE (0), BINDP (-)	CSR Disclosure	Disclosure score	Annual reports	Legitimacy theory	Malaysia	27	2
Walls *et al.*(2012)	BSIZE (+), BINPD (-), WOB (+), CSRCOM (+)	Environmental Strengths & concerns	KLD Survey	KLD Survey	No specific Theory	US	2002	8

Table 1.1 continued…

Table 1.1 continued…

Ienciu *et al.* (2012)	BSIZE (0), CSRCOM (+), BINDP (+)	environmental reporting	Disclosure score	Roberts Env. Reports	Agency theory	Large petroleum companies	54	3
Rao *et al.* (2012)	BINDP (+), BSIZE (+), WOB (+)	Environmental disclosure quantity & Quantity	Disclosure score	OSIRIS database	Agency theory	Australia	96	6
Michelon & Parbonetti (2012)	BINDP (0), CEOD (0), CSRCOM (+), BSIZE (0)	sustainability disclosure	Disclosure score	Annual reports	Stakeholder theory	Europe and USA	57	12
Rupley *et al.* (2012)	BINDP (+), WOB (+), CEOD (0) CSRCOM (-)	sustainability disclosure	Disclosure score	Annual reports	Legitimacy theory	US	127	20
Fodio & Oba (2012)	WOB (+)	environmental reporting	Disclosure score	Annual reports	Resource dependency & Slack resources Theory	Nigeria	16	2
Herda *et al.* (2012)	BINDP (+)	Sustainability disclosure	reputational and performance score	Corporate register & Newsweek	Legitimacy Theory	US	450	3
Khan *et al.* (2012)	BINDP (+), CEOD(+)	Corporate Social Disclosure	Disclosure score	Annual reports	Legitimacy theory	Bangladesh	116	2
Malin *et al.* (2013)	CEOD (+), BINDP (+), NONEXEC (+), CSRCOM (+), WOB (+)	Social and Environmental disclosure	KLD Measurement	KLD survey	Agency & Resource dependence theory	US	100	35
Ntim & Soobaroyen (2013)	WOB (+), BSIZE (+), BINDP (+), CSRCOM (+)	CSR performance information	Disclosure score	Financial and sustainability reports	neo-institutional theory	South Africa	75	4
Uyar *et al.* (2013)	BSIZE (0), BINDP (+)	Sustainability Disclosure	Disclosure score	Annual reports	Agency and Signaling theory	Turkey	131	2
Allegrini & Greco (2013)	BINDP (0), BSIZE (+), CEOD (-)	Adoption of Best practices for voluntary disclosure	Content Analysis	Annual reports	Agency Theory	Italy	177	3
Saha & Akter (2013)	BSIZE (0), BINDP (0)	Voluntary Disclosure	Disclosure score	Annual reports	Agency Theory	Bangladesh	40	2

Table 1.1 continued…

Table 1.1 continued…

Frias-Aceituno *et al.* (2013)	BSIZE (+), BINDP (0), WOB (+)	Corporate social reporting	Disclosure Score	Annual reports	Stakeholder theory	15 Countries	568	3
Janggu *et al.* (2014)	BSIZE (+), BINDP (0), CEOD (+)	sustainability disclosure	Content Analysis	Content Analysis	Agency theory	Malaysia	100	3
Amran *et al.* (2014)	BSIZE (0), BINDP (0), CEOD (0) CSRCOM (+)	sustainability disclosure	Disclosure score	Annual Reports	legitimacy theory & resource-based view	12 Asian pacific countries	113	4
Sharif & Rahid (2014)	NONEXEC (+)	CSR reporting	Disclosure score	Annual Reports	Legitimacy & Stewardship theory	Pakistan	22	1
Arena *et al.* (2014)	BSIZE (+), BINDP (+), CEOD (+), WOB (+) CSRCOM (+)	Different dimensions of environmental disclosure	KLD environmental rating	KLD Survey	Agency & Resource dependence theory	US	96	15
Giannarakis *et al.* (2014)	CEOD (-), WOB (+)	ESG disclosure	Bloomberg data source	Bloomberg data source	Stakeholder theory	US	100	2
Post *et al.* (2014)	WOB (+), BINDP (+), CSRCOM (+)	Environmental performance	KLD database	KLD survey	Agency & Resource dependence theory	US	36 firms and 21 Alliances	3
Liao *et al.* (2014)	WOB (+), BINDP (+), CSRCOM (+), BSIZE (+), NONEXEC (-), CEOD (0)	Carbon disclosure project	Dichotomous measurement	Questionnaire	Legitimacy, stakeholder & agency theory	UK	329	6
Peters & Romi (2014)	CSRCOM (+)	Environmental risk disclosure	KLD Database	KLD Survey	No specific theory	US	1238	2

Source: Author *(+) = Positive, (0) = Insignificant, & (-) = Negative

Note: Table 1.1 summarized the primary studies used for meta-analysis. I include only studies which empirically analyze the relationship between corporate governance variables and CSR or and sustainability disclosure. In the given synthesis I use acronyms of governance variables. I present the results of only 6 governance variables which are being used in my meta-analysis. The variables are as follows: BINDP= Board independence, BSIZE= size of the governing board, CEOD= duality role of CEO, WOB=women on board, NONEXEC= board composition or percentage of non-executive directors on board, CSRCOM= existence of CSR or sustainability committee on governing board. I present dependent variables along with their measurement and data sources. I also provide information on theoretical frameworks used by authors and the geographical settings along with sample size of primary studies. In last column I provide information on the number of outcomes used in meta-analysis. These outcomes are the correlation outcomes taken from primary studies. The numbers of outcomes differ from number of independent variables due to use of more than one dependent variable.

1.3.2. Dependent Variables in Primary Studies

Table 1.1 provides overview of the proxies used by different researcher to measure the sustainability and CSR disclosure. Some used secondary sources to measure the CSR disclosure. The major secondary sources used are KLD data source (see e.g. Johnson and Greening, 1999; Arora and Dharwadkar, 2011; Jo and Harjoto, 2011 and Walls *et al.*, 2012), Bloomberg data source (Giannarakis *et al*., 2014), and OSIRIS database (Kathy *et al.*, 2012). Most of the primary studies used content analysis based on self-constructed disclosure indexes (see e.g. Hanifa and Cooke, 2005; Boesso and Kumar, 2007; Cormier *et al.*, 2011; Galbreath, 2011 and Michelon and Parbonetti, 2012). Some authors attempt to collect data through questionnaire survey (see e.g. Prado-Lorenzo and Garcia-Sanchez, 2010).

I identify from the review of primary studies that authors have used more than one proxy for disclosure. This results the inclusion of more than one outcome in analysis for one hypothesized relationship in primary study. Malin *et al.* (2013) used seven dimension of social and environmental information disclosure. Out of six selected outcomes for present meta-analysis their study uses five governance variables. This resulted into 35 outcomes of correlation coefficients. Similarly, Rupley *et al.* (2012) and Arena *et al.* (2014) used five and three dependent variables respectively. Some others like Brammer and pavelin (2006); Lim *et al.* (2007); Rashid and Lodh (2008); Herda *et al.* (2012) and Sharif and Rahid (2014) use many characteristics of governance mechanism and analyze their relation with CSR disclosure but I find only 1 outcome useful for my analysis. I include only 1 outcome for each of these studies.

1.3.3. Independent Variables

I examined each study carefully to identify the relationship between studied variables of corporate governance and sustainability disclosure. The results of basic examination of primary studies are given below in table 1.2. From selected 49 studies I identify 60 outcomes for board

independence and CSR disclosure. These outcomes are the correlation coefficients obtained from primary studies. For the board size I identify 32 outcomes. The board diversity which is measure by the percentage of women on board has been studied 34 times in sample studies. The dual role of CEO as chief executive officer and chairperson of the governing board is another widely used variable in existing literature. I find 31 outcomes for this variable. The existence of CSR committee on board has been a variable of interest in recent studies. I find 27 outcomes for this variable. The last variable I identify in many studies is the board composition. This variable has been measured by the existence of non-executive directors on board in primary studies. I identify 17 outcomes of this relationship.

Table 1.2: Overview of Outcomes

Sr. No.	Description	Measurement in primary studies	No. of outcomes
1	Board independence and CSR disclosure	Percentage of independent directors to total directors on board	60
2	Board size and CSR disclosure	Total number of directors on governance board	32
3	Women on board and CSR disclosure	Percentage of female directors to total directors	34
4	CEO duality and CSR disclosure	Dichotomous variable taking value '1' if CEO is also chairperson of board, '0' otherwise.	31
5	CSR committee and CSR disclosure	Dichotomous variable taking value '1' if CSR committee exists on governance board, '0' otherwise.	27
6	Non-executive directors and CSR disclosure	Percentage of non-executive directors to total directors	17
		Total outcomes	**201**

1.3.4. Effect Size and Sample

In meta-analysis technique effect size estimates of previous studies are pooled together to assess the true size of effect in population (Field, 2005). Cohen's effect-size index, odds ratios, Pearson product-moment correlation coefficient, risk differences, and risk rates are the common measured used in meta-analysis methodology. Wolf (1986) note that these matrices represent the same thing and at some level one matrix can be converted into other. The general framework is

similar in all measures of effect size. The framework first calculates weighted average mean of individual effects derived for individual primary studies and then convert it into a common matrix. The weights are always given on the bases of sample size of primary study. This weighted average effect yield an associated standard error and sampling variance. The significance of the effect is measured by Z-test. To assess the similarity of results in primary studies the test of homogeneity (Hedges and Olkin, 1985) or variance estimates (Hunter and Schmidt, 1990) are available.

There is no clear consensus among researcher about selection of observation in meta-analysis. Some used one observation for each study (see for instant Stanley, 2001), others include all available observation for related study variables (Florax *et al.,* 2005). Nelson and Kennedy (2009) note that most of the meta-analysis contributions in environmental economics literature use more than one observation per study. Based on their Monte Carlo simulation, Bijmolt and Pieters (2001) suggested using multiple observations to avoid loss of important information available in the primary studies

In this study I use Pearson correlation coefficients (r) for selected governance variables and CSR disclosure. In meta-analysis the index used to represent and standardize the findings of primary studies is called effect size (Lipsey and Wilson, 2001, p. 34). The basic criteria to include a study in my analysis are the availability of Pearson correlation coefficient values between selected corporate governance variables and CSR disclosure. I use only one correlation coefficient for each variable unless there are more dependent variables in the primary study. Most of the studies included in sample of meta-analysis are based on listed firms except few which are based on particular industries.

1.3.5. Meta-Analysis Techniques

The most famous technique based on correlation coefficients was developed by Hunter and Schmidt (Hunter and Schmidt, 1990). Previously, Garcia-Meca and Sánchez-Ballesta (2010) used similar techniques to analyze the impact of board independence and ownership concentration on corporate voluntary disclosure. They analyzed 27 studies conducted in this line of inquiry. Their analysis covers all types of voluntary disclosure including management forecast but my meta-analysis focuses only on CSR disclosure. Differently, from their sole contribution, I consider different governance mechanism in addition to board independence.

Following Hunter and Schmidt I first transform and then retransform the correlation coefficients into Fisher's Z score. For this transformation I follow following formula: $\{Z_{score}=0.5*LN((1+r)/(1-r))\}$. In the given formula r is the Pearson correlation coefficient. I obtain standard error (S.E) of Z by $\{Z(S.E) = 1/(\sqrt{(N - 3)})\}$ to calculate S.E of correlation coefficients. In given formula, N is the sample size for respective correlation observed in primary study.

For calculation of S.E of correlations I apply following formulation: $\{SE_r=(1-(r)^2)*Z(S.E)\}$. For effect size analysis I first calculated weighted average correlation $\{\bar{r} = \Sigma N_i r_i/\sum N_i\}$ and total observed variance $\{s^2=\sum N_i(r_i - \bar{r})^2/\sum N_i\}$. Testing the homogeneity of the outcomes in primary studies I calculated Q statistics. This statistical formulation has k-1 degree of freedom, where k is the number of effect sizes. Q statistics is a measure of dispersion and its significance shows no homogeneity in the outcomes of primary studies included in effect size analysis.

The next step is the selection of fixed or random effect model for effect size calculation. There is no clear consensus among researcher on the preference of method (Field, 2005). The fixed effect methodology assumes a fixed weight for a specific study. In other words, fixed conceptualization assumes a constant effect size for all studies included in meta-analysis. On the other hand

random methodology assumes that effect size varies randomly across different studies. Using fixed methodology when the sample size in primary studies is heterogeneous yields confounding results (Garcia-Meca and Sánchez-Ballesta, 2010). Following argument of Hedges and Vevea (1998) about the inability of fixed methodology results to be generalized, I apply random methodology.

Keeping in view the heterogeneity of outcomes reported in table 1.1, I further my analysis to uncover the possible reasons of observed heterogeneity. To achieve this objective I apply meta-regression analysis. The results of meta-regression analysis are reported below in table 1.4. In meta-regression analysis I use sample size, coverage period measured in years, geographical variables, and data collection methods as explanatory variables (for comparison, see Horváthová, 2010). Further detail about variables and discussion of results is covered in subsequent section of chapter.

1.4. Results

Table 1.3 presents the results of the meta-analysis for the six governance variables taken into consideration. The heterogeneity test (Cochran's Q) shows that the homogeneity hypothesis is rejected. According to some studies, the robustness of the Q-test vary according to size of the sample, therefore I calculated the I-squared that provides an alternative and more reliable evaluation (Higgins *et al*., 2003). I-squared limits are between 0% and 100%, where 0% indicates no observed heterogeneity. In my study results confirm the high heterogeneity between studies.

Positive relationship at the highest level of significance ($p<0.01$) are present for all variables with respect to CSR disclosure, except the CEO duality ($p>0.1$).

Table 1.3: Meta-Analysis Results

Relationship studied in primary studies	Sample	Outcomes	(r)	Z-value	*r* conf. interval (95%) Lower limit	*r* conf. interval (95%) Upper limit	χ^2 (k-1)	I-squared	Q-Stat	Tau Squared
Board independence and CSR disclosure	36411	60	0.1205***	5.131***	0.0747	0.165	59	93.224	870.712***	0.0267
Women on board and CSR disclosure	14371	34	0.119***	6.442***	0.0828	0.154	33	75.195	133.042***	0.008
Board size and CSR disclosure	23031	32	0.205***	9.543***	0.164	0.246	31	81.317	165.932***	0.009
CEO duality and CSR disclosure	20842	31	-0.019	-0.815	-0.0678	0.028	30	85.90	212.812***	0.014
CSR committee and CSR disclosure	10296	27	0.163***	4.095***	0.086	0.238	26	93.011	372.019***	0.037
Non-executive directors and CSR disclosure	4015	17	0.179***	2.727***	0.0509	0.301	16	94.046	268.769***	0.068

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

Note: Table 1.3 presents results of effect size analysis. Keeping in view the huge diversity of sample size of primary studies I apply random effect analysis technique which assigns random weights to each correlation outcome included in effect size analysis. Column with label of sample contains total sample of all primary studies for each studied relationship. Outcomes represent number of observation for respective relationship mentioned in first column of table. *(r)* is the observed weighted correlation coefficient and z-value is the respective significance indictor value of underlying relationship. Then I provide lower and upper limits of each correlation in the primary studies and χ^2 value with degree of freedom (k-1). I-Squared shows the total dispersion in the effect size (caused by sampling error and effect size dispersion). Q statistics is a measure of dispersion whose null hypothesis= all studies share same effect size. The rejection of null hypothesis proves heterogeneity in the results of primary studies. Tau- Squared is a measure of variance of dispersion.

The estimated correlation coefficient (*r*) of 0.1205 between the board independence and the CSR disclosure confirms results from various contributors who framed the relationship within the agency perspective (Wang and Coffey, 1992; Johnson and Greening, 1999; Hanifa and Cooke, 2002; Arcay and Vazquez, 2005, Lim *et al.*, 2007). As I noticed in the literature analysis, this result is also coherent with the explanation provided by the stakeholder framework and, in my view, it is in line with the legitimacy theory and the agency theory. On the other hand, this result is in contrast with the findings from Eng and Mak (2003), and Eza and Ghazali (2012), who both propose as explanations the lower engagement of external directors towards non-financial results and a "substitute relationship between outside directors and disclosure" (Eng and Mak, 2003, 341), in the sense that the presence of external directors should be considered in itself a guarantee for a fair reporting, thus creating no motivation for further transparency. Eza and Ghazali, however expressively invite to carefully consider their results, in view they are significant at 10% level.

Women on board and board size are positively correlated with CSR disclosure, respectively with estimated coefficient of 0.119 and 0.205. Similar results have been found by Rupley *et al.* (2012), Firas-Aceituno *et al.* (2013), Rao *et al.* (2012), Arena *et al.* (2014). Specific explanations have been given for each of these relationships, as I discussed in the literature review. In my view this confirms the hypothesis about the role of diversity in directors' background and specialization as a factor that favor the CSR disclosure.

The responsiveness of non-executive directors to corporate's issues has been found to be relevant even in absence of specific rewards (Kakabadse *et al.*, 2001). In my meta-analysis the presence of non-executive directors presents a positive and significant coefficient of 0.205. This result is in contrast with Haniffa and Cooke (2002, 2005) who find a negative relationship in two

different researches, both developed in Malaysia. Gul and Leung (2004) also found a negative relationship after studying 385 companies in Hong Kong. Other contributors find positive relationship in Asia (e.g. Rashid & Lodh, 2008; Akhtaruddin *et al.*, 2009) as well in Europe (Liao *et al.*, 2014) and US (Rupley *et al.*, 2012). The most common explanation for this relationship refers to a legitimacy perspective, where non-executive engagement in the governance enhances the inclination toward a reputation-oriented behavior (Haniffa and Cooke, 2005).

The CEO duality is not significant in my meta-analysis. I have already discussed how such relationship, in my opinion, found no rationale background, since the possible conditions affecting the actual behavior of a dual CEO in disclosure-related decision processes may be affected by numerous factors beyond the governance structure. I am consequently not surprised by a result that, in fact, was already predictable from the doubts emerged in the studies that have been subjected to meta-analysis.

Table 1.4: Meta Regression Results

VARIABLES	(1) BINDP	(2) BSIZE	(3) WOB	(4) CEOD	(5) CSRCOM	(6) NONEXEC
SAMPLE	2.65e-06	4.02e-07	-4.78e-07	9.19e-06	**0.000340****	-0.000548
	(0.853)	(0.977)	(0.992)	(0.295)	(0.0115)	(0.287)
YEARS	0.00681	-0.00661	0.00221	0.00638	-0.0601*	**0.158*****
	(0.582)	(0.695)	(0.871)	(0.763)	(0.0864)	(0.000299)
US&CANADA	**-0.132****	0.0372	-0.0176	**-0.118****	**-0.208****	-0.183
	(0.0227)	(0.646)	(0.736)	(0.0423)	(0.0168)	(0.423)
ASIA	-0.0324	-0.0580	-0.0501	-0.0350	-0.175	
	(0.622)	(0.509)	(0.683)	(0.762)	(0.445)	
EUROPE	0.0251	0.0257	0.0809	0.0218	-0.187	0.368
	(0.781)	(0.809)	(0.591)	(0.862)	(0.321)	(0.210)
C.ANAYSIS	-0.149	0.223		0.143		0.0646
	(0.403)	(0.308)		(0.426)		(0.814)
SECONDARY	-0.111	0.213	-0.0136	0.245	**-0.213***	0.0547
	(0.568)	(0.361)	(0.781)	(0.296)	(0.0867)	(0.758)
SURVEY	-0.186	0.222	0.0601	0.0837	-0.168	
	(0.312)	(0.330)	(0.648)	(0.646)	(0.417)	
Constant	0.306	0.000873	0.118**	-0.162	0.543***	-0.0652
	(0.124)	(0.997)	(0.0416)	(0.564)	(0.00495)	(0.788)
Observations	60	32	34	31	27	17

P-value in parentheses

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

Note: Table 1.4 presents results of meta-regressions. The dependent variables are correlations between six governance variables and CSR disclosure. The explanatory variables include; sample size, years of coverage, geographical setting of research and data collection techniques. Except sample size and number of year(s) coverage (YEARS) all the explanatory variables are dichotomous variables e.g. C.ANALYSIS take value 1 if the disclosure is measured by applying content analysis of reports or on any other disclosure media used by firms and 0 otherwise. Similarly, other methodological and geographical variables are measured. The sample size (SAMPLE) is the number of observations included in the primary study and the number of year (s) coverage depicts the number of years a primary study is covering in its analysis. Model (1) is nested with the results of board independence-CSR disclosure (BINDP) and predictors. In model (2) I present results of board size-CSR reporting (BSIZE) and explanatory variables. In model (3) the regression results of gender diversity and CSR disclosure (WOB) are presented. Model (4) is nested with the results of relationship studies in primary studies of dual role of CEO and CSR reporting (CEOD). Model (5) contains results of impact of CSR committee on CSR reporting (CSRCOM) in relations to the explanatory variables. The sixth and last model is based on the regression of predictors and observed relationship between non-executive directors on board and CSR disclosure (NONEXEC). The above regression results are based on within study standard error (WSSE) in which the correlation coefficients are explained by a set of explanatory variables. The numbers of observations included in each model are reported in the bottom of each regression model.

To provide further support to the findings of my effect size analysis I conduct meta-regression analysis and report results in table 1.4. I analyze the reported relationships of selected governance variables and CSR disclosure in relations to the data characteristics and other methodological variables employed in primary studies. The results are based on six dependent variables which are the correlation coefficients derived from primary studies. My analysis intends to find the reasons of possible heterogeneity observed in effect size analysis.

In primary studies the relationship between board independence and CSR disclosure is presumed positive (see e.g. Arena *et al.*, 2014; Janggu *et al.*, 2014; Post *et al.*, 2014). Majority of them got empirical support for it (see for instant Arcay & Vázquez, 2005; Jo & Harjoto, 2011; Rupley *et al.*, 2012; Ntim & Soobaroyen, 2013; Malin *et al.*, 2013). Similarly, most of the primary studies expect a positive impact of board size, women on board, CSR committee and percentage of non-executive directors on board on CSR disclosure (see e.g. Akhtaruddin *et al.*, 2009; Rao *et al.*, 2012; Malin *et al*., 2013; Ntim and Soobaroyen, 2013; Liao *et al*., 2014). The taking the perspective of agency theory most of the studies hypothesize a negative relationship between CEOD and CSR disclosure (e.g. Said *et al*., 2009; Michelon and Parbonetti, 2012; Allegrini and Greco, 2013). Objective of my meta-regression analysis is to study the methodological determinants of these observed relationships.

I develop six regression models of selected relationships from primary studies. All the regression results reported in table 1.4 are largely stable across different research settings and data characteristics. For BINDP, I only find US&CANADA relevant variable (p=0.0227). The effect is found negative and significant at 5% level. This finding is in line with the findings of Di Vita (2009) who find that USA & Canada are the two countries where non-financial issues are more profoundly debated under common law. My results support the finding of Horváthová (2010)

who finds that there is a clear difference in the results of sustainability studies conducted in North America and other part of the world. Regarding the other geographical results, Theyel (2000) provide a strong support for this finding. He contends that in adoption of voluntary environmental initiatives the relevance of organizational factors is much more significant than the geographical ones. Similarly, Florida *et al*. (2001) find a little support for relevance of geographical variables impacting adoption of environmental conscious manufacturing practices.

I find no variable related in model 2 & 3. This shows that the results of board size and board gender diversity remain stable across different research settings. For CEOD, again I find only US&CANADA relevant variable. The effect is again negative and significant at 5% level. This finding provides support Di Vita (2009) who finds that companies operating in the common law countries are more environmentally conscious than the ones operating in civil law territories. Similarly, I find a negative impact of US&CANADA setting on role CSRCOM in enhancing CSR disclosure. The results show that relationships observed in the primary studies are largely stable across different research settings and methodologies. The results corroborate the empirical evidences of various studies conducted with similar research framework in very diverse cultures and societies (see for instance Prado-Lorenzo and Garcia-Sanchez, 2010).

The existence of CSR committee has shaky results which are being affected by sample size, years of coverage, geographical setting and some data characteristics. The possible reason of this fragility lies in the very nature of the observed relationships. The 27 observations of CSRCOM are derived from 11 studies. In most of the primary studies the observed relationship remains stable across different model specifications and disclosure variables (see e.g. Michelon and Parbonetti, 2012; Rupley *et al*., 2012). This is one of the possible limitations of my research and

future research can overcome this limitation by investigating the underlying relationship in quantitative and qualitative studies together.

My results reveal that the link between various governance mechanisms and voluntary reporting can be seen as a link between better governance and increased attention towards sustainable competitive advantage (Aras and Crowther, 2008) or, at least, to the compliance with regulations (McKendall *et al*., 1999). Good governance increasingly addresses the issue of sustainability as the benefits for the company's value become clearer (Amran *et al*., 2014; Aras and Crowther, 2008). Since a value maximization focus circumscribed to shareholders brings systemic effects that in the long run affects the competitiveness of the economic system and, consequently, endanger the profitability of the companies (Lazonick and O'sullivan, 2000), good corporate governance focusses on long term planning for sustainable competitive advantage.

I conducted discursive review of 49 studies published in CG&CSR disclosure nexus and further my analysis by conducting meta-analysis and meta-regressions. In line with the argument of Beltratti (2005) results of my analyses reveal that CG and CSR that there exists a clear complementarity between two. Both the mechanisms aim at similar goals of stakeholders' management which can reduce agency problems increase firm's visibility and bring legitimacy to the firm. I observe an increased researchers' attention towards studying underlying relationship but still there is a room to study the relationship more fully. There is a clear gape in the theoretical literature for providing theoretical as well as managerial rationale to explain the CG&CSR disclosure relationship. I endorse the idea of Walls *et al*. (2012) to start the process of theorizing.

1.5. Conclusion and Future Research Directions

The meta-analysis research tool is an "analysis of analyses", it makes explicit the concept of a dwarf on the shoulders of giants perhaps better than any other method. It was born in the context of education and psychology, fields where: "The findings are fragile; they vary in confusing irregularity across contexts, classes of subjects, and countless other factors" (Glass, 1976, p. 3). Then it has been developed above all in medicine, where more than in any other discipline: "The best possible synthesis of available information is essential for all decision-makers" (Jenicek, 1988, p. 35).

In dealing with the link between corporate governance and corporate sustainability my feeling is that both the above "conditions" are respected. Variety and relevance have been the drivers for my research. About variety, it was not so much the variety of results, as that of theoretical assumptions that led us to consider the instrument of meta-analysis to identify what I humbly think it might be a starting point. The question I posed appears the same as Walls *et al*. (2012), who wrote what is probably the most complete and comprehensive work on the topic: is there really a link? The interactions highlighted by these authors provided meaningfulness to the exploration of the actual linkages between governance practice and sustainability. My research tells us that some linkages are more robust than other and, moreover, I also tried to spread a light on the contribution of some key managerial theories in the overall debate about what policy tools are most appropriate for the transition towards a sustainable managerial eco-system. The agency theory and the stakeholder theories are partially effective in explaining the relationships I found. The legitimacy perspective is predictive in context where no other reward is provided by the inclination to disclosure. The ungrounded assumption about the CEO-duality role is non-significant also for the statistical analysis.

About the support to decision-makers, I believe that given the relevance of the topic, a reliable synthesis could justify the intrinsic limitations a meta-analysis (Bartolucci and Hillegas, 2010). I share the same goal of Garcìa-Meca and Sànchez-Ballesta (2010) in improving the robustness of the huge efforts put into this problem by many scholars. In addition, I aim at providing a starting point to provide decision-makers with reference points that, since they are entitled to keep the wheel of the sustainability transition, cannot be anything else but prescriptive.

In my study I have reviewed a number of contributions which is, to my knowledge, very high compared with similar researches, and I have provided a clearer picture about the relationship between governance structure and disclosure. On the other hand I feel many leagues away from spreading light on the explanatory power of present theories about such relationship and I have a feeling that further development in the field will be mainly provided by interdisciplinary approaches. My findings clearly call scholars attention towards the need of comprehensive theoretical framework to explain the CG-SD relationship. I invite future researchers to start theorizing process.

CHAPTER 2

CORPORATE GOVERNANCE AND SUSTAINABILITY PERFORMANCE, THE DETERMINANTS OF THEIR RELATIONSHIP

2.1. Introduction

The debate on corporate scandals suggests the consideration of social goals along with profit maximization (Margolis and Walsh 2003). This raises the questions of how effectively firms are governed and how different governance mechanisms determine corporate social behavior. Since the UN Conference on the Human Environment, held in Stockholm in 1972, and following the great resonance of the Bruntland report issuance in 1987, corporate social responsibility has climbed the ranking of governance priorities. The contemporary approach of corporate social responsibility focuses on triple bottom functioning of the firm (Elkington 1997). This approach gives equal weight to economic, environmental, and social dimensions.

Despite the progress made to understand the impact of governance characteristics on issues of corporate sustainability, still there is a room to investigate this relation more thoroughly (Walls *et al*. 2012). Complete understating requires more detailed exploration of the relationship between governance characteristics and sustainability dimensions. Several attempts have been carried out to understand this relationship but none of the empirical contribution considers all the three dimensions of sustainability performance (SP hereafter) in this given nexus.

Recently, Walls *et al*. (2012) utilize Kinder, Lydenberg, and Domini's (KLD) data and note that firms with more independent governing board with higher diversity perform better environmentally. They also maintain that shareholders concentration is negatively associated with the environmental performance. They utilize a comprehensive empirical framework to study this relationship but their study covers only environmental dimension. Similarly, some others investigate the relationship between CG and social performance (see e.g.Wang and Coffey 1992; Williams 2003) but again these studies are limited to the social aspects only. I extend the existing literature by empirically investigating the impact of CG characteristics on each dimension of corporate sustainability performance based on the framework provided by Global Reporting Initiative (GRI) for SP reporting. No existing study uses any specific framework for linking CG with SP. The GRI framework is widely accepted and considered as the best SP reporting framework (Morhardt *et al*. 2002; Fonseca *et al*. 2014). This framework promises to challenge firms for disclosing positive and negative performance on economic, environmental, and social dimensions (GRI 2006) under the assumption that each dimension is equally important for sustainable development.

By quantifying the different dimensions of sustainability separately, this study uncovers many aspects in the governance-sustainability nexus. This treatment adds new evidence to existing body of knowledge about the relationships between firm characteristics and sustainability dimensions, corroborating the arguments about the inter-linkages between different sustainability dimensions and their relative importance (Lozano 2008; Lozano and Huisingh 2011).

The multiple regression analysis of manually quantified sustainability performance information of US based equity firms reveals that more independent board has a noteworthy role in fostering SP. The results also divulge that existence of more women in the board room enhances social

performance of firm. My study strengthens the idea of role separation and discourages the role of CEO as chairperson of governing board for better environmental sustainability. I note a substantial positive role of sustainability committee in enhancing environmental and social performance of firms. Odd to my expectation, I am unable to detect any significant relationship between CG characteristics and economic sustainability performance of the firm.

I partly take the agency and stakeholder theory perspective in hypothesis development because no theory can fully explain this relationship (Walls *et al*. 2012). In existing literature, the relationship between governance and sustainability has been mainly interpreted from three theoretical perspectives: the agency theory, the stakeholder theory and the legitimacy theory. Few scholars (for instant Bansal 2005; Fodio and Oba 2012; Ntim and Soobaroyen 2013; Amran *et al*. 2014; Sharif and Rashid 2014) rely on different theoretical frameworks, namely; the resource-based view, resource dependence theory, slack resources theory, the institutional theory, neo-institutional theory and stewardship theory. This fragmentation shows a need of theorizing this nexus (Walls *et al*. 2012). My fact based exploration can be considered as further development towards theorization process.

My study contributes to the other streams of literature like social identity theory (Hogg 2006) by studying the group dynamics of governance board. My findings provide support of exiting findings of (Williams 2003) who study the group dynamics of governing board and its impact on social performance. The remainder of the paper is organized as follows: in the next section, I discuss the theoretical underpinning of governance and SP nexus and develop my research hypotheses. Subsequent to hypothesis development I present research method, empirical model, and estimation technique. Last three sections, I discuss the empirical results. In sections 2.6 and 2.7, I present my conclusion, implications, and directions for future research.

2.2. Theoretical Background and Review of Literature

Review of existing literature reveal that agency theory (William and Michael 1976) and stakeholder theory (Freeman 1984) are the two dominant perspectives used to explain the relationship between governance and SP (see Table 2.1). Agency theory was developed to manage the conflicting relationship between managers and stakeholders assuming the presence of information asymmetry, opportunistic behavior of agents, and conflicts of interests between principal (shareholder) and agents (manager). Therefore, it is desirable to monitor the agents closely to align the principle-agent goals, reduce conflicts and maximize the wealth of stockholders (Halme and Huse 1997).

Agency theory contends that effective CG improves firm's capability to deal with emerging challenges and reduce the agency conflicts (Haniffa and Cooke 2002). Additionally, it maintains that internal governance mechanism must act effectively to hold the agents accountable for their actions (Li *et al*. 2008). The agency literature in this vein suggests that effective CG enhances firm's legitimacy (Michelon and Parbonetti 2012) and improves financial performance (Jo and Harjoto 2011).

Keeping in view the stakeholder demand for sustainable corporate development Gul and Leung (2004) argue that the agency theory better explains the role of governance in stakeholders' management. Similarly, Haniffa and Cooke (2002) maintain that effective board performance is important to hinder manager's opportunism. Other proponents of agency theory like, (Kolk (2008); Ienciu *et al*. (2012); Buniamin *et al*. (2010)) argue that effective governance can reduce the agency problems by holding managers accountable to the vide variety of stakeholders.

Another frequently used theory in this line of inquiry is stakeholder theory. (Jensen and Meckling (1979); Hill and Jones (1992)) argue that the board of directors is the supreme

stakeholders of the business firms and its duty is to align the goals of management with those of the wider variety of stakeholders in general and with stockholders in particular. Recent research shows that modern business firms are under strict public scrutiny for their operations (Chen and Wang 2011). Stakeholders ask for more information about firms' operations (Fernandez-Feijoo *et al*. 2012) and this leads to the relevance of stakeholder theory.

The findings of recent research show that companies all over the world are facing increased stakeholders' pressure to be sustainable (see e.g. Chen and Wang 2011). Stakeholders' need for information about ongoing operations has increased remarkably in last couple of decades (Haniffa and Cooke 2005; Fernandez-Feijoo *et al*. 2012). Stakeholders expect companies to disclose not only financial but also nonfinancial information (Fernandez-Feijoo *et al*. 2012) . Under stakeholder theory (Michelon and Parbonetti 2012) argue that good CG enhances firm-stakeholder relationship by complementing the sustainability initiatives. They considered good governance and sustainability as complimentary mechanisms for better stakeholder management. Stakeholder theory further assumes that besides shareholders there is wide variety of stakeholders who are interested in attitude of firms towards sustainability (Frias-Aceituno *et al*. 2013). (Michelon and Parbonetti 2012) note that stakeholder theory provides link between governance mechanism and sustainability initiatives for aligning long term management-stakeholders' goals. (D. Barako and Brown 2008) argue that existing literature in this vein divides stakeholder theory into two branches i.e. managerial and ethical. Following (Deegan 2000) and (O'Dwyer 2002) who named managerial as positive and ethical as normative branch of stakeholder theory. The managerial side of stakeholder theory posits that manager is influenced by the power of a specific group of stakeholders and assigns more weight to their

information needs. On the other hand ethical part argues for fair treatment of each stakeholder while communicating about CSR performance (Deegan 2000).

These theoretical assertions strengthen the traditional argument of agency theory where governance board is considered the supreme stakeholder group of the business firms. As far the normative branch, it posits equal rights for all stakeholders (Deegan *et al*. 2000). Additionally, (Donaldson and Preston 1995, p.6) argue that all the branches of stakeholder theory are "mutually supportive".

Table 2.1: Theoretical Background and Review of Prior Research

Study	Governance Variable(s) (Results in parenthesis)*	Dependent Variable(s)	Data Collection	Theory Applied	Country
Garcia-Sanchez *et al*. (2014)	Board size (0), Foreign directors (0), Women on board (+), Director Ownership (+), Board Meetings (0), Board Composition (+)	CSR Disclosure	Thomason Reuter Database	Agency Theory	Spain
Giannarakis (2014a)	CEO duality (0), Women on board (0), Board Competence (0), Board Meetings (0), Board size (0), Board composition (0), CSR Committee (+)	CSR Disclosure	Bloomberg data source	Stakeholder Theory	US
Giannarakis (2014b)	CEO duality (-), Women on board (0), Board Competence (0), Board Meetings (0), Board size (+)	ESG disclosure score	Bloomberg data source	Stakeholder Theory	US
Giannarakis *et al*. (2014)	CEO duality (-), women on board (+)	Sustainability Disclosure	Bloomberg data source	Stakeholder Theory	US
Jizi *et al*. (2014)	CEO duality (+), Board Size (+), Board Independence (+), Board meetings (+)	CSR Reporting	Thomson One Banker database	Agency Theory	US
Janggu *et al*. (2014)	Board size (+), Director Ownership (0), Board Competence (+), Board Independence (0), CEO duality (+), Foreign directors (0)	Sustainability Disclosure	Content Analysis on annual reports	Agency theory	Malaysia
Allegrini and Greco (2013)	Board independence (0), Board Size (+,) CEO duality (-), Board Meetings (+), Board audit committee (+)	Adoption of voluntary disclosure	Content Analysis on annual reports	Agency Theory	Italy
Ho and Taylor (2013)	Corporate Governance Index based on content analysis of financial reports (+)	CSR disclosure	Content Analysis on annual reports	Agency Theory	Malaysia
Saha and Akter (2013)	Board Size (0), Board Independence (0), Board audit committee (-), Director Ownership (-)	Voluntary Disclosure	Content Analysis on annual reports	Agency Theory	Bangladesh
Ienciu *et al*. (2012)	Board size (0), CSR committee (+), Board composition(+)	Environmental Reporting	Content analysis	Agency theory	worldwide petroleum companies

Table 2.1 continued…

Table 2.1 continued…

Htay *et al*. (2012)	CEO duality (0), Board Independence (+), Board Size (+), Director Ownership (0), Institutional Ownership(0)	Social and Environmental Disclosure	Content Analysis on annual reports	Agency theory	Malaysia
Rao *et al*. (2012)	Board Independence (+), Institutional Ownership (+), Board Size (+), Women on board (+)	Environmental Disclosure	OSIRIS database	Agency theory	Australia
Walls *et al*. (2012)	Board Size (-), Board Independence (-), Women on board (+), CSR Committee (+)	Environmental Strengths and Concerns	KLD	Agency and Stakeholder Theory	US
Galbreath (2011)	Board Independence (+), Board Size (0), Women on board (+)	Environmental Quality and Social Responsiveness Information	Content Analysis on annual reports	Agency Theory	Australia
Jo and Harjoto (2011)	Governance index (+), CEO duality (+), CEO chair of nomination committee (0), Board size (0), Board Independence (+)	CSR Combined Score	KLD	Agency Theory	US
Post *et al*. (2011)	Board independence (+), Women on Board (0), Board Competence (0)	Disclosed Environmental Performance Indicators	KLD	Agency theory	US
Al-Shammari and Al-Sultan (2010)	Board composition (0), Family members on Board (0), CEO duality (0), Board Audit committee (+)	Voluntary Disclosure Index	Content Analysis on annual reports	Agency Theory	Kuwait
Akhtaruddin *et al*. (2009)	Board Size (+), Board Composition (+), Board audit committee (0)	Voluntary Disclosure	Content Analysis on annual reports	Agency Theory	Malaysia
Arussi *et al*. (2009)	CEO duality (-)	Environmental Disclosure	Content Analysis on annual reports	Agency and Stakeholder Theory	Malaysia
Dunn and Sainty (2009)	Board Independence (+)	Corporate social performance score	Canadian Social Investment Database	Agency theory	Canada
Said *et al*. (2009)	Board Size (+), Board Independence (0), CEO duality (0), Board audit committee (+)	CSR Disclosure Index	Content Analysis on annual reports and website	Agency Theory	Malaysia

Table 2.1 continued…

Table 2.1 continued…

Aras and Crowther (2008)	Corporate Governance Index (+)	Sustainability Disclosure	Content Analysis on annual reports	Stakeholder theory	UK
Hossain and Reaz (2007)	Board composition (0)	CSR Disclosure	Content Analysis on annual reports	Agency Theory	Bangladesh
Lim *et al*. (2007)	Board independence (+)	Voluntary Social disclosure	Content Analysis on annual reports	Agency Theory	Australia
D. G. Barako *et al*. (2006)	Board composition (-), CEO duality (0), Board audit committee (+)	Voluntary Corporate Disclosures	Content Analysis on annual reports	Agency Theory	Kenya
Cheng and Courtenay (2006)	Board size (+), Board independence (+), Board composition (0), CEO duality (0)	Voluntary Corporate Disclosures	Content Analysis on annual reports	Agency Theory	Singapore
Mohd Ghazali and Weetman (2006)	Family members on board (0), board independence (0), board composition (0), director ownership (+)	CSR disclosure	Content Analysis on annual reports	Agency theory	Malaysia
Babío Arcay and Muiño Vázquez (2005)	Board independence (+), director ownership (+), Board audit committee (+), CEO duality (0), board size (0)	voluntary corporate disclosures	Content Analysis on annual reports	Agency theory	Spain
Johnson and Greening (1999)	Board independence (+), Director ownership (+)	People and Product Dimensions of corporate social responsibility	Survey	Agency Theory	US
Halme and Huse (1997)	Board size (+)	Environmental Disclosure	Content Analysis on annual reports	Agency Theory	Scandinavian countries
Wang and Coffey (1992)	Board independence (+), Director ownership (+), Women on board (0)	Corporate Philanthropy	Content Analysis on annual reports	Agency Theory	US

Source: Authors *((+) = Positive, (0) = Insignificant, & (-) = Negative)

2.3. Hypothesis Development Framework

The literature on CG almost unanimously agrees on the fact that, generally speaking, the commitment to increase accountability and transparency in a company's activities, other than economic and financial ones, has grown rapidly among major companies and has become a relevant topic for corporate management. Several recent contributions have investigated the trustworthiness of the relationship between factors describing the governance structure and the various manifestations of SP through statistical analysis. Fewer contributions went further than exploring the actual managerial rationale for such a phenomenon and/or tried to frame it into a theoretical perspective.

The variables most frequently used in the literature to describe the structure of corporate governance are board independence and board composition, defined through parameters like total number of directors on the board, percentage of independent directors, CEO duality, percentage of non-executive directors, directors' ownership, and women on the board. The presence of a CSR committee and/or a CSR director is also often considered as affecting the CSR performance.

Differently from the existing contributions, we consider a widely accepted GRI framework and link the selected governance variables to the triple bottom SP of a firm. The economic bottom of SP is composed of three sub-dimensions, namely direct economic value generated, market presence, and indirect economic impacts. The environmental and social bottoms also have sub-categories. The environmental deals with the aspects of material, energy, water, biodiversity, emission and waste, products and services, compliance with environmental regulations, transportation of products, and overall environmental protection measures taken by a firm. The

social bottom deals with labour laws, human rights, society, and product responsibility aspects. As for CG, we identify the most widely studied characteristics, as are found in prior literature (see table 1). These are board size, board independence, CEO duality, women on the board, number of board meetings per year and existence of a sustainability committee or CSR director. In the sub-sections below we develop hypotheses for CG characteristics.

2.3.1. Board Size and SP

Board size is taken into consideration mainly from the perspective of agency theory as a feature that induces less optimal monitoring processes in company governance as the size increases (De Andres *et al*. 2005) . The empirical studies show competing results for the relationship between board size and sustainability practices. Group dynamics and collective decision-making along with agency perspective advocate smaller governance board size (Ahmed *et al*. 2006; Amran *et al*. 2014). Prado-Lorenzo and Garcia-Sanchez (2010) argue that larger board size is detrimental to governance efficiency.

There is no clear consensus in the existing literature regarding the relationship between board size and SP. It is commonly argued that the larger the board size, the less effective the monitoring, controlling, communication, and decision-making. Ahmed *et al*. (2006) and Dey (2008) are of the view that a smaller board size makes communication more efficient, resulting in increased accountability and commitment. On the other hand, Guest (2009) highlights the drawback by arguing that smaller boards have less diversified expertise as compared to larger boards, which may affect the quality of advice given. According to John and Senbet (1998), a smaller board represents a higher workload for each board member, which may reduce their ability to monitor and control effectively. Likewise, Arena *et al*. (2014) reveal a positive association between board size and environmental rating. Many others note an insignificant

relationship between size of the board and voluntary CSR initiatives (see for example Amran *et al*. 2014, Ienciu *et al.* 2012, Michelon and Parbonetti 2012, and Babío Arcay and Muiño Vázquez 2005).

Keeping in view the voluntary nature of the sustainability initiative, we give ultimate importance to group dynamics and collective decision-making, and follow the arguments of De Andres, Azofra and Lopez (2005) and Prado-Lorenzo and Garcia-Sanchez (2010), who argue that larger board size is detrimental to governance efficiency.

Taking this perspective of agency theory, I hypothesize following relationship:

Hypothesis 1: Board size negatively impacts sustainability performance of a firm.

H1a: Board size negatively impacts economic sustainability performance.

H1b: Board size negatively impacts environmental sustainability performance.

H1c: Board size negatively impacts social sustainability performance.

2.3.2. Board Independence and SP

Agency theory suggests that an independent governing board can control and monitor the agents' actions effectively. Furthermore, independent directors symbolise higher transparency which leads towards long-term value enhancement (Jizi *et al*. 2014). In the stakeholder theory framework, the independence of the board is expected to be positively associated with a higher level of SP since external directors are realistically less subjected than internal ones to pressure from shareholders and managers. Moreover, being external to the organisation they are invested with a responsibility towards a wider audience and have higher reputational costs (Lim *et al*. 2007; Prado-Lorenzo and Garcia-Sanchez 2010).

Prior empirical literature provides competing results on the association between board independence and SP. Eng and Mak (2003) note a negative impact of higher board independence

and social disclosure. Allegrini and Greco (2013), Cormier *et al.* (2011), Huafang and Jianguo (2007), McKendall *et al.* (1999), and Michelon and Parbonetti (2012) are among those who report an insignificant relationship between the number of independent directors on a board and sustainability initiatives. This theoretical competition and empirical fragmentation of results clearly calls for further investigation into the underlying relationship, therefore we *hypothesise* that:

Hypothesis 2: Board independence positively impacts the sustainability performance.

H2a: Board independence positively impacts the economic sustainability dimension of SP.

H2b: Board independence positively impacts the environmental sustainability dimension of SP.

H2c: Board independence positively impacts the social sustainability dimension of SP.

.

2.3.3. CEO Duality and SP

The basic premise of agency theory is the alignment of principle-agent goals and the necessity to monitor agents' decisions in order to avoid possible opportunistic behaviour. Agency theory posits a vigilant monitoring of agents' decisions for protecting the shareholders rights (Jensen and Meckling 1976). CEO duality means that the chief executive officer also holds the position of the board's chairperson. When the two roles are assigned to a single person, it may result in weak monitoring (Rechner and Dalton 1991). The presence of the CEO as chair of the CG board reduces the independence of board which decreases accountability and transparency of the firm (Michelon and Parbonetti 2012). In the stakeholder framework, the independence of the board is expected to be positively associated with a higher level of disclosure since external directors are realistically less subjected than internal ones to the pressure from shareholders and managers.

Moreover, being external to the organisation, they are invested with a responsibility towards a wider audience and have higher reputational costs with respect to internal directors (Lim *et al*., 2007; Prado-Lorenzo and Garcia-Sanchez, 2010). Due to the combination of two roles, the boundary line between management and control becomes fuzzy (Fama and Jensen 1983).

Review of empirical literature reveals mixed findings on the relationship between CEO duality and SP of a firm. Arena *et al*. (2014) find a positive association between the CEO's dual role and environmental performance. Jizi *et al.* (2014) and Mallin *et al.* (2013) report a positive relationship between CEO duality and voluntary reporting practices. Similarly, Haniffa and Cooke (2002), Barako *et al*. (2006), Buniamin *et al.* (2010); Michelon and Parbonetti (2012), and Liao *et al*. (2014) find no significant link between CEO duality and sustainability performance reporting. Clearly, the negative relationship is in line with the theoretical as well as managerial rationale which suggests that the separation of the two roles is advisable. Hence we *hypothesise* the following relationships:

Hypothesis 3: CEO duality negatively impacts sustainability performance.

H3a: CEO duality negatively impacts economic sustainability performance.

H3b: CEO duality negatively impacts environmental sustainability performance.

H3c: CEO duality negatively impacts social sustainability performance

2.3.4. Women on Board and SP

Board Composition has been interpreted in several ways that usually relate to size and diversity between the components in terms of gender and percentage of insiders versus outsiders. Diversity in the board is also correlated to a broader set of objectives pursued by the reporting: Liao *et al*. (2014) specifically refer to a divergent perspective between members of the board as a characteristic that enhances the representativeness of the governance.

The presence of women on the board as a measure of diversity has been positively associated with an increased orientation towards social responsiveness (Wang and Coffey 1992; Williams 2003). Interpretations of this correlation are connected to differences in the prevailing background (e.g. law, humanities, education) that push women to be more sensitive towards giving, towards philanthropic initiatives and CSR in general (Williams 2003), and to differences in behaviours induced by sex inequalities in the job environment (Galbreath 2011).

On the basis of stakeholder theory, Orij (2010) notes that women are more socially orientated than men. More women on the board may push the board members to develop effective stakeholder management by meeting a wider range of customers' expectations (Daily and Dalton 2003). This enables firms to take CSR initiatives and enhances socially responsible behaviour of the firms (Webb *et al*. 2008). Similarly, the literature focusing on CG and economic performance reveal that diversity in board composition leads to better corporate decision-making and economic performance. (see for example Erhardt, Werbel and Shrader, 2003; Campbell and Mínguez-Vera, 2008). Based on the above discussion and rationale provided by stakeholder theory, we hypothesise the following relationships:

Hypothesis 4: Higher percentage of women on the board positively impacts the SP.

H4a: More female directors on the board positively impacts economic sustainability dimension of SP.

H4b: More female directors on the board positively impacts environmental sustainability dimension of SP.

H4c: More female directors on the board positively impacts social sustainability dimension of SP.

2.3.5. Board Meetings and SP

Like the opposing positions and results of other governance variables in relation to CSR, board activity is no exception. Board meetings are often used as proxy for the level of board activity and board diligence (Laksmana 2008). There are two positions regarding the prospective impact of board activity on non-financial performance. Some scholars are of the view that more frequent meetings symbolise the inefficacy of directors which consequently limit their performance (Vafeas 1999), while others contend that it represents board effectiveness, which facilitates better supervision of a company's operations and motivates firms to increase transparency (Lipton and Lorsch 1992).

The former view finds support in a few studies such as Frias-Aceituno *et al*. (2013) and Prado-Lorenzo and Garcia-Sanchez (2010), who report a negative relationship between board meetings per year and environmental transparency. Other studies, such as Karamanou and Vafeas (2005) regarding transparency, and (Giannarakis 2014a) regarding SP disclosure of firms, find no relationship between board meetings and SP.

The latter view is supported by recent empirical contributions. Allegrini and Greco (2013) study Italian firms and find a positive relation between board meetings and organisational transparency. Likewise, (Adawi and Rwegasira (2011) and Jizi *et al.* (2014) show a positive relationship between board activity and SP disclosure. Additionally, (Ricart *et al.* 2005) find that board meetings represent the board activity regarding strategic planning of the firms. Their interpretation of board meeting is the process of decision-making and accountability and distribution of resources. They note that in most of the board meetings, sustainability issues are discussed. Their study reveals a positive impact of board meetings on sustainability performance. Even though it may be reasonable to assume that more frequent board meetings are an indication of a firm's financial distress, researches developed under agency theory assumptions show that

when the directors care more about shareholders' interests than those of debt-holders', their work incentive falls as the firm is more financially distressed. In fact, greater financial distress implies a greater probability of insolvency and/or a smaller firm value relative to debt. Consequently, the shareholders and the directors alike obtain less reward from the directors' hard work (see for example Vafeas 1999; Chou, Li, and Yin, 2010). In this study we adopt an agency theory perspective and consider the number of board meetings as a sign of board diligence and propose a positive relationship between board meeting frequency and SP.

Hypothesis 5: Number of board meetings has a positive impact on the SP of firms.

H5a: Number of board meetings has a positive impact on economic sustainability performance of a firm.

H5b: Number of board meetings has a positive impact on environmental sustainability performance of a firm.

H5c: Number of board meetings has a positive impact on social sustainability performance of a firm.

.

2.3.6. Sustainability Committee and SP

Another element of board structure used in recent studies is the existence of a sustainability/CSR committee on the governing board. The existence of a CSR committee symbolises the board's orientation and commitment towards sustainable development. Scholars like Ricart *et al*. (2005) carry out an exhaustive analysis of business cases and argue that the existence of a CSR committee is a sign of a firm's commitment towards sustainability. They interpret it as an allocation of productive resources for better stakeholder management by fostering sustainability practices in the firm's strategic planning.

The theoretical underpinning and common sense supports a positive link between a CSR committee and SP (Ricart *et al*. 2005). However, there is no clear consensus among different empirical findings. The literature reveals insignificant as well as positive relationships between a sustainability committee and SP. McKendall *et al*. (1999) report an insignificant relationship between a CSR Committee and environmental violations. Michelon and Parbonetti (2012) conduct a study on US and European companies, finding an insignificant relationship between the existence of a sustainability committee and SP disclosure. Similarly, Rupley *et al*. (2012) find an insignificant impact of a CSR Committee on quality of environmental disclosure. However, Spitzeck (2009), based on a study of British firms, confirms a positive and significant impact of the presence of a CSR committee on CSR practices. Liao *et al*. (2014) study UK-based firms and report a positive link between a CSR committee and carbon disclosure projects. Likewise, Ienciu *et al.* (2012), Walls *et al.* (2012), Arena *et al.* (2014), and Amran *et al.* (2014) are among others who find a positive relationship between a CSR committee and certain aspects of SP. Based on these results and arguments of baseline theories, we expect to find a positive relationship between the existence of a sustainability committee and SP.

Hypothesis 6: Existence of sustainability committee has a positive and significant impact on the SP of firms.

H6a: Sustainability committee positively impacts economic sustainability performance of a firm.

H6b: Sustainability committee positively impacts environmental sustainability performance of a firm.

H6c: Sustainability committee positively impacts social sustainability performance of a firm.

2.4. Methodology

2.4.1. Sample Design and Data Collection

My initial study sample included 100 US companies from high performance Global Fortune 2013 list. Based on the GRI's list of reporting firms my final study sample comprises of 152 reports issued by during study period; a span of 5 years from 2007 to 2011. The reason of selecting this period is straightforward; this is the longest period of sustainability reporting guidelines (G3 guidelines) without any updates or modifications. I examine the reports which meet the following criteria: (1) the report is prepared using the GRI G3 guidelines; (2) the reports are prepared in the English language; (3) the reports are published in the period from 2007 to 2011. Below in table 2 .2 is the distribution of sample reports over study period.

Table 2.2: Distribution of Sample Data Over Time

Sector	2007	2008	2009	2010	2011	Total
Technology & Equipment	6	7	7	8	9	37
Oil & Gas Producers	4	5	4	5	5	23
Chemicals & Pharmaceuticals	7	4	6	6	7	30
Food & Beverages	3	2	3	2	2	12
Banks & Financial Services	3	1	3	3	6	16
Automobiles	0	1	2	2	2	7
Retailer	1	0	1	2	3	7
Household Goods	1	1	1	1	1	5
Industrial Transportation	1	1	1	1	1	5
Telecom	0	1	1	1	1	4
Airlines	0	0	1	1	1	4
Media	0	1	0	1	0	2
Total	**26**	**24**	**30**	**33**	**38**	**152**

I collected 152 sustainability reports based on GRI G3 guidelines from corporateregister.com website. Following the methodology of Jones *et al*. (2007) and Villiers *et al*. (2009), I applied a two-stage manual content analysis technique to measure the SP.

2.4.2. Measurement of Variables

Following GRI information structure, I measure the disclosure level and the quality of each sustainability dimension (economic, social and environmental) in each sustainability report. Consistently with previous research methodology of Jones *et al*. (2007) and Michelon and Parbonetti (2012), I measure the disclosure level on a binary scale which takes value 1 if a item is disclosed and 0 otherwise. Then, I calculated the cumulative score of each dimension using the following formulation.

Disclosure Index$_i$ =No. of items disclosed on an indicator / Total item on an indicator

In above formula *i* represent each sustainability dimension. The value of the disclosure index of each dimension depends on specific number of items given in G3 guidelines, There are 9 items for economic indicator, 30 for environmental and 40 for social. To measure the performance of sustainability dimensions I categorize the information in positive and negative type following the definitions provided by (Patten & Crampton, 2004, p. 40). This approach is consistent with (Plumlee *et al*., 2015).

The bifurcation of information as positive and negative allows us to calculate a quality index by using below given normalization algorithm previously used by Hillman and Keim (2001) and Jo and Horjato (2011) to measure CSR performance.

$$\text{Quality Index}_i = \frac{\text{Real Value} - \text{Minimum}}{\text{Maximum} - \text{Minimum}}$$

In the formula, *i* represent the individual sustainability indicator. *Real Value* is obtained by subtracting the negative score of indicator from its positive score. *Minimum* is the total items in an indicator with negative sign and *Maximum* is the total number of item with positive sign. Thus, for instance, the total number of items on economic indicator items is 9. In this case, the

Minimum represents the worst case (-9) when all item give negative information. *Maximum* means (9) when there is full disclosure with positive information. Same formula is used for environmental and social indicator where count of items is 30 and 40 respectively.

In calculation of my sustainability performance index, the '*Real Value'* is obtained by subtracting negative score from positive score obtained by each indicator. To categorize the information in positive, and negative type I follow the definitions provided by Patten and Crampton (2003, p. 40). They define positive information as an indication of firm's harmony with sustainable development goals. In contrast, negative information indicates the negative impact of firm's operation on environment or society. These definitions are essential when disclosure on specific item is scattered across the sustainability report. The next step is the scoring and treatment of positive and negative disclosure.

I mark an item as positive and score it as +1 following three coding rules. First, the information provided coincides with the inherent objective of focal item. Second, the information is clear and specific about improvement towards sustainable development goals. Third, when there is a mention of improvement in organizational practices with respect to other comparable data. Similarly, scoring an item as negative also follows similar coding rules. Firstly, I score information as negative if it is negative by definition. Second, if there is a sign of decreased level of proclivity towards underlying sustainability issue then information is coded as -1. This decreased inclination is observed by comparing the provided information with item's definition. Lastly, some core items require clear information about firm's initiatives for fostering sustainability; I score those items with -1 if clear indication is not provided.

Finally, I calculate the performance of each dimension by multiplying the disclosure index with its respective quality index. Table 2.3 below summarize dependent, independent and control variables.

All the data of content analysis are coded by manually. Keeping in view the limitations of research methodology based on manual content analysis, I calculate "Krippendorf Alpha" as the reliability measure for my extracted data using http://dfreelon.org/utils/recalfront/recal2/ online utility. Initially, 25% of the total collected reports were coded by two the coders. I use this data for inter-coder reliability measurement. The value of alpha should be greater than *0.67* for useful conclusions (Krippendorff 2004, p. 241). I calculate the alpha value for disclosure indices as well as for the quality indices. This results in six alpha values. The values of alpha for economic, environmental and social disclosure indices are *0.807*, *0.740* and *0.711* respectively. Similarly, the values for quality indices are *0.785*, *0.739* and *0.740* for economic, environmental and social respectively. All the observed values are well above the acceptable threshold value. Table 2.3 below summarizes dependent, independent and control variables.

Table 2.3: Measurement of Dependent, Independent, and Control Variables

Name of Variable	Regression Mnemonics	Role	Measurement
Economic Sustainability Performance	EC_SUST	Dependent Variable	Product of economic Disclosure Index and Economic Sustainability index
Environmental Sustainability Performance	EN_SUST	Dependent Variable	Product of Environmental Disclosure Index and Environmental Sustainability index
Social Sustainability Performance	SO_SUST	Dependent Variable	Product of Social Disclosure Index and Social Sustainability index
Board Size	BSIZE	Independent Variable	Total number of directors on governance board
Board Independence	BINDP	Independent Variable	Percentage of Independent directors to total directors
CEO Duality	CEOD	Independent Variable	Binary variable which takes value 1 if the CEO of the company is also the chairperson of the governance board and 0 otherwise
Women on Board	WOB	Independent Variable	Percentage of female directors in relation to the board size
Board Activity	BMTNG	Independent Variable	Number of meetings per year
Sustainability Committee	SUSTCOM	Independent Variable	Binary variable which takes value 1 if there exists a sustainability committee and 0 otherwise
Industry Belonging	ENV_SENS	Control	Dummy variable which takes value 1 if reporting firm belongs to environmentally sensitive sector and 0 otherwise.
Profitability	ROA	control	Calculated as ratio of operating income and total assets
Firm Size	SIZE	Control	Log of total assets of the firm
Capital Structure	D/E	control	Calculated as ratio between total debts to shareholders' equity.
Sales Growth	SGROW	Control	Percentage change in total sales with respect to previous year.
R&D Intensity	RDINT	Control	Ratio of total R&D expenditure to total sales
Capital Intensity	CAPINT	Control	Ratio of capital expenditure and total sales.

2.4.3. Empirical Model and Estimation Technique

My aim in this study is to test the relationship between CG characteristics and SP. For that I use following empirical model:

Sustainability Performance = f (Corporate Governance, Controls)

The dependent variable considers alternatively the three dimensions, respectively economic, environmental and social, of sustainability performance.

The independent variables are the CG board characteristics featuring research hypotheses 1 – 6, that is to say board size, board independence, CEO duality, percentage of women on board, board activity, and existence of a sustainability committee. They represent my main variables of interest. As for the control variables, after careful review of empirical literature, we select and use industry and firm-specific controls. For industry we use a dummy variable which takes value 1 if the firm belongs to environmentally sensitive industries (i.e. oil and gas producers, chemicals and pharmaceuticals) and 0 otherwise. There is no clear consensus in the literature about the definition of environmental sensitive industries (Xu 1999). We follow Mani and Wheeler (1998) and consider oil and gas producers and chemical and pharmaceutical industries as environmental sensitive. The Review of empirical literature shows that firms belonging to these industries face more public pressure to be sustainable environmentally and socially (Xu 1999). We use firm size, profitability, capital structure, sales growth, research and development intensity, and capital intensity as control variables. The detailed measurement of each variable is given in table 3.

Following the GRI framework of SP in this study, we measure SP for all the three dimensions separately. The independent variables in this study are CG characteristics and some control variables. Table 3 above presents the detailed measurement of each variable. The dependent variables in this study are randomly distributed between 0 and 1. Keeping in view the measurement of my study, we apply Hausman (1978) specification test and find that a fixed effect model is appropriate for economic and environmental performance, while for the social dimension the random effect model is appropriate. We run fixed (for economic and environmental SP) and random (for social SP) effect regressions accordingly.

2.5. Empirical Results

2.5.1. Descriptive Statistics and Pairwise Correlation

I present the results of Pearson correlation in table 2.4. In column 2 & 3 I present the descriptive statistics (mean and standard deviation) which are followed by Pearson correlation results. I find a significant positive correlation between three SP dimensions. The correlation coefficient between economic and environmental variables is *33.9%* and the *28.4%* between economic and social both coefficients are significant at 1% significance level. Similarly, the environmental and social dimensions are positivity correlated with $r= 0.746$. Again the significance is at 1%. This means that the firm which perform better (worse) on one sustainability dimension also have perform better (worse) on other sustainability dimensions.

Table 2.4: Descriptive Statistics and Pearson Correlation

Var.	**Mean**	**S.D**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
1.EC_SUST	0.412	0.223	1												
2.EN_SUST	0.453	0.177	**0.339*** **	1											
3.SO_SUST	0.468	0.173	**0.284*** **	**0.746*** **	1										
4.BSIZE	12.427	2.150	-0.0688	**-0.1044***	**-0.18****										
5.BINDP	85.095	8.209	-0.0419	**0.325*** **	**0.21*** **	0.0273	1								
6.WOB	18.682	8.283	**0.1881****	**0.24*** **	**0.29*** **	0.0734	**0.117***	1							
7.BMTNG	9.200	4.475	**-0.0958***	**-0.153****	**-0.16****	**0.30*** **	**0.11***	-0.027	1						
8.ROA	7.437	6.055	**0.223*** **	**0.63*** **	**0.64*** **	**-0.155***	0.037	0.042	**-0.29*** **	1					
9.SIZE	11.319	1.267	0.0004	-0.0216	**-0.13***	**.494*** **	**0.17****	**0.18****	**0.60*** **	**-0.14***	1				
10.D/E	88.295	448.47	**-0.185****	**-0.28*** **	**-0.30*** **	**0.11***	-0.023	**-0.12***	**0.17****	**-0.27*** **	**0.09***	1			
11.SGROW	8.322	17.725	0.0628	**0.11***	0.028	-0.06	0.031	-0.08	**-0.18****	**0.30*** **	**-0.10***	0.0253	1		
12.RDINT	0.040	0.056	0.0155	**0.232****	**0.33*** **	**0.125***	**0.15***	**0.09***	-0.0232	**0.25*** **	-0.0026	**-0.14***	0.068	1	
13.CAPINT	-0.137	0.995	0.103*	**0.11***	**0.133***	0.082	**-0.14***	**0.11***	0.0042	-0.0004	**0.29*** **	0.0135	-0.05	0.061	1

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

Note: Table 2.4 is nested with the correlation results of pairwise correlation between dependent, independent and control variables. I also reported the level of significance in the table with p-values in the parentheses. The level of significance is represented by the stars. First three variables *EC_SUST*, *EN_SUST*, and *SO_SUST* represent the three sustainability dimensions i.e. economic, environmental, and social respectively. The correlation results of sustainability variables are followed by the results of governance variables. Governance variables include board size, board independence, gender diversity, and board meetings per year. Governance variables are followed by the results of control variables. Based on the extensive literature review I selected profitability (*ROA*), firm size (*SIZE*), debt to equity ratio (*D/E*), sales growth (*SGROW*), R&D intensity (*RDINT*), and capital intensity (*CAPINT*) as control variables.

In the above table, I note a negative correlation of *BSIZE* with environmental and social performance at 10% and 5% significance level respectively. The board independence is found positively correlated with environmental and social performance but I am unable to find any significant correlation of board size and board independence with economic dimension of SP. Governance variable for gender diversity *WOB* is found positively correlated with all the sustainability dimensions. I also note a positive correlation between *WOB* and *BINDP*. Board activity which is measured by the number of board meetings per year found negatively associated with all the sustainability dimensions. The level of significance is 10% for economic and 5% for environmental and social dimensions. I further note that bigger board with more independence meet more frequently as I find a positive correlation between board meeting and size and independence.

2.5.2. Estimation Results

2.5.2.1. CG and Economic Sustainability Performance

In this section I present regression results of CG and corporate sustainability. Table 5 below is nested with the stepwise fixed effect regression models. The first dependent variable is economic SP. We applied stepwise regression to avoid multicollinearity problems. In model 1 we regress *EC_SUST* on governance variables and controls. In the second model we analyse the impact of an interaction variable of board independence and CEO duality along with other governance variables. Based on the premise that CEO duality can undermine the independence of a board, I use this interaction variable and report the results. In the third fixed effect regression model we regress the dependent variable with only control variables. Models 4 to 9 are restricted models with individual governance variables and controls.

Table 2.5: Regression Results of CG Characteristics and Economic Sustainability Performance

VAR.	Exp. Sign	(1) EC_SUST	(2) EC_SUST	(3) EC_SUST	(4) EC_SUST	(5) EC_SUST	(6) EC_SUST	(7) EC_SUST	(8) EC_SUST	(9) EC_SUST
BSIZE	(-)	-0.00748	-0.00703		-0.00557					
		(0.604)	(0.627)		(0.686)					
BINDP	(+)	0.00220				0.00175				
		(0.300)				(0.387)				
CEOD	(-)	-0.0305					-0.0234			
		(0.412)					(0.512)			
INDCEO	(-)		-0.000272							
			(0.508)							
WOB	(+)	-0.00154	-0.00134					-0.000797		
		(0.593)	(0.643)					(0.771)		
BMTNG	(+)	-0.00319	-0.00280						-0.00192	
		(0.447)	(0.504)						(0.630)	
CSRCOM	(+)	-0.00699	0.000378							5.25e-05
		(0.861)	(0.992)							(0.999)
ENV_SENS	(+)	0.0330	0.0446	0.0720	0.0693	0.0684	0.0492	0.0725	0.0710	0.0720
		(0.864)	(0.817)	(0.697)	(0.709)	(0.712)	(0.794)	(0.697)	(0.702)	(0.699)
ROA	(+)	-0.00106	-0.00203	-0.00207	-0.00189	-0.00138	-0.00216	-0.00210	-0.00208	-0.00207
		(0.802)	(0.624)	(0.605)	(0.639)	(0.735)	(0.590)	(0.601)	(0.603)	(0.610)
SIZE	(+)	0.0406	0.0448	0.0230	0.0337	0.0193	0.0300	0.0220	0.0243	0.0230
		(0.598)	(0.560)	(0.739)	(0.650)	(0.781)	(0.669)	(0.751)	(0.726)	(0.742)
D/E	(-)	-5.87e-06	-8.92e-06	-1.11e-05	-1.07e-05	-9.02e-06	-1.20e-05	-1.13e-05	-9.07e-06	-1.11e-05
		(0.904)	(0.855)	(0.815)	(0.822)	(0.850)	(0.801)	(0.813)	(0.850)	(0.816)
SGROW	(+)	0.000960	0.000953	0.00106	0.00106	0.00107	0.00103	0.00105	0.00103	0.00106
		(0.321)	(0.325)	(0.259)	(0.263)	(0.254)	(0.275)	(0.268)	(0.277)	(0.262)
RDINT	(+)	-1.078	-1.228	-1.408	-1.381	-1.355	-1.234	-1.382	-1.461	-1.409
		(0.630)	(0.583)	(0.516)	(0.526)	(0.532)	(0.573)	(0.526)	(0.502)	(0.519)
CAPINT	(+)	-0.669	-0.526	-0.569	-0.507	-0.671	-0.620	-0.539	-0.598	-0.569
		(0.509)	(0.600)	(0.553)	(0.603)	(0.488)	(0.520)	(0.578)	(0.535)	(0.555)
Constant		-0.0681	0.0675	0.156	0.106	0.0370	0.0922	0.183	0.160	0.156
		(0.936)	(0.936)	(0.845)	(0.896)	(0.964)	(0.909)	(0.821)	(0.842)	(0.847)
R-squared		0.052	0.041	0.029	0.031	0.037	0.034	0.030	0.032	0.029

P-value in parentheses

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

Note: Table 2.5 is nested with the regression results of CG mechanisms and economic bottom of sustainability. We present the stepwise regression results in different models. First model contains results of economic performance and all variables. This is the complete unrestricted model. In my analysis the independent variables are: board size (*BSIZE*), board independence (*BINDP*), CEO duality (*CEOD*), women on board (*WOB*), board meetings (*BMTNG*) and presence of sustainability committee (*CSRCOM*). We include industry belonging (*ENV_SENS*), profitability (*ROA*), firm size (*SIZE*), debt to equity ratio (*D/E*), sales growth (*SGROW*), R&D intensity (*RD_INT*), and capital intensity (*CAP_INT*) as control variables. In second model we include an interaction variable (*INDCEO*) of board independence and CEO duality along with other governance variables. The third model is nested with the regression results of control variables only. We measure the dependent variable as a product of disclosure index and its respective quality index. The data for governance variables and controls have been obtained from *Bloomberg* data sources. Bloomberg calculates *BSIZE* as number of directors on governance board. The *BINDP* is a percentage of independent directors to total directors. Similarly, *WOB* is a ratio of female directors to board size. *CEOD* and *CSRCOM* are binary variables and *BMTNG* is the number of meeting of board in one reporting year. To avoid confounding results we split my main regression model in restricted models and used my variables of interest individually. This technique is famous to avoid multicollinearity problems among explanatory variables. Data for control variables have been obtained from Bloomberg which calculates *ROA* as ratio of operating income and total assets. The *SIZE* is my second control variable which is log of firm's total assets. *D/E* is ratio of debt and equity of the firm. We calculate sales growth as percentage change in the sales with respect to previous year's sale. R&D intensity is calculated as ratio of R&D and sales. Similarly, *CAPINT* is measure of capital expenditure divided by sales.

The results show that no variable is found significantly related with economic SP. Although these results are at odds to my expectation, they might open the way for improvements in the reporting framework. According to the GRI framework, the economic performance has three dimensions: the direct value generated and distributed by the firm, the market presence and the indirect economic impact of companies operation. The first aspect provides information about revenue generation, operating cost, compensation, donations, retained earnings and interest and dividends. Other information on this aspect includes financial implications, risks and opportunities due to climate change, and financial assistance provided by the government to organization. The market presence dimension provides information about the minimum wage ratio and other employees' compensation ratios in comparison of local compensation figures, information about policy and actual spending on local suppliers, and information about local hiring and proportion of senior managers from locality of operations. The indirect value created dimension deals with the information about services to the local community in the form of infrastructure developments in kind or pro bono management.

The results show that no variable is found to be significantly related with economic SP. They encourage the thinking process towards improvements in the reporting framework. As we will discuss more in depth later, this is consistent with the process that led to GRI 4, where the economic dimension has been the most widely revised.

2.5.2.2. CG and Environmental Sustainability Performance

The second dependent variable is *EN_SUST*. This represents the environmental dimension of SP. The results for impact of selected governance variables on environmental performance are presented below in table 2.6.

Table 2.6: Regression Results of CG Characteristics and Environmental Sustainability Performance

	Exp. Sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VAR		EN_SUST	EN_SUST	EN_SUST	EN_SUST	EN_SUST	EN_SUST	EN_SUST	EN_SUST	EN_SUST
BSIZE	(-)	-0.00550	-0.00471		-0.00808					
		(0.490)	(0.589)		(0.421)					
BINDP	(+)	0.00464***				0.0051***				
		(0.000139)				(0.00033)				
CEOD	(-)	-0.0858***					-0.0689***			
		(6.23e-05)					(0.00707)			
INDCEO	(-)		-0.0007***							
			(0.0037)							
WOB	(+)	0.000946	0.00139					0.00156		
		(0.552)	(0.423)					(0.433)		
BMTNG	(+)	0.000156	0.00107						0.000804	
		(0.946)	(0.673)						(0.782)	
CSRCOM	(+)	0.125***	0.140***							0.134***
		(1.54e-07)	(5.52e-08)							(3.27e-07)
ENV_SENS	(+)	-0.132	-0.100	-0.0476	-0.0514	-0.0582	-0.115	-0.0487	-0.0472	-0.0349
		(0.217)	(0.388)	(0.724)	(0.704)	(0.646)	(0.389)	(0.719)	(0.728)	(0.768)
ROA	(+)	0.0109***	0.0089***	0.0111***	0.0114***	0.0131***	0.0108***	0.0112***	0.0111***	0.0090***
		(9.85e-06)	(0.000562)	(0.000227)	(0.000186)	(7.84e-06)	(0.000204)	(0.000219)	(0.000242)	(0.000613)
SIZE	(+)	0.0179	0.0254	-0.0366	-0.0210	-0.0475	-0.0161	-0.0347	-0.0371	-0.00744
		(0.674)	(0.584)	(0.468)	(0.697)	(0.317)	(0.744)	(0.493)	(0.464)	(0.867)
D/E	(-)	4.66e-06	-1.59e-06	4.85e-06	5.41e-06	1.11e-05	2.23e-06	5.21e-06	3.99e-06	1.65e-06
		(0.863)	(0.957)	(0.889)	(0.876)	(0.734)	(0.947)	(0.881)	(0.909)	(0.957)
SGROW	(+)	-0.000773	-0.000779	-0.000572	-0.000577	-0.000535	-0.000662	-0.000545	-0.000559	-0.000722
		(0.149)	(0.183)	(0.403)	(0.400)	(0.406)	(0.319)	(0.428)	(0.418)	(0.230)
RDINT	(+)	2.000	1.636	1.850	1.890	2.006	2.362	1.798	1.872	1.175
		(0.108)	(0.227)	(0.243)	(0.234)	(0.178)	(0.127)	(0.257)	(0.240)	(0.398)
CAPINT	(+)	-0.100	0.224	0.362	0.452	0.0628	0.212	0.303	0.374	0.328
		(0.857)	(0.711)	(0.604)	(0.524)	(0.924)	(0.755)	(0.667)	(0.595)	(0.592)
Constant		-0.214	0.0849	0.750	0.678	0.401	0.562	0.698	0.749	0.393
		(0.648)	(0.867)	(0.198)	(0.251)	(0.469)	(0.322)	(0.235)	(0.201)	(0.443)
R-squared		0.528	0.429	0.157	0.162	0.264	0.219	0.162	0.157	0.360

P-value in parentheses

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

Note: Table 2.6 is nested with the regression results of CG and environmental sustainability performance. We present results of stepwise regression for environmental dimension in eight models. Model (1) contains fixed effect regression results of all variables. The independent variables are governance characteristics. Similar to the previous presentation of economic dimension, model 2 contains results interaction variable and other governance variables along with control variables. In equation 2 the dependent variable is *EN_SUST* which is a measure of environmental SP of sample firms. We measure the dependent variable as a product of disclosure index and its respective quality index. Both these indices are measured from the manual content analysis quantification of sustainability information disclosed in sustainability reports by sample companies. The disclosure index is a ratio of disclosed item and the total items on an indicator. To calculate the quality index we trifurcated the disclosed information into good and bad information. For this trifurcation we follow Patten and Crampton (2003) who provided bases for defining information as positive and negative. We use the same control variables (*ENV_SENS*, *ROA*, *SIZE*, *D/E*, *SGROW*, *RDINT*, and *CAPINT*) for all the three dimensions of SP.

Following the pattern of *EC_SUST* analysis we present fixed effect regression results in different models. As for the previous analysis, we resorted to a stepwise procedure with restricted models to avoid multicollinearity. In the results of my main model we reveal that *BINDP* is positively related to *EN_SUST*. The significance is at 1% level. The result remains consistent while using only *BINDP* with control variables in model (5). The second governance variable found relevant is *CEOD*. The impact is negative and at 1% significance level. This result also remains significant in model (6). Another variable found relevant is the sustainability committee (*CSRCOM*). The variable is positively related to a dependent variable at *1%* significance level. In both models (1 and 9) the variable remained significant with P-value at less than *0.01*.

Based on the assumption that CEO duality can impact on board independence, we include an interaction variable (*INDCEO*) and analyse its impact on the dependent variable. The coefficient is negative and significant, confirming that a dual CEO more than offsets the efforts to increase board independence. However, the coefficient is two orders of magnitude (*-0.0007* versus *-0.0689*) less than the one of CEOD. This means that board independence reduces the negative impact of a dual CEO. We are unable to find any relevance of *BSIZE*, *WOB* and *BMTNG* with the environmental dimension of SP. Among controls we only find profitability as a relevant control variable for environmental sustainability performance. It is remarkable that belonging to environmental sensitive industries (*ENV_SENS*) does not affect the environmental sustainability performance.

2.5.2.3. CG and Social Sustainability Performance

The third dimension I used for SP measurement is social SP. The social performance is measure of performance on labor, human rights, society, and product responsibility dimensions. The labor aspect provides performance information about employment, management relations,

occupational health and safety, training and education, and diversity and equal opportunity. Human right aspect of social sustainability deals with investment and procurement practices, non-discrimination, freedom of association and collective bargaining, child labor, forced and compulsory labor, security practices, and indigenous rights. The results of social sustainability analysis are presented below in table 2.7.

Table 2.7: Regression Results of CG Characteristics and Social Sustainability Performance

VAR.	Exp. Sign	(1) SO_SUST	(2) SO_SUST	(3) SO_SUST	(4) SO_SUST	(5) SO_SUST	(6) SO_SUST	(7) SO_SUST	(8) SO_SUST	(9) SO_SUST
BSIZE	(-)	-0.00199	-0.00125		-0.00572					
		(0.721)	(0.907)		(0.383)					
BINDP	(+)	0.00383***				0.00529***				
		(0.00123)				(7.51e-06)				
CEOD	(-)	0.00578					0.0225			
		(0.777)					(0.312)			
INDCEO	(-)		-3.53e-06							
			(0.991)							
WOB	(+)	0.00459***	0.00460**					0.00468***		
		(0.000262)	(0.0327)					(0.000714)		
BMTNG	(+)	0.00650***	0.00712**						0.00483*	
		(0.00910)	(0.0230)						(0.0787)	
CSRCOM	(+)	0.0621***	0.0649**							0.0887***
		(0.00475)	(0.0277)							(9.27e-05)
ENV_SENS	(+)	-0.0416	-0.0639	-0.0698	-0.0508	-0.0596**	-0.0549*	-0.0284	-0.0535*	-0.0598**
		(0.107)	(0.653)	(0.632)	(0.103)	(0.0367)	(0.0655)	(0.326)	(0.0866)	(0.0232)
ROA	(+)	0.0150***	0.0133***	0.0140***	0.0160***	0.0167***	0.0165***	0.0164***	0.0163***	0.0131***
		(0)	(3.33e-05)	(2.06e-05)	(0)	(0)	(0)	(0)	(0)	(4.76e-10)
SIZE	(+)	-0.0445***	-0.000318	-0.0177	-0.0173	-0.0283***	-0.0232**	-0.0266***	-0.0315**	-0.0250***
		(0.000128)	(0.996)	(0.746)	(0.166)	(0.00638)	(0.0320)	(0.00978)	(0.0114)	(0.00978)
D/E	(-)	-2.97e-05	-1.13e-05	-3.19e-06	-3.55e-05	-3.52e-05	-3.49e-05	-2.76e-05	-4.14e-05*	-3.89e-05*
		(0.159)	(0.755)	(0.932)	(0.142)	(0.117)	(0.146)	(0.232)	(0.0854)	(0.0804)
SGROW	(+)	-0.00134**	-0.00135*	-0.00148**	-0.00167***	-0.00167***	-0.00168***	-0.00156***	-0.00154**	-0.00166***
		(0.0137)	(0.0604)	(0.0474)	(0.00610)	(0.00340)	(0.00615)	(0.00879)	(0.0109)	(0.00495)
RDINT	(+)	0.507**	1.121	1.398	0.711***	0.577**	0.665***	0.553**	0.676**	0.707***
		(0.0210)	(0.498)	(0.413)	(0.00865)	(0.0192)	(0.00914)	(0.0235)	(0.0121)	(0.00176)
CAPINT	(+)	0.181**	-0.228	-0.157	0.221**	0.188*	0.207**	0.190*	0.241**	0.187**
		(0.0404)	(0.759)	(0.835)	(0.0333)	(0.0507)	(0.0421)	(0.0506)	(0.0209)	(0.0466)
Constant		0.399***	0.183	0.535	0.632***	0.238	0.611***	0.572***	0.679***	0.630***
		(0.00483)	(0.768)	(0.394)	(1.78e-06)	(0.105)	(1.21e-06)	(2.02e-06)	(6.00e-07)	(2.42e-08)
R-squared (Overall)		0.528	0.429	0.152	0.152	0.264	0.219	0.162	0.157	0.360

P-value in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: Table 2.7 is nested with the regression results of social sustainability performance analysis. Following the analysis and presentation pattern of previous equation we analyze the impact of governance and control variables on social SP. *SO_SUST* is the measure of social performance which is computed from sustainability disclosure index and quality index. The social performance is measure of performance on labour, human rights, society, and product responsibility dimensions. The GRI framework challenges companies to report on all aspects of firms social impacts. The guidelines provide definition of overall indicators as well as individual items comprised by each indicator. The independent and control variables are the same for all the sustainability variables. We report the overall *R-Square* in the bottom of each table.

Based on the Hausman specification test, we apply the random effect regression model for analyzing the impact of CG variables on social sustainability performance. Keeping in view the same group of predictors, we follow the previous presentation pattern. my random effect model results reveal that board independence (*BINDP),* women on board (*WOB),* board activity (*BMTNG),* and presence of sustainability committee (*CSRCOM)* are positively related to social performance. We find no significant relationship between board size (*BSIZE*), CEO duality (*CEOD*) and social SP.

Consistent with the model about environmental sustainability, we find that a dual CEO has a detrimental influence on board independence. In fact, while *BINDP* has a positive and significant effect, the interaction with CEO duality (*INDCEO*) is insignificant. This means that a dual CEO cancels out the positive impact of board independence: compared to the environmental dimension, however, the effect of a dual CEO is weaker, simply offsetting the positive influence of board independence.

The other variable found relevant in explaining changes in dependent variable is board activity measured by number of meetings per year. We note that this variable is positively related to the response variable. This implies that a higher number of board meetings increase the firm's focus on social responsibility. The last variable we find positively related to social performance is the existence of a sustainability committee. This result shows that a board with a dedicated committee for sustainability issues enhances social performance. We observe that more profitable firms perform better on social issues, while larger firms focus less on social issues. Sales growth is also found to be negatively related, whereas *RDINT* and *CAPINT* are found to be positively related to social performance. As before, belonging to environmentally sensitive

industries (*ENV_SENS*) is not significant. Table 2.8 below summarizes the overall hypotheses testing results.

Table 2.8: Summary of Regression Results

Hypotheses		Studied Relationship	Result
Hypothesis1	H1a	BSIZE➔EC_SUST	Rejected
	H1b	BSIZE➔EN_SUST	Rejected
	H1c	BSIZE➔SO_SUST	Rejected
Hypothesis 2	H2a	BINDP➔EC_SUST	Rejected
	H2b	BINDP➔EN_SUST	Accepted
	H2c	BINDP➔SO_SUST	Accepted
Hypothesis 3	H3a	CEOD➔EC_SUST	Rejected
	H3b	CEOD➔EN_SUST	Accepted
	H3c	CEOD➔SO_SUST	Rejected
Hypothesis 4	H4a	WOB➔EC_SUST	Rejected
	H4b	WOB➔EN_SUST	Rejected
	H4c	WOB➔SO_SUST	Accepted
Hypothesis 5	H5a	BMTNG➔EC_SUST	Rejected
	H5b	BMTNG➔EN_SUST	Rejected
	H5c	BMTNG➔SO_SUST	Accepted
Hypothesis 6	H6a	SUSTCOM➔EC_SUST	Rejected
	H6b	SUSTCOM➔EN_SUST	Accepted
	H6c	SUSTCOM➔SO_SUST	Accepted

2.6. DISCUSSION AND CONCLUSIONS

In this study we investigate how CG is related to SP, or more specifically whether particular CG characteristics are related to SP. In contrast to the existing literature, we measure the SP on three dimensions separately, following the (GRI) framework for measurement of my dependent variables - economic, environmental, and social dimensions. The GRI framework challenges firms to report positive as well as negative information regarding their operations (Hahn and Lülfs 2014) and facilitates them in the improvement of their CSR management (Vigneau *et al*. 2014).

my analysis yields interesting results regarding the relationship between CG characteristics and SP dimensions. We find support for most of hypothesised relationships with agency and stakeholder theory and conduct fact-based empirical analysis. Contrary to my expectations, I am unable to find any significant relationship between economic bottom of sustainability performance and CG characteristics. The possible reason for this finding lies in the very nature of economic indicators. The underlying GRI framework describes the nature of the economic dimension in following manner:

> "An organization's economic performance is fundamental to understanding the organization and its basis for sustainability. However, this information is already well reported … in annual financial accounts and reports. Financial statements provide information about the financial position, performance, and changes in the financial position of an entity" (GRI 2006, p. 25).

The observed finding of non-relevance of the economic dimension provides support to the existing argument of (Lozano and Huisingh 2011) regarding the weak inter-linkage between different sustainability dimensions of stand-alone reporting frameworks. The revealed results are

also in line with recent modifications in reporting guidelines. In the new version of reporting guidelines (G4 guidelines) GRI has changed 78% of the items on economic indicator.

Alternatively, my empirical evidence can be interpreted as support for the choice of integrated reporting. An integrated reporting framework provides a holistic view on a firm's financial and non-financial performance avenues. Building inter-linkages between financial and non-financial performance through integrated reporting will provide better performance analysis prospects (Lozano and Huisingh 2011).

Empirical results show that most of the CG characteristics play an important role in enhancing a firm's environmental and social SP, across all industries. We note that a board with a higher proportion of independent directors positively impacts environmental and social performance (H2b and H2c). These results are in line with the agency and stakeholder theory argument that external directors have responsibility for a wider variety of stakeholders (Galbreath 2011; Jo and Harjoto 2011). These results provide support for conventional wisdom that a more sovereign board is the superior governance structure (Coles *et al*. 2008; Linck *et al*. 2008).

Results of H3 are consistent with agency theory and existing empirical literature (see for example Arussi *et al*. 2009, Allegrini and Greco 2013, Giannarakis *et al*. 2014, and Giannarakis 2014b). These results support the role separation of CEO and chairperson of the board. my results support the agency theory argument that the governing board should monitor the agents' decisions. If the CEO is chair of the board, this monitoring process cannot be effective (Allegrini and Greco, 2013). The confirmation of H3 is limited to H3b - CEO duality linked to environmental performance.

In line with the arguments of stakeholder theory and the findings of Ibrahim and Angelidis (2011) and Ntim and Soobaroyen (2013), we find that board diversity enhances the social dimension of sustainability (H4c) but differently from Walls *et al*. (2012), diversity does not have any significant impact on environmental performance. Therefore, my results do not find support for H4b - women on a board linked to environmental performance. Keeping in view the importance of social performance in enhancing financial performance (Dhaliwal *et al*. 2011) and the importance of diversity in effective decision-making (Post *et al*. 2011), my results support increased board diversity.

Consistently with agency theory, we consider the board meetings as an indicator of board diligence and we assume that through more frequent meetings the board can pay more attention to other stakeholders's needs. This is the basic premise of my hypothesis 5. We find significant support for H5c, which suggests the relationship between social bottom line and board meeting frequencies. These results also confirm the recent findings of Jizi *et al*. (2014). The existence of a CSR committee signals the effort to invest in a better stakeholder management. This argument, coming mainly from stakeholder theory, and its related hypotheses H6b and H6c find a clear support in my findings where both environmental and social performance are fostered by the CSR committee.

Altogether, my results largely support the complementary theoretical assertions of agency theory and stakeholder theory regarding the role of the board in enhancing SP. We observe that the more independent board, with duality of board members, with more women on board, with more frequent board meetings, and a designated CSR committee which meets more frequently, is better able to monitor management decisions regarding environmental and/or social issues. my results provide support for the use of GRI as a reporting tool, consistent with internal CG

structures. My results also imply that effective internal governance mechanisms help firms to meet sustainability goals and attain legitimacy. Therefore it is socially desirable to have superior governance mechanisms for monitoring corporate behaviour and fostering corporate sustainability.

2.7. Limitations and Future Research Directions

Although I tried to investigate in depth relationship between CG elements and SP my results are limited to the large companies which have more resources to invest in sustainability initiatives and can have governance mechanism more vigilant than smaller firms. The analysis of smaller and medium sized firms may yield different results.

Additionally, I use general GRI framework for my measurement of SP which inherently possesses some limitations regarding its applicability for some sectors. I am unable to use the sector specific reporting framework due to limited sample size. The use of sector specific framework may provide better insight about the CG and SP relationship.

It would also be an interesting future research question to use other frameworks for SP measurement and conduct a comparative analysis for better understanding the role of CG elements in promoting sustainability orientation of firms. The study of underlying relationship by using different research methods, e.g. case study and survey method, can also provide further insight. The suggested methods can better capture the demographic elements of board members and firms. Following Walls *et al*. (2012) I conducted a contemporaneous analysis, I did not use lagged data. Testing temporal effect is open for future researchers.

Based on the review of extant literature I also conclude that there is a clear fragmentation in the CG and SP research vein. There can be many possible reasons of this fragmentation including;

methodological issues, sample size, country and industry effect, and time period. To the best of my knowledge no meta-analytical review has so far been presented in exiting literature. Having said so, I invite future researchers to fill this gap by identify the possible reasons of exiting fragmentation.

Some other specific conclusions based on analysis lay down future research directions. First, the roles of independent directors need to be investigated in relation to other prevailing mechanisms. These possible mechanisms can be multiple directorship (Haniffa and Cooke 2002), community influential characteristics (Michelon and Parbonetti 2012), directors' ownership (Johnson and Greening 1999) and experience of directors (Adawi and Rwegasira 2011).

Similar to the present results most of the previous researchers note a negative relationship between dual role of CEO and SP (see e.g. Gul and Leung 2004; Arussi *et al*. 2009; Giannarakis *et al*. 2014) . On the other hand there is a traditional argument that managers pursue environmental and social goals to improve their own reputation with the resources that belong to shareholders (Wang and Coffey 1992). This contradiction in empirical findings calls for more in depth investigation of this relationship.

Other suggestions for future research could be the use of other CG elements. The role of board audit and nomination committee could be an interesting research question. I note interesting results about the role of board meeting frequency and social performance; it would add value to these results by studying the average attendance of each meeting in relation to social as well as other performance dimensions of sustainability. Finally, the inclusion of management variables like finance director on board and background of top management may result interesting facts.

CHAPTER 3

IMPACT OF SUSTAINABILITY PERFORMANCE ON FINANCIAL PERFORMANCE

3.1. Introduction

Companies all over the world are increasingly engaging in sustainability initiatives and reporting their activities in annual reports, websites or on other media of communication. Sustainability awareness has significantly increased in recent years (Aras and Crowther, 2009; Stubbs *et al*., 2009; KPMG, 2011). Sustainable development is on top of the international agenda (UNEP/SustainAbility, 2004). According to the triennial international survey of KPMG (2011) on corporate responsibility reporting, 95 percent of the top 250 companies on the Fortune Global 500 list (G250) prepare corporate sustainability reports as compared to 52 percent in 2005. Moreover, 64 percent of the 100 largest companies by revenue from 22 countries report about their corporate sustainability performance which was 33 percent in 2005.

Companies face increased pressures from internal and external stakeholders to be transparent and accountable (Waddock, 2004). Stakeholders expect companies to disclose not only financial but also nonfinancial information about their business activities and to report the extent to which sustainable the firms are (Hussain, 1999; Bansal and Roth, 2000). There are many studies in the same line of inquiry which contend that more and more firms are adopting voluntary CSR disclosure. There are evidences from developing economies as well like; Bangladesh, Ghana, Fiji, and Thailand showing an increasing trend in adoption of sustainability reporting.

Modern firms are under strict public scrutiny for their operations (Chen and Wang, 2011). There is a growing pressure from various stakeholder groups to reduce negative impacts of corporation on environment and society (Molina-Azorín *et al*., 2009). Similarly, companies are facing increased pressures from internal and external stakeholders to be transparent and accountable (Haniffa and Cooke, 2005) and sustainability reporting is the main tool to meet these emerging challenges. Firms, all over the world, are increasingly engaging in sustainability initiatives and reporting their activities in annual reports, websites or on other media of communication. Sustainable development is now on top of the international agenda (UNEP/SustainAbility, 2004).

This is evident from recent research findings that firms who disclose more sustainability performance information enjoy number of benefits (Cormier and Magnan, 2003, 2004; Haniffa and Cooke, 2005; Sotorrío and Sánchez, 2010; Tagesson *et al*., 2009). The benefits are higher shareholders value (Porter and Kramer, 2011), larger market share (Gauthier, 2005), reduced information asymmetry and low cost of capital (Hahn and Kühnen, 2013), and better share performance and accounting performance (Eccles *et al*., 2013).

Solomon and Solomon (2006) note that companies face increased pressures from internal and external stakeholders to be transparent and accountable. They further argue that the stakeholders in general and institutional investors in particular regard social, environmental, and ethical disclosure for their decision making. The reporting practices and the amount of disclosure vary significantly in different regions and industries (Sotorrío and Sánchez, 2010). Husillos *et al*., (2011) suggest that there is a need to know the relationship between public awareness and sustainability reporting practices. The results are mixed as noted above. Some scholars have noted a very high demand for sustainability disclosure in developed as well as developing economies and others find just mimetic isomorphism in reporting trends (Husillos *et al*., 2011;

Amran and Haniffa, 2011). There is still much work to be done to conclude on the issue of sustainability reporting.

The existing literature on the relationship between sustainability initiatives and financial performance is composed of mixed findings (Cordeiro and Sarkis, 1997; Molina-Azorín *et al*., 2009; Horváthová, 2010). Proponents of neoclassical school (traditionalist view) argue that environmental initiatives impose additional costs (see e.g. Walley and Whitehead, 1994; Palmer *et al*., 1995; Hamilton, 1995), whereas Porter (1991) and Porter and Van der Linde (1995) argue that such initiatives create 'win-win situations' by enhancing performance and social welfare. In the same line of inquiry Hart and Ahuja (1996), Wagner (2010) and Ameer and Othman (2012) empirically support the revisionist view. A third stream of research challenges both traditionalist and revisionist views and supports an inverse U-shaped relationship (see Lankoski, 2000; Wagner, 2001). Lastly, some other researchers argue for a neutral association between firms' responsible behavior and resulting benefits (see McWilliams and Siegel, 2001). The inconsistency in results is also evident from the comparison of other empirical findings (see e.g. González-Benito and González-Benito, 2005; Link and Naveh, 2006; Earnhart and Lízal, 2007).

Konar and Cohen (2001) and Horváthová (2010) argue that the reason for such fragmentation in empirical findings is caused by inadequate sample size, too shorter study periods, and use of subjective measurement of sustainability variables. Based on these findings, the present study examines the economic motivation of better sustainability performance and finds more robust results by utilizing a comprehensive database. For this purpose, I analyse the sustainability reports of Global Fortune 100 best performing firms through manual content analysis and categorize the disclosed information for each indicator; economic, environmental, and social, in trifurcated form, i.e. good and bad. Such categorization enabled us to calculate a disclosure index

and a sustainability index for each sustainability indicator. The former tells how much a company discloses while the latter is a directional index which measures capability of a company to be sustainable. The combination of these two indicators gauges to what extent a firm may be defined a transparent and sustainable one.

The data I use for the analysis covers five years of reporting on the GRI G3 reporting guidelines. To my knowledge, this is the longest study period ever used in existing empirical literature. I devise and test my statistical model after addressing all the methodological issues highlighted in recent literature (see e.g. Horváthová, 2010).

The empirical results reveal three interesting findings. First, it emerges that not all the dimensions of sustainability performance have a significant impact on financial performance. In fact, the economic dimension is never relevant in all my analyses. Second, the impact of environmental and social dimensions of sustainability remains positive and significant across different measures of market and accounting performances. As for market performance, measured by Tobin's Q, I find that both environmental and social indicators are relevant: the more a firm can be defined a transparent and sustainable one the higher is its market value, therefore providing a clear empirical evidence for the legitimacy theory (Guthrie and Parker, 1989; Suchman, 1995). For the accounting performance, measured by ROA and ROE, the environmental and social dimensions of sustainability are always related, whereas economic dimension found insignificant. Along with legitimacy theory, the stakeholder theory (Freeman, 1984; Lodhia, 2004; Haniffa and Cooke, 2005; Porter and Kramer, 2011) and positive accounting theories (Belkaoui, 1980; Healy and Palepu, 2001; DeAngelo *et al*., 1996), provide the rationale for this research hypotheses, are therefore partially confirmed. Third, I do not find any relation between sustainability disclosure and capital structure, measured by the debt/equity

ratio. Capital markets transactions and positive accounting theories, predicting a negative relation between leverage and sustainability disclosure, are therefore not confirmed by my research.

As a further check, I use a control sample (remaining firms on Global fortune N-100 list for the same period) to compare the results of sustainability reporters and non-reporters. I compare my results with the control sample and note that the sustainability indicators have significant explanatory power to explain changes in the market value and accounting performance of reporting firms.

The remainder of the chapter is organized as follows. The next section discusses the findings of extant literature. Section 3.3 is devoted for hypotheses development. Section 3.4 provides methodology which includes overview of empirical model, sample selection, details about data collection, and operationalization of variables. In section 3.5, I present and discuss the empirical findings. Last two sections discuss my results and provide conclusion, implications, and future research directions.

3.2. Prior Research

Since early 1990's the term sustainability was used as a synonym for the ability of a corporation to survive in growing social and environmental pressures. The World Business Council for Sustainable Development (WBCSD) coined the term "eco-efficiency" to represent environmental and economic sustainability. Then, DeSimone and Popoff (1997) put forward the idea that sustainability is just a matter of "higher efficiency". Previously, Porter (1991) and Porter and Van der Linde (1995) supported similar idea and argued that environmentally unsustainable

firms are actually inefficient ones. Their argument becomes base of revisionist view. However, the critics of this view argue that sustainability is not just higher production efficiency, but something more than that. According to King (1997) and Welford (2013), eco-efficiency can be achieved through technological changes; however sustainability requires fundamental changes in the way of conducting business.

The question whether being sustainable is profitable lacks a clear answer (Margolis and Walsh, 2003). Companies use sustainability reporting as a tool for communicating their performance with various stakeholders (Lodhia, 2004). The literature on sustainability performance and financial performance is composed of mixed findings (Cordeiro and Sarkis, 1997; Molina-Azorín *et al*., 2009; Horváthová, 2010). Table 3.1 provides an overview of the mixed results.

Table 3.1: Survey of Empirical Literature of Sustainability Disclosure and Firm Performance Relationship

Study	Studied Relationship	Results
Cohen *et al*. (1995)	Toxic release inventory (TRI), oil spills, chemical spills, environmental litigation cases and financial performance (ROI and ROE)	Positive
Hamilton (1995)	Toxic release inventory and share price reaction	Negative
Hart and Ahuja (1996)	Toxic Release Inventory (TRI) and ROA, ROE and ROS	Positive
Cordeiro and Sarkis (1997)	Environmental Pro-activism and Analysis EPS forecast	Negative
Russo and Fouts (1997)	Environmental ratings: compliance records, expenditures, environmental initiatives and financial performance	Positive
Judge and Douglas (1998)	Integration of environmental issues into the strategic planning process (perceptual measures) and financial performance	Positive
Chan and Milne (1999)	Environmental disclosure and investors' reaction	Positive
Khanna and damon (1999)	Toxic release inventory and Return on investment (ROI)	Negative
Gilley *et al*. (2000)	Environmental initiatives and Abnormal return	Insignificant
A'lvarez-Gil *et al*. (2001)	Environmental management (perceptual measures) and Profitability	Positive
De Burgos and Ce´spedes (2001)	Integration of environmental issues into the strategic planning process (perceptual measures) and financial performance	Positive
King and Lenox (2001)	Environmental measure and Tobin's Q, ROA, ROE, and ROI	Positive
Konar and Cohen (2001)	Toxic Release inventory (TRI) and environmental Lawsuits and financial performance	Positive
McWilliams and Siegel (2001)	Proposed relationship between Environmental performance and Financial performance	Neutral

Table 3.1 continued…

Table 3.1 continued…

King and Lenox (2002)	Pollution reduction means and ROA and Tobin's Q	Positive
Wagner *et al*. (2002)	Environmental index and ROE , ROS, and ROCE	Negative
Al-Tuwaijri *et al*. (2004)	Environmental performance and economic performance	Positive
González-Benito and González-Benito (2005)	Environmental proactivity dimensions and financial performance	Insignificant
Menguc and Ozanne (2005)	Environmental orientation and sales growth	Negative
Wagner (2005)	Emission data and financial performance	Negative
Khurana *et al*. (2006)	Sustainability Disclosure Score and financial performance	Positive
Link and Naveh (2006)	Adoption of ISO 14001 Standard and profit margin	Insignificant
Aragoń-Correa and Rubio-Loń pez (2007)	Carbon Emission and financial performance (ROI and ROE)	Insignificant
Earnhart and Lízal (2007)	Data of Air pollution Emission and accounting measures of financial performance	Insignificant
Jones *et al*. (2007)	Sustainability disclosure score and Financial performance	Positive
Nakao *et al*. (2007)	Environmental management performance index and financial performance	Positive
Wagner (2010)	Sustainability Performance and Financial Performance	Positive
Guenster *et al*. (2011)	Eco-efficiency and Financial Performance (Tobin's Q and ROA)	Positive
Ameer and Othman (2012)	Disclosure index and financial performance	Positive

Source: Author

Literature supporting revisionist view identifies several incentives of better environmental and social performance. Benefits include improved relations with stakeholders and compliance with regulations (Rivera-Camino, 2001), compliance with industry environmental codes (Howard *et al*., 1999), firms' environmental visibility (Bowen, 2000), reduced operating costs (Reinhardt, 1999), adherence to societal norms and social responsibility (Hussain, 1999; Bansal and Roth, 2000) higher shareholders value (Porter and Kramer, 2011), larger market share (Gauthier, 2005), better share performance and accounting performance (Eccles *et al*., 2013), better access to new markets (Stefan and Paul, 2008), improved competitiveness (Porter and Van der Linde, 1995), enhanced market legitimacy (Rivera, 2002), reduced inefficiency (Hart, 1995), and better profitability by reducing cost and premium pricing (Hart and Ahuja, 1996).

Recently, Jo *et al*. (2014) note a positive impact of corporate environmental responsibility on operating performance. Similarly, Torugsa *et al*. (2012) test the mediating role of proactive corporate social responsibility practices between three capabilities (strategic proactivity, stakeholder management, and shared vision) and financial performance. Their results show a significant mediating effect. Ameer and Othman (2012) study top 100 sustainable firms and note a positive association between sustainability disclosure and financial performance. Lackmann *et al*. (2012) maintain that during economic downturn, the reliable sustainability performance disclosure can provide higher investment benefits to the reporters. They further argue that investor take into account the sustainability information while determining value of the firm.

Conversely some researchers like Cordeiro and Sarkis (1997), Preston and O'Bannon (1997), Shane and Spicer (1983), and Vance (1975) report a negative relationship between sustainability disclosure and firm performance. Hamilton (1995) conducted an event study of 463 US firms and found a negative relationship between toxic release inventory and share price reaction.

Khanna and Damon (1999) also found a negative impact of toxic release inventory on return on investment (ROI). Konar and Cohen (2001) note that Information about toxic chemical disclosure impacts financial performance negatively in US manufacturing sector. Similarly, Menguc and Ozanne (2005) conducted a path analysis of 140 Australian manufacturing firms and found a negative impact of firms' natural environmental orientation on sales growth.

There are several studies in the same line of inquiry that have found unclear relationship between sustainability disclosure and financial performance (see e.g. Chen and Metcalf, 1980; Pava and Krausz, 1996; Murray and Vogel, 1997; Godfrey and Hatch, 2007). Additionally, others like Fogler and Nutt (1975) and Alexander and Buchholz (1978) report insignificant relationship. Similarly, Edward (1998) studied 51 environmentally proactive UK based firms and note similar results. Many others like Gilley *et al*. (2000), King and Lenox (2001), Watson *et al*. (2004), Link and Naveh (2006), and Arago´n-Correa and Rubio-Lo´pez (2007) also report insignificant relationship between sustainability information disclosure and financial performance.

Few studies tell completely different results. Husillos *et al*. (2011) study the emergence of triple bottom reporting in Spain and conclude that firms are trapped in isomorphism. DiMaggio & Powell (1983) defined isomorphism as an adoption of a state or process by focal firm to resemble it with some other firm. Another study of Malaysian firms reveals that all the three mechanisms of isomorphism (i.e. coercive, normative, and mimetic) prevail in the Malaysian economy (Amran and Haniffa, 2011). Similar results have been reported by many others in different countries (Horváthová, 2010). Some other like Wagner (2001) report inverse U-shape relationship and McWilliams and Siegel (2001) proposed a neutral relationship between environmental performance and financial performance.

The body of knowledge is growing but results are not yet conclusive (Hahn and Kühnen, 2013). Recently, Horváthová (2010) conduct a meta-analysis on 64 outcomes of 37 empirical studies and conclude that the fragmentation and inconsistency prevail due to inconsistency in the methods. She suggests using advanced regression models and longer time period for analyzing the impact of sustainability performance on financial performance. Keeping in view the competing results, my study aims to fill this gap by using a fixed effect methodology on a panel dataset covering the longest study period in existing literature.

3.3. Hypotheses Development

3.3.1. Sustainability Performance and Market Value

Proponents of revisionist view argue that sustainability brings financial performance benefits (Porter, 1991; Porter and Van der Linde, 1995). Most of the revisionist literature argues for a positive relationship between sustainability performance and financial performance (King and Lenox, 2001). This argument is grounded in legitimacy theory (O'Donovan, 2002). Sustainability performance has been studied under legitimacy theory and stakeholder theory. Legitimacy theory explains the expectation of society from a corporation and by meeting these expectations firms attain legitimacy (Deegan and Blomquist, 2006). The theory explains well the relationship between social performance and market value (Dowling and Pfeffer 1975). Recently, Michelon and Parbonetti (2012) and Chauvey *et al*. (2014) argue that corporate social responsibility disclosure is a mean to achieve organizational legitimacy.

Sustainability performance disclosure is a dialogue of organization with its wider group of stakeholders. This dialogue improves stakeholder relationship and resultantly enhances organizational legitimacy (Unerman and Bennett, 2004). Organizational legitimacy improves

inflow of capital and customer base which leads to higher firm value (Neu *et al*., 1998). It also helps firms to hedge the possible product boycott (Elsbach 1994).

Researchers like Kiernan (1998) argue that market analysts use environmental performance data as an indicator of future market value and returns. Many others like King and Lenox (2002), Jones *et al*. (2007), and Wahba (2008) note a positive relationship between sustainability performance information and market value of firms. Similarly, Higgins and Walker (2012) claim that sustainability reporting enhances firm reputation and improves firm value. On the bases of legitimacy theory arguments my first hypothesis is as follows:

H1: *Sustainability performance positively affects market value of firm.*

3.3.2. Sustainability Performance and Accounting Performance

The review of literature shows that many studies investigating relationship between environmental performance and financial performance use accounting measures (see table 3.1& 3.4). Frequently used measures are ROA, ROE and Return on sales. Recently, Hahn and Kühnen, (2013) study the determinants of adoption and extent of sustainability disclosure in existing literature and note that accounting measures of performance are directly related to the sustainability performance disclosure. Most of the studies in this line of inquiry are grounded in stakeholder theory (Cormier and Gordon, 2001). Similarly, Deegan and Blomquist, (2006) maintain that stakeholder theory provides better ways of managing various groups of stakeholders.

According to stakeholder theory, every business has various groups of its stakeholder with unique information needs (Freeman, 1984). Stakeholder theory assumes that organizational sustainability initiatives must result higher financial performance (Wahba, 2008). Under the same assumption Rosso and Fouts (1997) study the relationship between environmental

performance information and ROA and found a significant positive relationship. King and Lenox (2002) study the total emission release and financial performance. They note that environmental sustainability have a significant positive impact on financial performance.

In the similar vein, González-Benito and González-Benito (2005) study 186 Spanish firms in chemical, electronic and furniture sector and argue that environmental management brings competitive opportunities for environmentally proactive firms. Additionally, Waddock and Graves (1997) argue under the stakeholder theory that if firm does not incur the explicit cost of being environmentally sustainable then it has to incur implicit cost of losing competitive advantage. Likewise, Lee (2008) argues that for survival, firms need to maintain a good relationship with shareholders as well as other stakeholders like employees, government, and customers. He further contends that firm can achieve this purpose by proving required information to different stakeholders. Additionally, Hull and Rothenberg (2008) maintain that corporate sustainability performance is a tool to improve stakeholder management.

Under the implicit assumptions of stakeholder theory, several researches attempt to study the relationship between sustainability disclosure and accounting performance (Molina-Azorín *et al*. (2009). Khurana *et al*. (2006) test a relationship between nonfinancial disclosure and accounting performance and report positive results. Previously, Judge and Douglas (1998) use similar accounting measures of financial performance to examine the impact of strategic environmental planning on firm performance. More recently, Ameer and Othman (2012) use profitability as a firm performance measure and note a positive impact of sustainability performance disclosure on firm performance.

Based on the of the stakeholder theory assumptions of competitive advantage, my second hypothesis is as follows:

H2: *Sustainability performance positively affects firm's ROA and ROE.*

3.3.3. Sustainability Performance and Capital Structure

Extant literature of environmental and social reporting shows that capital structure of the firm is directly related to the adoption and extant of sustainability performance disclosure (Hahn and Kühnen, 2013). Some studies based on correlation analysis show that there is a negative relationship between sustainability disclosure level and D/E ratio (see e.g. King and Lenox, 2002). Some others like Artiach *et al*. (2010) report a negative relation between sustainability and financial leverage of the firm.

The capital markets transactions hypothesis assumes a positive relationship between nonfinancial disclosure and access of firms to financial capital (Healy and Palepu, 1993 and Healy and Palepu, 1995). Healy and Palepu (2001) argue that firms can attract bigger pool of investors by disclosing additional information. Also, literature on socially responsible investment provides evidences of more institutional holdings in socially sustainable firms (see e.g. Sparkes and Cowton, 2004). Similarly, Dhaliwal *et al*. (2011) argue that socially responsible firms are able to attract more institutional investments. Some researchers, like Graves and Waddock (1994), contend that environmental responsibility has a positive impact on the investors' perceptions.

In addition to the capital markets transactions hypothesis, positive accounting theory provides justification of sustainability performance disclosure. Healy and Palepu (2001) maintain that firms with higher amount of voluntary disclosure can reduce the information asymmetry in capital market and send a positive signal in capital market. They argue that nonfinancial performance disclosure positively impacts investors' perception which is a fundamental determinant of debt or equity issuance in capital market. More recently Cormier *et al*. (2005) note a direct relation between environmental disclosure and ownership structure. DeAngelo *et al*.

(1996) under positive accounting theory argue that managers during financial distress use voluntary disclosure decision as a tool to change financing mode.

To test the theoretical assertions of positive accounting theory and capital markets transaction hypothesis I hypothesize the following relationship between disclosure and capital structure:

> **H3**: *Sustainability performance negatively affects amount of debt in capital structure of firm.*

3.4. Empirical Model and Methodology

3.4.1. Empirical Model

My aim in this study is to test the relationship between sustainability performance and financial performance. For this purpose I use following empirical model:

Financial Performance = f (Sustainability Performance Indexes, Controls)

In above equation I use different proxies as the dependent variables: the Tobin's Q as a measure of market value, ROA and ROE as measures of accounting performance, and Debt to Equity ratio as a measure of capital structure.

The data for independent variables have been obtained from the previous study. The detailed description on sample selection and measurement of sustainability performance variables is given in the section 2.4.2. The independent variables are the sustainability indexes. These variables have been calculated as a product of quantitative disclosure indexes and their respective qualitative indexes. The disclosure indexes depend on the amount of information disclosed on each individual sustainability indicator. Conversely, qualitative indexes measure the kind of information released. The disclosure index is calculated as ratio items disclosed and the

total items on an indicator provided by G3 guidelines, while the sustainability index is a normalized index calculated by the normalization of real value with minimum and maximum scores. These two variables, if considered individually, are not suitable to achieve my research aim because of their information contents' nature.

The disclosure index records the transparency level of firm, regardless the direction of the information, while the quality index measures the direction of the disclosed information, cumulating positive and negative information, regardless the quantity. In the latter case, a different combination of good and bad news could bring to the same sustainability index value for companies with significantly different disclosure transparency level. Therefore, disclosure and quality indexes individually inserted in my regressions could bring to misleading and confounding results.

I need variables capturing the content of the sustainability information released (good and bad), conditionally to the amount of the sustainability information disclosed, in other words, the sustainability performance variables. For these reasons, I calculate and include in the model the product of each disclosure index and its respective quality index. The detailed measurement of each variable is covered in section 2.4.2 of the previous chapter. The description of each component of sustainability performance variables is given in table 3.3 below.

I use firm size, R&D intensity, capital intensity, and sales growth as control variables for market value and accounting performance while I use size, Tobin Q, ROA, and sales growth as controls for Debt to Equity ratio.

Table 3.3: Disclosure and Sustainability Indices

Name of Variable	Type of Information	Variable Description
EC_DISC	Economic Disclosure Index	It is amount of disclosure calculated as a cumulative score of items disclosed over total items on economic indicator of sustainability
EN_DISC	Environmental Disclosure Index	Calculated as an amount of cumulative score of items disclosed over total number of items on environmental indicator of sustainability
SO_DISC	Social Disclosure Index	Calculated as a ratio of cumulative score of items disclosed and total items on social indicator of sustainability
EC_QUALITY	Economic Quality Index	Economic Quality Index is obtained from the standardized formula of calculating quality index.
EN_ QUALITY	Environmental Quality Index	Environmental Quality Index is obtained from the standardized formula of calculating quality index.
SO_ QUALITY	Social Quality Index	Social Quality Index is the measure of social impact of firm. This is the standardization of positive and negative score of items on social indicator
EC_SUST	Interaction variable	Interaction of economic Disclosure Index and Economic Sustainability index
EN_SUST	Interaction variable	Interaction of Environmental Disclosure Index and Environmental Sustainability index
SO_SUST	Interaction variable	Interaction of Social Disclosure Index and Social Sustainability index

Note: Table 3.3 presents the name and description of sustainability variables. *EC_DISC* is a ratio of disclosed items on economic indicator over total item on economic indicator. Similarly I calculate the *EN_DISC* and *SO_DISC* for environmental and social indicator respectively. This individual quality index for economic *EC_QUALITY*, environmental *EN_ QUALITY*, and social *SO_ QUALITY* is obtained by utilizing the positive and negative disclosure of item comprised in each sustainability indicator.

3.4.1.1. Selection and Measurement of Financial Performance Variables

To measure the impact of sustainability reporting on firm performance I use both market and accounting performance measures. In the first category, I select Tobin's Q ratio as a measure of market value firm/book value of the firm (Lindenberg and Ross 1981). As for the accounting measures I select ROA and ROE. Lastly, I use D/E as a measure of capital structure. ROA is calculated by dividing operating income over total assets of the firm. ROE is calculated by dividing pre-tax income over shareholders' equity. I calculate D/E ratio by dividing total debt over shareholders' equity. Table 3.4 presents the use of selected financial performance variables by previous researchers.

Table 3.4: Use Dependent and Control Variables in Existing Literature

Study	Dependent	Controls
Cohen *et al*. (1995)	ROA and ROE	Control Sample
Hart and Ahuja (1996)	ROA, ROE, Return on sales (ROS)	Firm Size, Capital Intensity Growth, R&D Intensity, Leverage, and advertising intensity
Russo and Fouts (1997)	ROA	Size, Sales growth, Capital intensity, R&D intensity, Industry growth, and Industry concentration
Judge and Douglas (1998)	ROI, ROA	Industry and Size
Stanwick and Stanwick (1998)	Profitability	Firm Size
De Burgos and Ce´spedes (2001)	ROI, ROA	Industry and Size
King and Lenox (2001)	Tobin's Q, ROA, ROE, and ROI	Firm Size, Capital Intensity, Growth, Leverage, and R&D Intensity
Konar and Cohen (2001)	Tobin's Q	Advertising expenditures, R&D expenditure, Capital intensity, Growth in Sales, and Age of Assets
King and Lenox (2002)	ROA and Tobin's Q	Firm size, Capital intensity Growth, R&D intensity, and Leverage
Wagner *et al*. (2002)	ROS, ROE and ROCE	Firm size, Square of firm size Debt–equity ratio, Asset–turnover ratio, Other sub-sector, Industrial sub-sector, Mixed sub-sector
González-Benito and González-Benito (2005)	ROA	Size and Industry
Wagner (2005)	ROCE, ROE, and ROS	Debt-to-equity ratio, Asset turnover ratio, and Country, Sub-sector, Size
Wahba (2008)	Tobin's Q	Firm Size, Capital Intensity, Age, Ownership Structure, Industry, Risk
Ameer and Othman (2012)	Sales growth, ROA, EBT, and cash flows	Control sample

Source: Author

3.4.1.2. Selection and Measurement of Control Variables

After a careful review of extant literature, I use firm size, measured by logarithm of total assets, as a first control in my regression equations. Sales growth (*SALE_GROW*) is used as second control and is measured as percentage change in the sales with respect to previous year's sale. Capital intensity (*CAP_INT*) is another most widely used control variable in sustainability literature (see table 3.4). Capital intensity is calculated as the ratio of capital expenditure and total sales. Lastly, I use D/E as controls for Tobin's Q, ROA, and ROE. For examining the same impact of sustainability performance on debt to equity I use size, Tobin's Q, ROA and capital intensity as controls. Table 3.5 below contains detailed information about measurement and treatment of different variables in regression models.

Table 3.5: Dependent and Control Variables

Name of Variable	Role in Regression Models	Measurement
TOBIN'S Q	Dependent and control	Ratio of Market Value and Book value of the firm
ROA	Dependent and control	Calculated as ratio of operating income and total assets
ROE	Dependent	Pretext income divided by shareholders' funds
D/E	Dependent and control	Calculated as ratio between total debts to shareholders' equity.
SALE_GROW	Control	Percentage change in total sales with respect to previous year.
SIZE	Control	Log of total assets of the firm
RD_INT	Control	Ratio of R&D expenditure and total sales.
CAP_INT	Control	Ratio of capital expenditure and total sales.

Below is the description of variables used in my regression equations.

TOBINQ	Tobin's Q ratio
ROA	Return on Assets
ROE	Return on shareholders' Equity
D/E	Capital Structure Measure
EC_SUST	Economic Sustainability Performance Measure
EN_SUST	Environmental Sustainability Performance Measure
SO_SUST	Social Sustainability Performance Measure
EN_SENS	Dummy variable take value 1 if firm belongs to environmental sensitive industry and 0 otherwise.
SIZE	Log of total Assets of the firm as measure of size
RD_INT	Ratio of R&D expenditure and total sales.
CAP_INT	Capital Intensity of the firm as ratio of capital expenditure and sales
SALE_GROW	Sales Growth

3.5. Empirical Results

3.5.1. Descriptive Statistics

To quantitatively compare the main features of the dependent variables used, table 3.6 presents results of Two-sample Wilcoxon rank-sum (Mann-Whitney) test. The 44 reporting companies are my sampled firm, whereas the 56 non-reporting firms are my control sample. The results show clearly that means of *TOBINQ*, *ROA*, and *ROE* of the reporting firms are greater than those of non-reporting firms. Such findings are also supported by others like Haniffa and Cooke (2005) and Clarkson *et al*. (2011). However, I am unable to find any significant difference in the means of ownership structure between reporting and non-reporting firms. This latter evidence is consistent with the inferential part of my analysis.

Table 3.6: Descriptive Statistics

	In Sample Data					Control Sample Data					Wilcoxon Test	
Variables	Obs.	Mean	S.D	Min	Max	Obs.	Mean	S.D	Min	Max	z	p-value
TOBINQ	146	2.91	2.15	-4.25	10.7	235	1.65	0.95	0.74	8.653	-7.50	**0.0*** **
ROA	145	7.58	6.04	-10.6	27.0	249	4.948	7.12	-36.47	28.77	-3.89	**0.0*** **
ROE	143	19.31	16.13	-32.1	74.3	236	15.86	22.95	-93.73	135.1	-2.40	**0.01** **
D/E	145	48.13	138.2	-165	975.5	231	59.6	170.3	-149.2	1797.9	0.77	0.43

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

Note: Table 3.6 contains description of each dependent variable along with the results of Two-sample Wilcoxon rank-sum (Mann-Whitney) test. As mentioned earlier that I use control sample to analyze the relevance of sustainability adoption. I run Two-sample Wilcoxon rank-sum (Mann-Whitney) test to show the level of performance of the firms which adopt triple bottom performance and show the difference with non-adopter. The results show that the mean of *TOBINQ, ROA, and ROE* are significantly higher than the control sample firms. These results confirm the finding of previous studies which show that firms with higher value and profitability adopt sustainability practices.

3.5.2. Correlation Analysis

I present the results of Pearson correlation in table 3.7. The correlation matrix shows that the all the sustainability variables are positively correlated with each other. The correlation coefficient *r=339* between economic and environmental variables and the coefficient *r=284* between economic and social variable is significant at 1% significance level. Similarly, the social and environmental variables are also significantly correlated with *r= 0.746*. All the sustainability variables are positively correlated to each other and the significance is also very high i.e. at 1% significance level. This means that the firm which perform better (worse) on one sustainability dimension also have perform better (worse) on other sustainability dimensions.

The results of correlation matrix also show a significant positive correlation between market value of reporting firms and sustainability variables with coefficient values *0.2711, 0.6733* and *0.605* for economic, environmental and social sustainability variables respectively. All results of *TOBINQ* with sustainability variables are significant at 1% significance level. I note similar correlation results for ROA and ROE with an additional relation of accounting performance with market value. *SIZE* which is log of firm's total assets is found negatively correlated with social indicator of sustainability. The level of significance is at 5% level. Additionally, I note a negative correlation of *SIZE* with *TOBINQ*, *ROA* and *ROE*. The level of significance is higher for *TOBINQ* and *ROE* but lower for *ROA.*

Table 3.7: Pairwise Correlation Matrix

VAR.	Mean	SD	EC_SUST	EN_SUST	SO_SUST	TOBINQ	ROA	ROE	SIZE	D/E	RD_INT	CAP_INT	S.GROW
EC_SUST	0.42	0.224	1										
EN_SUST	0.46	0.175	0.320***	1									
SO_SUST	0.47	0.167	0.236***	0.722***	1								
TOBINQ	2.91	2.15	0.271***	0.673***	0.605***	1							
ROA	7.58	6.04	0.193**	0.592***	0.634***	0.458***	1						
ROE	19.3	16.13	0.21**	0.681***	0.596***	0.785***	0.644***	1					
SIZE	11.3	1.24	-0.056	-0.076	-0.205**	-0.26***	-0.147*	-0.17**	1				
D/E	48.1	138.2	-0.062	-0.152*	-0.278***	0.025	-0.36***	0.013	0.34***	1			
RD_INT	0.04	0.056	0.0155	0.232**	0.33***	-0.005	0.25***	0.0678	-0.0026	-0.14*	1		
CAP_INT	-0.06	0.11	-0.053	0.103	0.149*	0.106	0.005	0.074	0.176**	0.035	0.061	1	
S.GROW	8.38	17.77	0.087	0.141*	0.055	0.084	0.306***	0.17**	-0.095	-0.105	0.068	-0.055	1

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

Note: Table 3.7 is nested with the correlation results of pairwise correlation between all variables used in present study. The matrix shows the pairwise correlation among each two variables along with the means and standard deviation of each variable. First three variables *EC_SUST*, *EN_SUST*, and *SO_SUST* represent the three sustainability dimensions. *EC_SUST* represents the performance of firm on economic dimension of sustainability. This variable is a product of disclosure score and the quality score of item in sustainability indicator. Similar to *EC_SUST*, the *EN_SUST* is the environmental performance measure of sustainability and is calculated as a product off disclosure score and respective disclosure quality. Following the similar variables' measurement method I calculate *SO_SUST* as measure of social dimension of sustainability. After presenting the correlation results of sustainability variables table contains results of other variables i.e. *TOBINQ, ROA, ROE, SIZE, D/E, RD_INT, CAP_INT*, and *SALE_GROW*.

In my correlation matrix, I not a negative association of ownership structure with environmental and social dimensions of sustainability with Pearson correlation coefficient values of *-0.1522* and *-0.2781* respectively. The level of significance is at 10% and 1% with environmental and social indicators respectively. I further note that *D/E* ratio is negatively associated with *ROA* and *SIZE* of the firm. RD_INT is found positively correlated to *EN_SUST*, *SO_SUST*, and *ROA*. *CAP_INT* and *SALE_GROW* found positively correlated with social and environmental indicators respectively. Both results are significant at 10% level. *SALE_GROW* is also found positively associated with *ROA* and *ROE* and *CAP_INT* with *SIZE* of the firm.

3.5.3. Estimation Results

3.5.3.1. Sustainability Performance and Market Performance

To measure the impact of sustainability performance on market performance of reporting firm I formulate fixed effect regression equation (4). For selection of fixed effect methodology of analysis I run Hausman (1978) test and observe *p-value= 0.0011* which is less than .05. This shows that I reject the null hypothesis of the test and accept that fixed effect methodology is appropriate. The purpose of this test is to avoid possible endogeniety problems.

$$\boldsymbol{TOBINQ_{jt} = \alpha + \beta_1 EC\_SUST_{jt} + \beta_2 EN\_SUST_{jt} + \beta_3 SO\_SUST_{jt} + \beta_4 \mathrm{EN\_SENS}_{jt} + \beta_5 SIZE_{jt} + \beta_6 D/E_{jt} + \beta_7 CAP\_INT_{jt} + \beta_8 SALE\_GROW_{jt} + \varepsilon_{jt}} \text{---------- (1)}$$

As discussed earlier, I use *TOBINQ* as a measure of market performance, my dependent variable. In equation *j* is firm fixed effect and *t* represents year. Sustainability variables i.e. sustainability indices for each indicator have been used as predictors. I use industry belonging *EN_SENS*, *SIZE*, *D/E*, *RD_INT*, *CAP_INT*, and *SALE_GROW* as controls. Table 3.8 below presents the results of model (1).

Table 3.8: Regression Results of Equation (1)

VARIABLES	(1) TOBINQ	(2) TOBINQ	(3) TOBINQ	(4) TOBINQ	(5) TOBINQ	(6) TOBINQ
EC_SUST	0.714	1.482				
	(0.426)	(0.134)				
EN_SUST	3.152**		4.853***		5.556***	
	(0.0142)		(7.09e-05)		(1.62e-05)	
SO_SUST	3.201***			4.592***		5.051***
	(0.00610)			(2.82e-05)		(1.61e-05)
ENV_SENS	0.0157	-0.0339	0.0180	0.0916	-0.101	-0.0270
	(0.992)	(0.985)	(0.991)	(0.955)	(0.954)	(0.988)
SIZE	-2.234***	-2.751***	-2.266***	-2.390***		
	(0.000348)	(6.59e-05)	(0.000427)	(0.000169)		
D/E	-0.000506	-0.000366	-0.00127	-1.01e-05	-0.00302	-0.00172
	(0.817)	(0.879)	(0.573)	(0.996)	(0.198)	(0.463)
RD_INT	-9.978	-11.40	-13.35	-9.393	-10.11	-5.506
	(0.578)	(0.567)	(0.471)	(0.609)	(0.607)	(0.779)
CAP_INT	-2.326	-1.633	-3.965	-1.438	-1.185	1.874
	(0.779)	(0.859)	(0.643)	(0.865)	(0.896)	(0.836)
S.GROW	0.0101	0.00958	0.00909	0.0123	0.000500	0.00354
	(0.187)	(0.259)	(0.248)	(0.115)	(0.950)	(0.657)
Constant	25.27***	33.89***	26.76***	28.08***	1.030	1.058
	(0.000442)	(1.65e-05)	(0.000313)	(0.000122)	(0.431)	(0.418)
R-squared	0.351	0.178	0.287	0.301	0.187	0.188
Variance Inflation Factor (*VIF*)	EC =4.30 SO =19.84 EN =18.18	EC = 4.30	EN =7.63	SO=8.61	**EN=1.50**	**SO=1.44**

p -value in parentheses

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

Note: Table 3.8 reports the regression results of equation (1). The results are presented in six regression models. First model is based on the regression of all independent and control variables. *EC_SUST* represents the economic sustainability performance of the firms. This variable has been computed as a product of disclosure score and quality index of the economic disclosure. EN_SUST is the measure of environmental

sustainability performance and is calculated as a product of environmental disclosure and respective quality index. SO_SUST represents social dimension of sustainability performance of reporting firms. I calculate this variable as an interaction of disclosure and disclosure quality. *EN_SENS* a control for industry belonging. It takes value 1 if firm belongs to an environmental sensitive industry and 0 otherwise. *SIZE* is the first control variable calculated by taking the natural log of total assets of the firm. Second control variable I use in my first equation is *D/E*. *D/E* is the measure of ownership structure of the firm. This ratio is calculated by dividing total debts over total shareholders' funds. Third financial variable I use as control is *RD_INT*. This is the ratio of R&D expenditure incurred by firm in one year and total sales of the same year. Similarly, *CAP_INT* is another control variable measured by total capital expenditure divided by sales. Last control I included in my regression is *SALE_GROW*. This variable is calculated as percentage change in the total sales with respect to previous year's sale figure. The data of all the financial variables has been obtained from *Bloomberg* data source. I present the results of unrestricted fixed effect model under model (1) in above table. This model includes all the variables of interest as well as controls.

Keeping view the high correlation and variance inflation factor (*VIF*) of sustainability variables, I run other regression models with individual sustainability dimensions. Model (2) is nested with the regression results of economic dimension. In model (3) I include only environmental variable. Model (4) contains regression results with only social dimension. Keeping in view the high value of *VIF* and for the sake of robustness check I built model (5 and 6). In these two models I present the results of environmental and social sustainability without including *SIZE* in the regression models. In the bottom I report number of observations and *R-square* of fixed effect regression models. Ticker is a selection variable for firms in regression analysis.

In the first model, I report the results of my complete unrestricted model. The results show the impact of sustainability performance indicators on market performance of reporting firms. After running the first regression I compute the Variance Inflation Factor (*VIF*) as a measure of multicollinearity. From *VIF* and Pearson correlation coefficient I note that sustainability variables are highly correlated with each other. For *EN_SUST* I note *VIF=18.18* and for *SO_SUST, VIF= 19.84*. I also calculate *VIF* for *SIZE* and find it above 10 which is not acceptable (Kutner *et al*., 2004). This shows that there exists multicollinearity between these variables.

To achieve the concluding results I nested five other models with different combinations of variables. The *VIF* values are reported under each model for sustainability variables used in the respective model(s). In all my models except model (2) which is based on economic dimension only I find environmental and social dimensions relevant and significant in explaining positive change in market value of reporting firms. In my main regression model I note a very significant positive impact of *EN_SUST* and *SO_SUST* with p-value=*0.0142* and *0.00610* for environmental and social sustainability respectively. *EN_SUST* is found significant at 5% and *SO_SUST* at 1% significance level. Although, control variables have been select after extensive literature review but I find on *SIZE* relevant control variable. Other controls are found insignificant to *TOBINQ*.

The sustainability variables of environmental and social indicators are significantly and positively associated with *TOBINQ.* The results are consistent throughout my regression analysis suggest that companies disclosing a greater number of good or neutral (negative) information regarding the environmental and social context get a higher (lower) market value. I find no relationship between economic sustainability and market value of reporting firms.

3.5.3.2. Sustainability Performance and Accounting Performance

The second type of performance measures I use are the accounting ones. To test the impact of sustainability performance on accounting performance I run following fixed-effect regression and results are given below in table 3.9:

$$\boldsymbol{ROA_{jt} = \alpha + \beta_1 EC\_SUST_{jt} + \beta_2 EN\_SUST_{jt} + \beta_3 SO\_SUST_{jt} + \beta_4 \mathrm{EN\_SENS}_{jt} + \beta_5 SIZE_{jt} + \beta_6 D/E_{jt} + \beta_7 CAP\_INT_{jt} + \beta_8 SALE\_GROW_{jt} + \varepsilon_{jt}} \text{-------- (2)}$$

Table 3.9: Regression Results of Equation (2)

VAR.	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA	(6) ROA
EC_SUST	-3.608	-1.443				
	(0.130)	(0.584)				
EN_SUST	7.982**		12.14***		12.96***	
	(0.0188)		(0.000194)		(6.87e-05)	
SO_SUST	9.730***			12.28***		12.83***
	(0.00175)			(2.45e-05)		(1.22e-05)
ENV_SENS	4.724	4.572	4.401	4.592	4.264	4.450
	(0.263)	(0.336)	(0.320)	(0.289)	(0.339)	(0.310)
SIZE	-2.198	-3.622**	-2.615	-2.873*		
	(0.171)	(0.0432)	(0.120)	(0.0790)		
D/E	-0.00486	-0.00468	-0.00611	-0.00286	-0.00813	-0.00492
	(0.402)	(0.470)	(0.312)	(0.628)	(0.173)	(0.402)
RD_INT	-152.8***	-157.4***	-156.9***	-146.3***	-153.1***	-141.7***
	(0.00170)	(0.00395)	(0.00207)	(0.00330)	(0.00276)	(0.00476)
CAP_INT	-6.992	-5.476	-8.434	-1.934	-5.226	2.048
	(0.750)	(0.824)	(0.713)	(0.931)	(0.821)	(0.928)
S.GROW	0.0867***	0.0847***	0.0790***	0.0873***	0.0690***	0.0767***
	(4.08e-05)	(0.000309)	(0.000288)	(4.95e-05)	(0.000900)	(0.000204)
Constant	29.58	53.44***	35.83*	38.16**	6.147*	5.673*
	(0.111)	(0.00896)	(0.0649)	(0.0427)	(0.0668)	(0.0843)
R-squared	0.391	0.208	0.314	0.342	0.296	0.320
Variance Inflation Factor (*VIF*)	EC =4.30 SO =19.84 EN =18.18	EC = 4.30	EN =7.63	SO=8.61	**EN=1.50**	**SO=1.44**

p -value in parentheses

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

Note: Table 3.9 follows the similar pattern of table 3.8. The model (1) is nested with the results of complete model presented in equation (2). This

model includes all sustainability and control variables. In model (2) the results with economic sustainability variable and control variables have been presented. Model (3) is based on the results of environmental performance variable and controls while in the model (4) I report results with social dimension and controls. Model (5) is slightly different from model 3. In Model (5) I run a regression with environmental variable and controls without including SIZE in regression. Following the similar pattern and underlying objective of robustness I report results of social indicator in model (6). In all above regression model, ROA is dependent variable. In the bottom I report number of observations and *R-square* of fixed effect regression models. Ticker is a selection variable for firms in regression analysis.

Following the underlying philosophy of previous model of market value analysis, I build my next model with ROA as dependent variable. As I already know that sustainability variables are significantly correlated therefore I follow the similar pattern of previous analysis. In first model the results of unrestricted model have been reported. Similar to the previous findings, I find no significant relationship between economic dimension and accounting performance of reporting firms. I find *EN_SUST* positively related to *ROA* with *p-value=0.0188* and *SO_SUST with p-value= 0.00175*. Both variables are positively related at 5% and 1% respectively.

The results suggest that companies with the highest (lowest) levels of transparency on good and bad environmental and social news can reach higher ROA values. These results are consistent in all regression models which show the robustness of results. As far as the control variables are concerned I find no control other than *SALE_GROW* significant. I note a weakly significant negative impact of *SIZE* in model (2) but that impact vanishes in other models. These results suggest some new research questions for the search of more relevant control variables for research in sustainability performance and financial performance nexus.

Another common measure used in extant sustainability and financial performance literature is *ROE*. I build my third regression equation by considering *ROE* as dependent variable and report my results in table 3.10 below.

$$\boldsymbol{ROE_{jt} = \alpha + \beta_1 EC\_SUST_{jt} + \beta_2 EN\_SUST_{jt} + \beta_3 SO\_SUST_{jt} + \beta_4 \mathrm{EN\_SENS}_{jt} + \beta_5 SIZE_{jt} + \beta_6 D/E_{jt} + \beta_7 CAP\_INT_{jt} + \beta_8 SALE\_GROW_{jt} + \varepsilon_{jt}} \text{-------- } \mathbf{(3)}$$

Table 3.10: Regression Results of Equation (3)

VAR.	(1) ROE	(2) ROE	(3) ROE	(4) ROE	(5) ROE	(6) ROE
EC_SUST	-5.005	0.771				
	(0.475)	(0.919)				
EN_SUST	23.07**		34.29***		36.69***	
	(0.0213)		(0.000270)		(9.61e-05)	
SO_SUST	24.56***			32.90***		34.54***
	(0.00702)			(9.87e-05)		(5.03e-05)
ENV_SENS	12.74	12.36	12.16	12.68	11.75	12.26
	(0.306)	(0.368)	(0.342)	(0.317)	(0.362)	(0.339)
SIZE	-6.896	-10.76**	-7.723	-8.570*		
	(0.146)	(0.0377)	(0.112)	(0.0734)		
D/E	-0.0166	-0.0157	-0.0205	-0.0116	-0.0265	-0.0177
	(0.331)	(0.402)	(0.241)	(0.503)	(0.126)	(0.302)
RD_INT	-359.9**	-371.0**	-374.6**	-346.3**	-363.6**	-332.3**
	(0.0114)	(0.0178)	(0.0104)	(0.0166)	(0.0134)	(0.0226)
CAP_INT	5.641	10.55	-0.513	17.45	8.961	29.32
	(0.931)	(0.882)	(0.994)	(0.791)	(0.893)	(0.658)
S.GROW	0.215***	0.211***	0.199***	0.222***	0.169***	0.190***
	(0.000482)	(0.00173)	(0.00148)	(0.000372)	(0.00457)	(0.00149)
Constant	87.08	151.5**	101.7*	110.4**	14.02	13.57
	(0.111)	(0.0102)	(0.0701)	(0.0449)	(0.148)	(0.158)
R-squared	0.336	0.172	0.281	0.295	0.261	0.271
Variance Inflation Factor (*VIF*)	EC =4.30 SO =19.84 EN =18.18	EC = 4.30	EN =7.63	SO=8.61	**EN=1.50**	**SO=1.44**

p -value in parentheses

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

Note: following the pattern of table 3.8 and 3.9, table 3.10 present the regression results of third regression equation. In this equation I consider

return on equity (ROE) as dependent variable in the regression. Bloomberg calculates *ROE* pretext income divided by shareholders' funds. I use the *EN_SENS*, *SIZE, D/E*, *CAPITAL_INT*, and *SALE_GROW* as control variables. First model is the unrestricted model containing all variables of interest including selected control. Keeping in view the VIF value I build other restricted fixed effect regression model and reported results in model (2, 3, 4, 5 and 6). In the bottom I report number of observations and *R-square* of fixed effect regression models. Ticker is a selection variable for firms in regression analysis. Value of *VIF* of sustainability variables for every regression model is reported in the last row of the table.

Similar to the results of equation (4), I find that environmental and social dimensions are important for firm performance while the economic dimension is insignificant. Model (1) contains the results of unrestricted regression. Based on the *VIF* values I use different combinations explanatory variables and find that *EC_SUST* is not relevant for explaining any change in the dependent variable. From above results I conclude that environmental and social are the most stable results through the analysis. Both *EN_SUST* and *SO_SUST* are found significant and positive at 5% and 1% significance level.

Summarizing the empirical evidence obtained for the accounting performance measures, my findings suggest that a better (worse) transparency in reporting of good and neutral (negative) news about the environmental and social dimension of companies increases (decreases) the return on assets and return on equity of reporting firms. With regard to the results of the control variables (Model (2)), I contend that there is a need for more in depth inquiry for control variables. This claim is also evident from the value of *R-square* which is very low.

3.5.3.3. Sustainability Performance and Capital Structure

To test the theoretical assertions of positive accounting theory I use ownership structure as dependent variable in my fourth regression equation. As discussed in hypothesis development section that theoretically it is asserted that firms who disclose more information attract bigger pool of investors. To test this theoretical argument empirically I use *D/E* as a measure of investors' response to sustainability reporting. For this purpose, I nested following fixed effect regression equation:

$$D/E_{jt} = \alpha + \beta_1 EC\_SUST_{jt} + \beta_2 EN\_SUST_{jt} + \beta_3 SO\_SUST_{jt} + \beta_4 \mathrm{EN\_SENS}_{jt} + \beta_5 SIZE_{jt} + \beta_6 TOBINQ_{jt} + \beta_7 ROA_{jt} + \beta_8 SALE\_GROW_{jt} + \varepsilon_{jt} \text{--------- (4)}$$

The results obtained from the regression of equation (4) are presented in table 3.11.

Table 3.11: Regression Results of Equation (4)

VAR.	(1) D/E	(2) D/E	(3) D/E	(4) D/E	(5) D/E	(6) D/E
EC_SUST	-33.12	-30.38				
	(0.434)	(0.467)				
EN_SUST	79.92		68.58		72.11	
	(0.200)		(0.252)		(0.229)	
SOSUST	-25.45			-12.78		-5.274
	(0.663)			(0.820)		(0.925)
ENV_SENS	-20.98	-22.38	-22.25	-25.45	-25.45	-21.90
	(0.780)	(0.765)	(0.765)	(0.734)	(0.734)	(0.772)
SIZE	48.72	48.69*	45.04	46.73	46.73	
	(0.101)	(0.0997)	(0.123)	(0.114)	(0.114)	
TOBINQ	-1.315	-0.0235	-2.393	-0.184	-0.184	-2.905
	(0.787)	(0.996)	(0.606)	(0.969)	(0.969)	(0.512)
ROA	-1.729	-1.359	-1.835	-1.156	-1.156	-1.459
	(0.315)	(0.386)	(0.260)	(0.490)	(0.490)	(0.385)
S.GROW	0.231	0.222	0.237	0.188	0.188	0.359
	(0.503)	(0.509)	(0.480)	(0.584)	(0.584)	(0.276)
Constant	-497.7	-479.9	-472.2	-464.0	-464.0	70.36*
	(0.143)	(0.157)	(0.161)	(0.171)	(0.171)	(0.0523)
R-squared	0.075	0.059	0.066	0.054	0.054	0.029
Variance Inflation Factor (*VIF*)	EC =4.30 SO =19.84 EN =18.18	EC = 4.30	EN =7.63	SO=8.61	EN=1.50	SO=1.44

p -value in parentheses

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

Note: Following the recommendations of recent literature (see Cormier *et al*., 2005) I include ownership structure in my next regression analysis. The purpose of this analysis is to see the impact of sustainability reporting on changes in ownership structure. I included *EN_SENS, SIZE, TOBINQ, ROA*, and *SALE_GROW* in my models as controls. These control variables have been selected on the bases of extensive literature review. The extant literature on determinants of capital structure suggests association between selected controls and dependent variable. The data source is again *Bloomberg*. This variable is computed as a ratio of debt and equity.

In my unrestricted model reported in column (1), I do not find any relationship between sustainability performance information and ownership structure. I further note that *SIZE* is the only relevant control variable for ownership structure. As discussed previously my variables of interest are the sustainability variables where I observe no relationship with D/E ratio. Therefore, I should conclude that my evidence does not support my third research hypothesis and thus the sustainability performance disclosure does not affect the capital structure selected by companies.

3.5.4. Control Sample Results

Keeping in view the fragmented nature of results in existing literature, I aim at finding robust results by comparing my sample firms' regression results with a control sample. For this purpose, I use 56 non reporting firms' financial data from global fortune N100 list. I run regression on all the firm performance variables i.e. *TOBINQ, ROA, ROE,* and *D/E* and report the results of these regression models in table 3.12.

Table 3.12: Regression Results of Control Sample

VARIABLES	(1) TOBINQ	(2) ROA	(3) ROE	(4) D/E
SIZE	-1.235***	-1.924	-9.544*	4.391
	(1.16e-09)	(0.175)	(0.0703)	(0.872)
RD_INT	-11.40	-157.4***	-371.0**	
	(0.567)	(0.00395)	(0.0178)	
CAP_INT	-2.452	52.76***	145.6**	
	(0.307)	(0.003)	(0.0237)	
D/E	0.000969	-0.004	-0.102***	
	(0.108)	(0.325)	(0.00250)	
SALE_GROW	0.0081***	0.033**	0.0739	0.0085
	(0.0003)	(0.033)	(0.199)	(0.977)
TOBINQ				17.71*
				(0.09)
ROA				-1.537
				(0.262)
Constant	14.41***	27.53*	125.4**	-5.936
	(0.000)	(0.0651)	(0.0242)	(0.984)
Observations	203	212	206	219
R-squared	0.262	0.197	0.179	0.024
Number of tickers	44	47	47	48

P-value in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: Table 3.12 is nested with the regression results of control sample. This sample is comprised of 54 non reporting firms. I am not able to find data of 2 firms for my study period. In model (1) I test the impact of *SIZE, RD_INT, CAP_INT, D/E,* and *SALE_GROW* on *TOBINQ*. In model (2) the dependent variable is return on assets *SIZE, RD_INT, D/E, CAP_INT,* and *SALE_GROW* are the explanatory variables in this model. Model (3) contains the results obtained by considering *ROE* as dependent variable and same explanatory variables I used for *ROA*. Model (4) is nested with the results of regression in which ownership structure is taken as dependent variable. This fixed effect model is computed with *SIZE SALE_GROW, TOBINQ,* and *ROA* as independent variables. I report number of observations and R-square in bottom of the table.

There are four regression models in the above table. In model 1, I report regression results of *TOBINQ*. I use *SIZE, D/E, RD_INT, CAP_INT* and *SALE_GROW* as explanatory variables. From the first model, I observe that capital structure and capital intensity are not related to the changes in market value of the firm. I observe *SIZE* and negatively and *SALE_GROW* positively associated with *TOBINQ p-value=0.0003* and *p-value= 0.000* respectively. In model 2, I find *CAP_INT* and *SALE_GROW* significant at 1% and 5% respectively. *RD_INT* is found negatively associated with *ROA* at 1% significance level. I observe in model 2 that *SIZE* and *D/E* are not related with *ROA*. In model 3, I use ROE as a dependent variable and find firm size, R&D intensity, capital structure and capital intensity related explanatory variables. The relationship is negative with size, R&D intensity and ownership structure while positive with capital intensity. Model (4) is nested with the results of corporate ownership (*D/E*). I find only *TOBINQ* as a relevant variable but the significance is at 10% which is very weak. I use five years' data of all the financial variables in my control sample and observe a much lower R-square in all the models with respect to my sample firms' data analysis. This shows that the sustainability variables are relevant for explaining changes in the market value of reporting firms.

3.6. Discussion of the Results

The purpose of this study is to provide a clear understanding about the relationship between sustainability performance disclosure and financial performance. I analyze firms' sustainability disclosure from both the quantitative and qualitative perspectives and I test how three sustainability dimensions affect the financial performance. The results obtained from my empirical analysis indicate that sustainability performance has a significant positive impact on the market value and accounting performance of the reporting firms. Specifically, my evidence

shows that the different sustainability dimensions (economic, social and environmental) are not equally relevant for the financial performance. The economic dimension is never relevant for explaining any change in firm's financial performance, but the environmental and social dimensions are both positively related. According to my results, a more (less) transparent company disclosing good or neutral (negative) information on social and environmental aspects can increase (decrease) its market value, and reporting a high (low) number of good and neutral (negative) news on the environmental and social avenues can improve (worsen) the accounting performances measured by ROA and ROE.

My empirical evidence partly supports my first and second research hypothesis and it is consistent with several theories and prior literature. Firstly, my findings are in line with the arguments of legitimacy theory where scholars argue that more socially responsible firm have more legitimacy and more firm value (Clarkson, 1995, Jones, 1995). Recently, Wahba (2008) and Molina-Azorín *et al*. (2009) argue that corporate social responsibility can be used as a tool to increase firm value. These results are also in line with the claim of Russo and Fouts (1997) who considered social and environmental sustainability a rare source of competitive advantage.

Secondly, my results confirm the Porter's hypothesis. The results further strengthen the argument of Cohen *et al*. (1995); Hart and Ahuja (1996); Judge and Douglas (1998); King and Lenox (2002); Earnhart and Lízal (2007); Nakao *et al*. (2007) and Ameer and Othman (2012) who report a positive impact of environmental and social sustainability on accounting performance. The results provide a clear support for stakeholder theory which argues that more disclosure and better sustainability performance creates win-win situation for firms (see also Wagner, 2010).

Thirdly, as for the irrelevance of the economic dimension of sustainability is concerned, this result can be justified by the presence of the same economic performance information in the

annual financial reports of companies. This dual presence of similar information in the financial and sustainability report makes it less useful. This result is consistent with the previous findings of Moneva *et al*. (2006) and the time lagged argument of Hart and Ahuja (1996) and King and Lenox (2002).

In my study, I am unable to find support to my third research hypothesis. The accounting theory is therefore not confirmed by my empirical evidence. I note that no sustainability disclosure variables are related to debt to equity ratio. Previously, Belkaoui (1980) provides the strongest support for the relationship between environmental performance disclosure and changes in ownership structure. Additionally, Healy *et al*. (1999) note that firms with higher rating of their disclosure have better access to public debts. More recently, Thompson and Cowton (2004) maintain that bank lend more money to those who disclose more on environmental issues. In my analysis I find no support for these results.

Following Cohen *et al*. (1995), I check my results using a control sample. This enables me to comment on the explanatory power of sustainability variables as well as control variables. By comparing the results of two groups of regressions, I find that environmental and social sustainability information variables have a significant relationship with market performance and accounting performance of reporting firms. In line with the findings of Guidry and Patten (2012), I observe that most of the control variables are not relevant with market based performance and capital structure when I use objective criteria for quantification of sustainability performance information. These findings encourage further exploration of more relevant control variables for future empirical studies.

3.7. Conclusion and Implications of Findings

Irrespective of the intense effort that scholars spend in trying to establish the relationship between sustainability performance and financial performance, the results are still fragmented and competing. Thus, this paper is an attempt to investigate this relationship on the bases of unique and original quantifications of sustainability performance information. This research analyzes 152 sustainability reports collected over a time range of 5 years, from 2007 to 2011. I coded the sustainability information through a manual content analysis based on the GRI G3 guidelines. According to the list of items provided by this framework, I measure through two different indexes the quantity and direction of the sustainability information for each sustainability dimension (economic, social and environmental). In my empirical analysis, I include the product of the two indexes in order to test the impact of the qualitative aspects of sustainability news disclosed, conditionally to the quantity of the sustainability information provided.

My empirical evidence shows three interesting results. First, the economic performance information is not significant for any financial performance measure. The possible reason of this is the provided by Hart and Ahuja (1996) and King and Lenox (2002) who argue that sustainability information may take two year to influence the financial performance. Second, consistently with my research hypotheses, the environmental and social dimensions of sustainability affect the market and accounting performance. A better (worse) transparency in reporting of good and neutral (negative) news about the environmental and social dimension of companies increases (decreases) their market value and the return on assets and return on equity. These findings are consistent with previous studies (see e.g. Hart and Ahuja, 1996; King and Lenox, 2002; and Guenster *et al*., 2011). Third, at odds with my expectations, I do not find any

relation between sustainability disclosure and changes in capital structure, measured by the debt/equity ratio.

This study has some important implications for standard setters as well as for firms. As for the formers, the fact that the economic information in reporting guidelines is not significantly related to financial performance suggests following more integrated reporting framework. Alternatively, the standard setters should pursue a new design of the economic indicators in order to make them more informative, integrating the sustainability reporting with annual financial reporting frameworks. For the latters, I argue that the disclosure alone has less value in itself, but it affects firm's financial performance positively when it tells about the ability of the firm to achieve sustainable development goals. Therefore, the target should be twofold: firms should put their efforts in increasing their sustainability as well as transparency.

Overall, my research focusses on the determinants and consequences of corporate sustainability performance and disclosure. To study these relationships I conducted one meta-analysis and two fact-based empirical studies. My results significantly support the idea of environmental and social performance of the corporations. Results of my studies further strengthen the "Porter's hypothesis" which contends that firm which adopt sustainability practices face less problems and have more growth opportunities. Although a lot of research has been conducted and researchers are trying to empirically establish the relationship between firm specific characteristics and sustainability performance but still there is a need to highlight the theoretical and managerial rationale behind these relationships. My research highlights many future research questions. Additionally, the theoretical contribution in this field is a very welcomed endeavor.

Bibliography

Abdullah, S. N., Mohamad, N. R., & Mokhtar, M. Z. (2011). Board independence, ownership and CSR of Malaysian Large Firms. *Corporate Ownership & Control*, *8*(3), 417-431.

Adawi, M., & Rwegasira, K. (2011). Corporate boards and voluntary implementation of best disclosure practices in emerging markets: Evidence from the UAE listed companies in the Middle East. *International Journal of Disclosure and Governance*, *8*(3), 272-293.

Aguilera, R. V., Williams, C. A., Conley, J. M., & Rupp, D. E. (2006). Corporate Governance and Social Responsibility: a comparative analysis of the UK and the US. Corporate Governance: An International Review, 14(3), 147-158.

Ahmed, N. (2014). NASA-funded study: industrial civilisation headed for irreversible collapse'. *The Guardian, 14*, 337-361.

Akhtaruddin, M., Hossain, M. A., Hossain, M., & Yao, L. (2009). Corporate governance and voluntary disclosure in corporate annual reports of Malaysian listed firms. *Journal of Applied Management Accounting Research*, *7*(1), 1-19.

Alexander, G. J., & Buchholz, R. A. (1978). Corporate social responsibility and stock market performance. *Academy of Management journal*, *21*(3), 479-486.

Allegrini, M., & Greco, G. (2013). Corporate boards, audit committees and voluntary disclosure: evidence from Italian Listed Companies. *Journal of Management & Governance*, *17*(1), 187-216.

Al-Tuwaijri, S. A., Christensen, T. E., & Hughes Ii, K. E. (2004). The relations among environmental disclosure, environmental performance, and economic performance: a simultaneous equations approach. *Accounting, organizations and society*, *29*(5), 447-471.

Alvarez Gil, M. J., Burgos Jiménez, J., & Céspedes Lorente, J. J. (2001). An analysis of environmental management, organizational context and performance of Spanish hotels. *Omega*, *29*(6), 457-471.

Ameer, R., & Othman, R. (2012). Sustainability practices and corporate financial performance: A study based on the top global corporations. *Journal of Business Ethics*, *108*(1), 61-79.

Amran, A., & Haniffa, R. (2011). Evidence in development of sustainability reporting: a case of a developing country. *Business Strategy and the Environment*, *20*(3), 141-156.

Amran, A., Lee, S. P., & Devi, S. S. (2014). The influence of governance structure and strategic corporate social responsibility toward sustainability reporting quality. *Business Strategy and the Environment*, *23*(4), 217-235.

Aragon-Correa, J. A., & A Rubio-López, E. (2007). Proactive corporate environmental strategies: myths and misunderstandings. *Long Range Planning*,*40*(3), 357-381.

Aras, G. and Crowther, D. (2009). 'Corporate sustainability reporting: a study in disingenuity'. Journal of Business Ethics, 87(1),279–288.

Aras, G., & Crowther, D. (2008). Governance and sustainability: An investigation into the relationship between corporate governance and corporate sustainability. *Management Decision*, *46*(3), 433-448.

Arena, C., Bozzolan, S., & Michelon, G. (2014). Environmental Reporting: Transparency to Stakeholders or Stakeholder Manipulation? An Analysis of Disclosure Tone and the Role of the Board of Directors. *Corporate Social Responsibility and Environmental Management*. DOl: IO.I002fcsr.I350

Arora, P., & Dharwadkar, R. (2011). Corporate governance and corporate social responsibility (CSR): The moderating roles of attainment discrepancy and organization slack. *Corporate Governance: An International Review*, *19*(2), 136-152.

Artiach, T., Lee, D., Nelson, D., & Walker, J. (2010). The determinants of corporate sustainability performance. *Accounting & Finance*, *50*(1), 31-51.

Babío Arcay, M. R., & Muiño Vázquez, M. (2005). Corporate characteristics, governance rules and the extent of voluntary disclosure in Spain. *Advances in Accounting*, *21*, 299-331.

Bansal, P. (2005). Evolving sustainably: a longitudinal study of corporate sustainable development. *Strategic management journal*, *26*(3), 197-218.

Bansal, P., & Roth, K. (2000). Why companies go green: a model of ecological responsiveness. *Academy of management journal*, *43*(4), 717-736.

Barako, D. G., Hancock, P., & Izan, H. Y. (2006). Factors influencing voluntary corporate disclosure by Kenyan companies. *Corporate Governance: An International Review*, *14*(2), 107-125.

Bartolucci, A. A., & Hillegass, W. B. (2010). Overview, strengths, and limitations of systematic reviews and meta-analyses. In *Evidence-Based Practice: Toward Optimizing Clinical Outcomes* (pp. 17-33). Springer Berlin Heidelberg.

Belkaoui, A. (1980). The impact of socio-economic accounting statements on the investment decision: an empirical study. *Accounting, Organizations and Society*, *5*(3), 263-283.

Belkaoui, A., & Karpik, P. G. (1989). Determinants of the corporate decision to disclose social information. *Accounting, Auditing & Accountability Journal*, *2*(1).

Beltratti, A. (2005). The complementarity between corporate governance and corporate social responsibility. *The Geneva Papers on Risk and Insurance-Issues and Practice*, *30*(3), 373-386.

Bijmolt, T. H., & Pieters, R. G. (2001). Meta-analysis in marketing when studies contain multiple measurements. *Marketing Letters*, *12*(2), 157-169.

Boesso, G., & Kumar, K. (2007). Drivers of corporate voluntary disclosure: a framework and empirical evidence from Italy and the United States. *Accounting, Auditing & Accountability Journal*, *20*(2), 269-296.

Bowen Howard, R. (1953). Social Responsibilities of the businessman. NY, Harper & Row.

Bowen, F. E. (2000). Environmental visibility: a trigger of green organizational response?. *Business Strategy and the Environment*, *9*(2), 92-107.

Brammer, S., & Pavelin, S. (2006). Voluntary environmental disclosures by large UK companies. *Journal of Business Finance and Accounting*, *33*(7), 1168–1198.

Buniamin, S., Alrazi, B., Johari, N. H., & Rahman, N. R. A. (2010). An investigation of the association between corporate governance and environmental reporting in Malaysia. *Asian Journal of Business and Accounting*, *1*(2).

Chan, C. C., & Milne, M. J. (1999). Investor reactions to corporate environmental saints and sinners: an experimental analysis. *Accounting and business research*, *29*(4), 265-279.

Chauvey, J. N., Giordano-Spring, S., Cho, C. H., & Patten, D. M. (2014). The Normativity and Legitimacy of CSR Disclosure: Evidence from France. *Journal of Business Ethics*, 1-15.

Chen, H., & Wang, X. (2011). Corporate social responsibility and corporate financial performance in China: an empirical research from Chinese firms. *Corporate Governance*, *11*(4), 361-370.

Chen, K. H., & Metcalf, R. W. (1980). The relationship between pollution control record and financial indicators revisited. *Accounting Review*, 168-177.

Clarkson, M. E. (1995). A stakeholder framework for analyzing and evaluating corporate social performance. *Academy of management review*, *20*(1), 92-117.

Clarkson, P. M., Overell, M. B., & Chapple, L. (2011). Environmental reporting and its relation to corporate environmental performance. *Abacus*, *47*(1), 27-60.
Cohen, M. A., Fenn, S., & Naimon, J. S. (1995). *Environmental and financial performance: are they related?*. Investor Responsibility Research Center, Environmental Information Service.
Cong, Y., & Freedman, M. (2011). Corporate governance and environmental performance and disclosures. *Advances in Accounting*, *27*(2), 223-232.
Cordeiro, J. J., & Sarkis, J. (1997). Environmental proactivism and firm performance: evidence from security analyst earnings forecasts. *Business Strategy and the Environment*, *6*(2), 104-114.
Cormier, D., & Gordon, I. M. (2001). An examination of social and environmental reporting strategies. *Accounting, Auditing & Accountability Journal*, *14*(5), 587-617.
Cormier, D., and Magnan, M., (2003). Environmental reporting management: a continental European perspective. Journal of Accounting and Public Policy: 22, 43-62.
Cormier, D., and Magnan, M., (2004). The impact of the web on information and communication modes: the case of corporate environmental disclosure International Journal of Technology Management, 27(4), 393-416.
Cormier, D., Ledoux, M. J., & Magnan, M. (2011). The informational contribution of social and environmental disclosures for investors. *Management Decision*, *49*(8), 1276-1304.
Cormier, D., Magnan, M., & Van Velthoven, B. (2005). Environmental disclosure quality in large German companies: economic incentives, public pressures or institutional conditions?. *European Accounting Review*, *14*(1), 3-39.
Dahlsrud, A. (2008). How corporate social responsibility is defined: an analysis of 37 definitions. *Corporate social responsibility and environmental management*, *15*(1), 1-13.
De Andres, P., Azofra, V., & Lopez, F. (2005). Corporate boards in OECD countries: Size, composition, functioning and effectiveness. *Corporate Governance: An International Review*, *13*(2), 197-210.
de Burgos Jiménez, J., & Lorente, J. J. C. (2001). La protección ambiental y el resultado: Un análisis crítico de su relación. *Investigaciones Europeas de Dirección y Economía de la Empresa*, *7*(2), 93-108.
DeAngelo, H., DeAngelo, L., & Skinner, D. J. (1996). Reversal of fortune dividend signaling and the disappearance of sustained earnings growth. *Journal of financial Economics*, *40*(3), 341-371.
Declaration, S. (1972). *Declaration of the United Nations conference on the human environment*. URL= http://www. unep. org/Documents. Multilingual/Default. asp. Accessed date: 19/4/2015.
Deegan, C., & Blomquist, C. (2006). Stakeholder influence on corporate reporting: An exploration of the interaction between WWF-Australia and the Australian minerals industry. *Accounting, Organizations and Society*, *31*(4), 343-372.
DeSimone, L. D., & Popoff, F. (2000). *Eco-efficiency: the business link to sustainable development*. MIT press.
Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review*, *86*(1), 59-100.
Di Vita, G. (2009). Legal families and environmental protection: Is there a causal relationship?. *Journal of Policy Modeling*, *31*(5), 694-707.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American sociological review*, 147-160.
Donnelly, R., & Mulcahy, M. (2008). Board structure, ownership, and voluntary disclosure in Ireland. *Corporate Governance: An International Review, 16*(5), 416-429.
Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific sociological review*, 122-136.
Dunn, P., & Sainty, B. (2009). The relationship among board of director characteristics, corporate social performance and corporate financial performance. *International Journal of Managerial Finance*, *5*(4), 407-423.
Dyllick, T., & Hockerts, K. (2002). Beyond the business case for corporate sustainability. *Business strategy and the environment*, *11*(2), 130-141.
Earnhart, D., & Lizal, L. (2007). Effect of pollution control on corporate financial performance in a transition economy. *European Environment*, *17*(4), 247-266.
Eccles, R. G., Ioannou, I., & Serafeim, G. (2013). The impact of corporate sustainability on organizational processes and performance. *Management Science*.
Edwards, D. (1998), *The Link between Company Environmental and Financial Performance*, Earthscan Publications, London.
Ehrlich, R.P., & Holdren, J. P. (1971). Impact of Population Growth. *Science*, (n.s.), *171*(3977), 1212-1217.
Elkington, J. (1997). *Cannibals with forks. The triple bottom line of 21st century*. Oxford: Capstone.
Elkington, J. (1998). Partnerships from cannibals with forks: The triple bottom line of 21st-century business. *Environmental Quality Management*, *8*(1), 37-51.
Elkington, J. (2006). Governance for Sustainability*. *Corporate Governance: An International Review*, *14*(6), 522-529.
Elsbach, K. D. (1994). Managing organizational legitimacy in the California cattle industry: The construction and effectiveness of verbal accounts. *Administrative science quarterly*, 57-88.
Eng, L. L., & Mak, Y. T. (2003). Corporate governance and voluntary disclosure. *Journal of accounting and public policy*, *22*(4), 325-345.
Esa, E., & Anum Mohd Ghazali, N. (2012). Corporate social responsibility and corporate governance in Malaysian government-linked companies. *Corporate Governance: The international journal of business in society*, *12*(3), 292-305.
Field, A. P. (2005). Is the meta-analysis of correlation coefficients accurate when population correlations vary?. *Psychological methods*, *10*(4), 444.
Florax, R. J., Travisi, C. M., & Nijkamp, P. (2005). A meta-analysis of the willingness to pay for reductions in pesticide risk exposure. *European Review of Agricultural Economics*, *32*(4), 441-467.
Florida, R., Atlas, M., & Cline, M. (2001). What Makes Companies Green? Organizational and Geographic Factors in the Adoption of Environmental Practices. *Economic Geography*, *77*(3), 209-224.
Fodio, M. I., & Oba, V. C. (2012). Boards' gender mix and extent of environmental responsibility information disclosure in Nigeria: An empirical study. *European Journal of Business and Management*, *4*(14), 163-169.
Fogler, H. R., & Nutt, F. (1975). A note on social responsibility and stock valuation. *Academy of Management Journal*, *18*(1), 155-160.

Freeman , R.E, Reed, D. L. (1983), Stockholders and stakeholders: A new perspective in corporate governance, *California management review* 25 (3), 88-106.
Freeman E. (1984). *Strategic Management: a Stakeholder Approach*. Prentice-Hall: Englewood Cliffs, NJ.
Frias-Aceituno, J. V., Rodriguez-Ariza, L., & Garcia-Sanchez, I. M. (2013). The role of the board in the dissemination of integrated corporate social reporting. *Corporate social responsibility and environmental management*, *20*(4), 219-233.
Friedman M. (1970) The Social Responsibility of Business is to Increase its Profits, *The New York Time Magazine*, September 13, 32-33 and 122-124.
Friedman, M. (1962). Capitalism and Freedom University of Chicago Press. Chicago.
Galbreath, J. (2011). Are there gender-related influences on corporate sustainability? A study of women on boards of directors. *Journal of Management & Organization*, *17*(1), 17-38.
Garcia-Meca, E., & Sánchez-Ballesta, J. P. (2010). The association of board independence and ownership concentration with voluntary disclosure: A meta-analysis. *European Accounting Review*, *19*(3), 603-627.
Garcia-Sanchez, i. M., Cuadrado-Ballesteros, B. E. A. T. R. I. Z., & Sepulveda, C. (2014). Does media pressure moderate CSR disclosures by external directors?. *Management Decision*, *52*(6), 1-1.
Garriga, E., Melé, D. (2004). Corporate social responsibility theories: Mapping the territory. *Journal of Business Ethics*, 53 (1-2), 51-71.
Gauthier, C. (2005). Measuring corporate social and environmental performance: the extended life-cycle assessment. *Journal of business ethics*,*59*(1-2), 199-206.
Giannarakis, G., Konteos, G., & Sariannidis, N. (2014). Financial, governance and environmental determinants of corporate social responsible disclosure. *Management Decision*, *52*(10), 1928-1951.
Gilley, K. M., Worrell, D. L., Davidson, W. N., & El–Jelly, A. (2000). Corporate environmental initiatives and anticipated firm performance: the differential effects of process-driven versus product-driven greening initiatives. *Journal of management*, *26*(6), 1199-1216.
Glass, G. V. (1976). Primary, secondary, and meta-analysis of research. *Educational researcher*, 3-8.
Global Reporting Initiative. GRI (2006) Sustainability Reporting Guidelines. *GRI Amsterdam, The Netherlands.*
Godfrey, P. C., & Hatch, N. W. (2007). Researching corporate social responsibility: an agenda for the 21st century. *Journal of Business Ethics*, *70*(1), 87-98.
González-Benito, J., & González-Benito, Ó. (2005). Environmental proactivity and business performance: an empirical analysis. *Omega*, *33*(1), 1-15.
Goyal, P., Rahman, Z., & Kazmi, A. A. (2013). Corporate sustainability performance and firm performance research: Literature review and future research agenda. *Management Decision*, *51*(2), 361-379.
Graves, S. B., & Waddock, S. A. (1994). Institutional owners and corporate social performance. *Academy of Management Journal*, *37*(4), 1034-1046.
Guenster, N., Bauer, R., Derwall, J., & Koedijk, K. (2011). The Economic Value of Corporate Eco-Efficiency. *European Financial Management*, *17*(4), 679-704.
Guidry, R. P., & Patten, D. M. (2012). Voluntary disclosure theory and financial control variables: An assessment of recent environmental disclosure research. *Accounting Forum*, *36*(2), 81-90.

Gul, F. A., & Leung, S. (2004). Board leadership, outside directors' expertise and voluntary corporate disclosures. *Journal of Accounting and public Policy*,*23*(5), 351-379.
Guthrie, J., & Parker, L. D. (1989). Corporate social reporting: a rebuttal of legitimacy theory. *Accounting and business research*, *19*(76), 343-352.
Hackston, D., & Milne, M. J. (1996). Some determinants of social and environmental disclosures in New Zealand companies. *Accounting, Auditing & Accountability Journal*, *9*(1), 77-108.
Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of cleaner production*, *59*, 5-21.
Halme, M., & Huse, M. (1997). The influence of corporate governance, industry and country factors on environmental reporting. *Scandinavian Journal of Management*, *13*(2), 137-157.
Hamilton, J. T. (1995). Pollution as news: media and stock market reactions to the toxics release inventory data. *Journal of environmental economics and management*, *28*(1), 98-113.
Haniffa, R. M., & Cooke, T. E. (2002). Culture, corporate governance and disclosure in Malaysian corporations. *Abacus*, *38*(3), 317-349.
Haniffa, R. M., & Cooke, T. E. (2005). The impact of culture and governance on corporate social reporting. *Journal of accounting and public policy*, *24*(5), 391-430.
Hardjono, T. W., & van Marrewijk, M. (2001). The Social Dimensions of Business Excellence. *Corporate Environmental Strategy, 8*(3), 223–233.
Hart S.L., & Milstein, M.B. (2003). Creating Sustainable Value. *Academy of Management Executive, 17*(2), 56-69.
Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of management review*, *20*(4), 986-1014.
Hart, S. L., & Ahuja, G. (1996). Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. *Business strategy and the Environment, 5*(1), 30-37.
Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society*, 1251-1271.
Healy, P. M., & Palepu, K. G. (1993). The effect of firms' financial disclosure strategies on stock prices. *Accounting Horizons*, *7*, 1-1.
Healy, P. M., & Palepu, K. G. (1995). The challenges of investor communication The case of CUC International, Inc. *Journal of Financial Economics*, *38*(2), 111-140.
Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of accounting and economics*, *31*(1), 405-440.
Healy, P. M., Hutton, A. P., & Palepu, K. G. (1999). Stock performance and intermediation changes surrounding sustained increases in disclosure. *Contemporary accounting research*, *16*(3), 485-520.
Hedges, L. V., & Olkin, I. (1985). Statistical methods for meta-analysis. Orlando, FL: Academic Press.
Hedges, L. V., & Vevea, J. L. (1998). Fixed-and random-effects models in meta-analysis. *Psychological methods*, *3*(4), 486-504.

Herda, D. N., Taylor, M. E., & Winterbotham, G. (2012). The Effect of Board Independence on the Sustainability Reporting Practices of Large US Firms. *Issues in Social & Environmental Accounting*, *6*.

Hermalin, B. E., & Weisbach, M. S. (2007). *Transparency and corporate governance* (No. w12875). National Bureau of Economic Research.

Higgins, C., & Walker, R. (2012). Ethos, logos, pathos: Strategies of persuasion in social/environmental reports. *Accounting Forum*, *36* (3), 194-208.

Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *BMJ: British Medical Journal*, *327* (7414), 557-560.

Hill, C. W., & Jones, T. M. (1992). Stakeholder agency theory. *Journal of management studies*, 29(2), 131-154.

Hillman, A. J., & Keim, G. D. (2001). Shareholder value, stakeholder management, and social issues: what's the bottom line?. *Strategic management journal*, *22*(2), 125-139.

Ho, S. S., & Shun Wong, K. (2001). A study of the relationship between corporate governance structures and the extent of voluntary disclosure. *Journal of International Accounting, Auditing and Taxation*, *10*(2), 139-156.

Horváthová, E. (2010). Does environmental performance affect financial performance? A meta-analysis. *Ecological Economics*, *70*(1), 52-59.

Howard, J., Nash, J., & Ehrenfeld, J. (1999). Industry codes as agents of change: responsible care adoption by US chemical companies. *Business Strategy and the Environment*, *8*(5), 281-295.

Huafang, X., & Jianguo, Y. (2007). Ownership structure, board composition and corporate voluntary disclosure: Evidence from listed companies in China. *Managerial Auditing Journal*, *22*(6), 604-619.

Hull, C. E., & Rothenberg, S. (2008). Firm performance: the interactions of corporate social performance with innovation and industry differentiation. *Strategic Management Journal*, *29*(7), 781-789.

Hunter, J. E. and Schmidt, F. L. (1990) *Methods of Meta-analysis: Correcting Error and Bias in Research Findings* (Beverly Hills, CA: Sage).

Husillos, J., González, C. L., & Gil, M. J. Á. (2011). The emergence of triple bottom line reporting in Spain. *Spanish Journal of Finance and Accounting/Revista Española de Financiación y Contabilidad*, *40*(150), 195-219.

Hussain, S. S. (1999). The ethics of'going green': the corporate social responsibility debate. *Business strategy and the environment*, *8*(4), 203-210.

Ienciu, I. A., Popa, I. E., & Ienciu, N. M. (2012). Environmental Reporting and Good Practice of Corporate Governance: Petroleum Industry Case Study. *Procedia Economics and Finance*, *3*, 961-967.

Jamali, D., Safieddine, A. M., & Rabbath, M. (2008). Corporate governance and corporate social responsibility synergies and interrelationships. *Corporate Governance: An International Review*, *16*(5), 443-459.

Janggu, T., Darus, F., Zain, M. M., & Sawani, Y. (2014). Does Good Corporate Governance Lead to Better Sustainability Reporting? An Analysis Using Structural Equation Modeling. *Procedia-Social and Behavioral Sciences*, *145*, 138-145.

Jenicek, M. (1989). Meta-analysis in Medicine where we are and where we want to go. *Journal of clinical epidemiology*, *42*(1), 35-44.

Jensen, M., and Meckling, WH., (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360

Jo, H., & Harjoto, M. A. (2011). Corporate governance and firm value: The impact of corporate social responsibility. *Journal of Business Ethics*, *103*(3), 351-383.

Jo, H., & Harjoto, M. (2014). Analyst coverage, corporate social responsibility, and firm risk. *Business Ethics: A European Review*, *23*(3), 272-292.

Jo, H., Kim, H., & Park, K. (2014). Corporate Environmental Responsibility and Firm Performance in the Financial Services Sector. *Journal of Business Ethics*, 1-28.

Johnson, R. A., & Greening, D. W. (1999). The effects of corporate governance and institutional ownership types on corporate social performance. Academy of Management Journal, 42(5), 564-576.

Jones, S., Frost, G., Loftus, J., & Laan, S. (2007). An empirical examination of the market returns and financial performance of entities engaged in sustainability reporting. *Australian Accounting Review*, *17*(41), 78-87.

Jones, T. M. (1995). Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of management review*, *20*(2), 404-437.

Judge, W. Q., & Douglas, T. J. (1998). Performance implications of incorporating natural environmental issues into the strategic planning process: an empirical assessment. *Journal of Management Studies*, *35*(2), 241-262.

Kakabadse, A., Ward, K., Korac-Kakabadse, N., & Bowman, C. (2001). Role and contribution of non-executive directors. *Corporate Governance: The international journal of business in society*, *1*(1), 4-8.

Kathy Rao, K., Tilt, C. A., & Lester, L. H. (2012). Corporate governance and environmental reporting: an Australian study. *Corporate Governance: The international journal of business in society*, *12*(2), 143-163.

Kemp, R., Parto, S., & Gibson, R. B. (2005). Governance for sustainable development: moving from theory to practice. *International Journal of Sustainable Development*, *8*(1), 12-30.

Khan, A., Muttakin, M. B., & Siddiqui, J. (2013). Corporate governance and corporate social responsibility disclosures: Evidence from an emerging economy. *Journal of business ethics*, *114*(2), 207-223.

Khan, M. H. U. Z. (2010). The effect of corporate governance elements on corporate social responsibility (CSR) reporting: empirical evidence from private commercial banks of Bangladesh. *International Journal of Law and Management*, *52*(2), 82-109.

Khanna, M., & Damon, L. A. (1999). EPA's voluntary 33/50 program: impact on toxic releases and economic performance of firms. *Journal of environmental economics and management*, *37*(1), 1-25.

Khurana, I. K., Pereira, R., & Martin, X. (2006). Firm growth and disclosure: an empirical analysis. *Journal of Financial and Quantitative Analysis*, *41*(02), 357-380.

Kiernan, M. (1998). The eco-efficiency revolution. Investment Horizon April: 68–70.

King, A. (1997). Review of Factor Four: Doubling Wealth, Halving Resource Use. *Journal of Sustainable Product Design*, (4), 60-61.

King, A. A., & Lenox, M. J. (2001). Does it really pay to be green? An empirical study of firm environmental and financial performance: An empirical study of firm environmental and financial performance. *Journal of Industrial Ecology*,*5*(1), 105-116.

King, A., & Lenox, M. (2002). Exploring the locus of profitable pollution reduction. *Management Science*, *48*(2), 289-299.

Kolk, A. (2003). Trends in sustainability reporting by the Fortune Global 250. *Business strategy and the environment*, *12*(5), 279-291.
Kolk, A. (2008) Sustainability, accountability and corporate governance: exploring multinationals' reporting practices, *Business Strategy and the Environment* 17 (1), pp.1-15.
Konar, S., & Cohen, M. A. (2001). Does the market value environmental performance?. *Review of economics and statistics*, *83*(2), 281-289.
KPMG. (2011). KPMG international survey of corporate responsibility reporting 2011. The Netherlands: Author.
Krippendorff, K. (2004). Content analysis: an introduction to its methodology. (Second ed.). Thousand Oaks, CA: Sage.
Kutner, M. H., Nachtsheim, C., & Neter, J. (2004). *Applied linear regression models*. McGraw-Hill/Irwin.
Lackmann, J., Ernstberger, J., & Stich, M. (2012). Market reactions to increased reliability of sustainability information. *Journal of business ethics*,*107*(2), 111-128.
Lang, L., Ofek, E., & Stulz, R. (1996). Leverage, investment, and firm growth. *Journal of financial Economics*, *40*(1), 3-29.
Lankoski, L. (2000). *Determinants of environmental profit: An analysis of the firm-level relationship between environmental performance and economic performance*. Helsinki University of Technology.
Lazonick, W., & O'sullivan, M. (2000). Maximizing shareholder value: a new ideology for corporate governance. *Economy and society*, *29*(1), 13-35.
Lee, K-H. (2012). Linking stakeholders and corporate reputation towards corporate sustainability, *International Journal of Innovation and Sustainable Development*, *6*(2), 219–235.
Lele, S. M. (1991). Sustainable development: a critical review. World development, 19(6), 607-621.
Levitt, T. (1958). The Dangers Of Social-Responsibility. Harvard business review, 36(5), 41-50.
Liao, L., *et al*., Gender diversity, board independence, environmental committee and greenhouse gas disclosure, The British Accounting Review (2014), http://dx.doi.org/10.1016/j.bar.2014.01.002
Lim, S., Matolcsy, Z., & Chow, D. (2007). The association between board composition and different types of voluntary disclosure. *European Accounting Review*, *16*(3), 555-583.
Lindenberg, E. B., & Ross, S. A. (1981). Tobin's q ratio and industrial organization. *Journal of Business*, 1-32.
Link, S., & Naveh, E. (2006). Standardization and discretion: does the environmental standard ISO 14001 lead to performance benefits?. *Engineering Management, IEEE Transactions on*, *53*(4), 508-519.
Lodhia, S. K. (2004). Corporate environmental reporting media: a case for the world wide web. *Electronic Green Journal*, *1*(20).
Mahoney, L. S., Thorne, L., Cecil, L., & LaGore, W. (2013). A research note on standalone corporate social responsibility reports: Signaling or greenwashing?.*Critical Perspectives on Accounting*, *24*(4), 350-359.
Mallin, C., Michelon, G., & Raggi, D. (2013). Monitoring Intensity and Stakeholders' Orientation: How Does Governance Affect Social and Environmental Disclosure?. *Journal of business ethics*, *114*(1), 29-43.

Mani, M., & Wheeler, D. (1998). In search of pollution havens? Dirty industry in the world economy, 1960 to 1995. *The Journal of Environment & Development*, *7*(3), 215-247.
Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative science quarterly*, *48*(2), 268-305.
Mark W.. Lipsey, & Wilson, D. B. (2001). *Practical meta-analysis*. 49 (Thousand Oaks, CA: Sage publications).
McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. *Academy of management review*, *26*(1), 117-127.
Meadows, D.H, Meadows, D.L., Randers, J., & Behrens, W.W. III. (1972). *The Limits to growth: A report for the Club of Rome's. Project on the Predicament of Mankind*. New York, N.Y.: Universe Books.
Menguc, B., & Ozanne, L. K. (2005). Challenges of the "green imperative": a natural resource-based approach to the environmental orientation–business performance relationship. *Journal of Business Research*, *58*(4), 430-438.
Michelon, G., & Parbonetti, A. (2012). The effect of corporate governance on sustainability disclosure. *Journal of Management & Governance*, *16*(3), 477-509.
Molina-Azorín, J. F., Claver-Cortés, E., López-Gamero, M. D., & Tarí, J. J. (2009). Green management and financial performance: a literature review. *Management Decision*, *47*(7), 1080-1100.
Moneva, J. M., Archel, P., & Correa, C. (2006, June). GRI and the camouflaging of corporate unsustainability. *Accounting Forum*, *30* (2), 121-137.
Morhardt, J. E., Baird, S., & Freeman, K. (2002). Scoring corporate environmental and sustainability reports using GRI 2000, ISO 14031 and other criteria. *Corporate Social Responsibility and Environmental Management*, *9*(4), 215-233.
Murray, K. B., and Vogel, C. M. (1997). Using a hierarchy-of-effects approach to gauge the effectiveness of corporate social responsibility to generate goodwill toward the firm: Financial versus non-financial impacts. *Journal of Business Research*, 38, 141-59.
Nakao, Y., Amano, A., Matsumura, K., Genba, K., & Nakano, M. (2007). Relationship between environmental performance and financial performance: an empirical analysis of Japanese corporations. Business *Strategy and the Environment*, *16*(2), 106-118.
Nelson, J. P., & Kennedy, P. E. (2009). The use (and abuse) of meta-analysis in environmental and natural resource economics: an assessment. *Environmental and Resource Economics*, *42*(3), 345-377.
Neu, D., Warsame, H., & Pedwell, K. (1998). Managing public impressions: environmental disclosures in annual reports. *Accounting, Organizations and Society*, *23*(3), 265-282.
Norman, W., & MacDonald, C. (2004). Getting to the bottom of" triple bottom line". *Business Ethics Quarterly*, 243-262.
Ntim, C. G., & Soobaroyen, T. (2013). Corporate Governance and Performance in Socially Responsible Corporations: New Empirical Insights from a Neo-Institutional Framework. *Corporate Governance: An International Review*, 21(5), 468-494.
O'Donovan, G. (2002). Environmental disclosures in the annual report: Extending the applicability and predictive power of legitimacy theory. *Accounting, Auditing & Accountability Journal*, *15*(3), 344-371.
Orij, R. (2010). Corporate social disclosures in the context of national cultures and stakeholder theory. *Accounting, Auditing & Accountability Journal*, *23*(7), 868-889.

Palmer, K., Oates, W. E., & Portney, P. R. (1995). Tightening environmental standards: The benefit-cost or the no-cost paradigm?. *The Journal of Economic Perspectives*, 119-132.
Patten, D. M., & Crampton, W. (2003). Legitimacy and the internet: an examination of corporate web page environmental disclosures. *Advances in Environmental Accounting & Management*, *2*, 31-57.
Pava, M. L., & Krausz, J. (1996). The association between corporate social-responsibility and financial performance: The paradox of social cost. *Journal of Business Ethics*, *15*(3), 321-357.
Peters, G. F., & Romi, A. M. (2014). Does the voluntary adoption of corporate governance mechanisms improve environmental risk disclosures? Evidence from greenhouse gas emission accounting. *Journal of Business Ethics*, *125*(4), 637-666.
Plumlee, M., Brown, D., Hayes, R. M., & Marshall, R. S. (2015). Voluntary environmental disclosure quality and firm value: Further evidence. *Journal of Accounting and Public Policy*. *34(4)*: 336-361
Porter, M. E.(1991). America's Green Strategy. *Scientific American*, *264*(4),168.
Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard business review*, *89*(1/2), 62-77.
Porter, M. E., & Van der Linde, C. (1995). Green and competitive: ending the stalemate. *Reader In Business And The Environment*, *61*.
Porter, M., & Van der Linde, C. (1996). Green and competitive: ending the stalemate. *Business and the Environment, Earthscan Publications Ltd, London*, 61-77.
Post, C., Rahman, N., & McQuillen, C. (2014). From board composition to corporate environmental performance through sustainability-themed alliances. *Journal of Business Ethics*, 1-13.
Post, C., Rahman, N., & Rubow, E. (2011). Green governance: Boards of directors' composition and environmental corporate social responsibility. *Business & Society*, *50*(1), 189-223.
Prado-Lorenzo, J. M., & Garcia-Sanchez, I. M. (2010). The role of the board of directors in disseminating relevant information on greenhouse gases. *Journal of Business Ethics*, *97*(3), 391-424.
Preston, L. E., & O'bannon, D. P. (1997). The corporate social-financial performance relationship. *Business and society*, *36*(4), 419-429.
Rashid, A., & Lodh, S. C. (2008). The influence of ownership structures and board practices on corporate social disclosures in Bangladesh. *Research in Accounting in Emerging Economies*, *8*, 211-237.
Reinhardt, F. (1999). Market failure and the environmental policies of firms: Economic rationales for "beyond compliance" behavior. *Journal of Industrial Ecology*, *3*(1), 9-21.
Ricart, J. E., Rodríguez, M. Á., & Sánchez, P. (2005). Sustainability in the boardroom: An empirical examination of Dow Jones Sustainability World Index leaders. *Corporate Governance*, *5*(3), 24-41.
Rivera, J. (2002). Assessing a voluntary environmental initiative in the developing world: The Costa Rican Certification for Sustainable Tourism. *Policy Sciences*, *35*(4), 333-360.
Rivera-Camino, J. (2001). What motivates European firms to adopt environmental management systems?. *Eco-Management and Auditing*, *8*(3), 134-143.
Rupley, K. H., Brown, D., & Marshall, R. S. (2012). Governance, media and the quality of environmental disclosure. *Journal of Accounting and Public Policy*,*31*(6), 610-640.

Russo, M. V., & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. *Academy of management Journal*, *40*(3), 534-559.
Saha, A. K., & Akter, S. (2013). Corporate Governance and Voluntary Disclosure Practices of Financial Non-Financial Sector Companies in Bangladesh. *Journal of Applied Management Accounting Research*, *11*(2), 45-61.
Said, R., Zainuddin, Y. H., & Haron, H. (2009). The relationship between corporate social responsibility disclosure and corporate governance characteristics in Malaysian public listed companies. *Social Responsibility Journal*, *5*(2), 212-226.
Salzmann, O., Ionescu-Somers,S A., & Steger, U. (2005). The Business Case for Corporate Sustainability: Literature Review and Research Options. *European Management Journal*, *23*(1), 27–36.
Schaltegger, S., Ludeke-Freund, F., & Hansen, E. (2012). Business cases for sustainability: the role of business model innovation for corporate sustainability. *International Journal of Innovation and Sustainable Development*, *6*(2), 95–119.
Schreck, P. (2011). Reviewing the business case for corporate social responsibility: New evidence and analysis. *Journal of Business Ethics*, *103*(2), 167-188.
Shahin, A., & Zairi, M. (2007). Corporate governance as a critical element for driving excellence in corporate social responsibility. *International Journal of Quality & Reliability Management*, *24*(7), 753-770.
Shane, P. B., & Spicer, B. H. (1983). Market response to environmental information produced outside the firm. *Accounting Review*, 521-538.
Sharif, M., & Rashid, K. (2014). Corporate governance and corporate social responsibility (CSR) reporting: an empirical evidence from commercial banks (CB) of Pakistan. Quality & Quantity, 2501-2521.
Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The journal of finance*, *52*(2), pp. 737-783.
Slater, A., & Gilbert, S. (2004). The evolution of business reporting: Make room for sustainability disclosure. *Environmental Quality Management*, *14*(1), 41-48.
Solomon, J. F., & Solomon, A. (2006). Private social, ethical and environmental disclosure. Accounting, Auditing & Accountability Journal, 19(4), 564–591.
Sotorrío, L.L., Sánchez, J.L.F., 2010. Corporate social reporting for different audiences: the case of multinational corporations in Spain. Corporate Social Responsibility and Environmental Management 17, 272-283.
Sparkes, R., & Cowton, C. J. (2004). The maturing of socially responsible investment: A review of the developing link with corporate social responsibility. *Journal of Business Ethics*, *52*(1), 45-57.
Stanley, T. D., & Jarrell, S. B. (1989). Meta-Regression analysis: A quantitative method of literature surveys. *Journal of Economic Surveys*, *3*(2), 161-170.
Stanwick, P. A., & Stanwick, S. D. (1998). The relationship between corporate social performance, and organizational size, financial performance, and environmental performance: An empirical examination. *Journal of business ethics*, *17*(2), 195-204.
Stefan, A., & Paul, L. (2008). Does it pay to be green? A systematic overview. *The Academy of Management Perspectives*, *22*(4), 45-62.
Steurer, R., Langer, M. E., Konrad, A., & Martinuzzi, A. (2005). Corporations, stakeholders and sustainable development I: A theoretical exploration of business–society relations. *Journal of Business Ethics*, *61*(3), 263-281.

Stubbs, W., Higgins, C. and Milne, M. (2013), Why Do Companies Not Produce Sustainability Reports?. Business Strategy and Environment Journal 22: 456–470.
Stuebs, M., & Sun, L. (2015). Corporate governance and social responsibility. *International Journal of Law and Management*, 57(1), 38 - 52.
Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of management review*, *20*(3), 571-610.
Tagesson, T., Blank, V., Broberg, P., Collin, S.-O., 2009. What explains the extent and content of social and environmental disclosures on corporate websites: a study of social and environmental reporting in Swedish listed corporations. Corporate Social Responsibility and Environmental Management 16, 352-364.
Theyel, G. (2000). Management practices for environmental innovation and performance. *International Journal of Operations & Production Management*,*20*(2), 249-266.
Thompson, P., & Cowton, C. J. (2004). Bringing the environment into bank lending: implications for environmental reporting. *The British Accounting Review*, *36*(2), 197-218.
Torugsa, N. A., O'Donohue, W., & Hecker, R. (2012). Capabilities, proactive CSR and financial performance in SMEs: Empirical evidence from an Australian manufacturing industry sector. *Journal of business ethics*, *109*(4), 483-500.
UNEP/SustainAbility. (2004). *Risk and opportunity: Best practice in non-financial reporting*. The Global Reporters 2004 survey of Sustainability Reporting. Author: London.
Unerman, J., & Bennett, M. (2004). Increased stakeholder dialogue and the internet: towards greater corporate accountability or reinforcing capitalist hegemony?. *Accounting, Organizations and Society*, *29*(7), 685-707.
Uyar, A., Kilic, M., & Bayyurt, N. (2013). Association between firm characteristics and corporate voluntary disclosure: Evidence from Turkish listed companies. *Intangible Capital*, *9*(4), 1080-1112.
Van Marrewijk, M. (2003). Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of Business Ethics*, 44 (2-3), 95–105.
Vance, S. C. (1975). Are socially responsible corporations good investment risks. *Management review*, *64*(8), 19-24.
Vance, S. C. (1978). Corporate governance: Assessing corporate performance by boardroom attributes. *Journal of Business Research*, *6*(3), 203-220.
Waddock, S. A., & Graves, S. B. (1997). The corporate social performance. *Strategic management journal*, *8*(4), 303-319.
Waddock, S. A.: 2004, 'Creating Corporate Accountability: Foundational Principles to Make Corporate Citizenship Real', Journal of Business Ethics 50(4), 1–15.
Wagner, M. (2005). How to reconcile environmental and economic performance to improve corporate sustainability: corporate environmental strategies in the European paper industry. *Journal of environmental management*, *76*(2), 105-118.
Wagner, M. (2010). The role of corporate sustainability performance for economic performance: A firm-level analysis of moderation effects. *Ecological Economics*, *69*(7), 1553-1560.
Wagner, M., (2001). A review of empirical studies concerning the relationship between environmental and financial performance. What Does the Evidence Tell Us?. *Center for Sustainability Management*. Luneburg
Wagner, M., Van Phu, N., Azomahou, T., & Wehrmeyer, W. (2002). The relationship between the environmental and economic performance of firms: an empirical analysis of the

European paper industry. *Corporate Social Responsibility and Environmental Management*, *9*(3), 133-146.
Wahba, H. (2008). Does the market value corporate environmental responsibility? An empirical examination. *Corporate Social Responsibility and Environmental Management*, *15*(2), 89-99.
Walley, N., & Whitehead, B. (1994). It's not easy being green. *The Earthscan reader in business and the environment*, 36-44.
Walls, J. L., Berrone, P., & Phan, P. H. (2012). Corporate governance and environmental performance: is there really a link?. *Strategic Management Journal*, *33*(8), 885-913.
Wang, J., & Coffey, B. S. (1992). Board composition and corporate philanthropy. *Journal of Business Ethics*, *11*(10), 771-778.
Watson, K., Klingenberg, B., Polito, T., & Geurts, T. G. (2004). Impact of environmental management system implementation on financial performance: A comparison of two corporate strategies. *Management of Environmental Quality: An International Journal*, *15*(6), 622-628.
Watts, R. L., & Zimmerman, J. L. (1990). Positive accounting theory: a ten year perspective. *Accounting review*, 131-156.
WCED–World. (1987). Commission on Environment and Development. *Our common Future*, Oxford:Oxford University Press.
Welford, R. (Ed.). (2013). *Hijacking environmentalism: Corporate responses to sustainable development*. Routledge.
White, M. A. (1996). Corporate environmental performance and shareholder value. *University of Virginia Charlotteville, VA: McIntire School of Commerce*.
Williams, R. J. (2003). Women on corporate boards of directors and their influence on corporate philanthropy. *Journal of Business Ethics*, *42*(1), 1-10.
Wilson, M. (2003). Corporate sustainability: What is it and where does it come from. *Ivey Business Journal*, *67*(6), 1-5.
Wolf, F. M. (1986). *Meta-analysis*. Sage university paper series on quantitative applications in the social sciences, 07–061. Newbury Park, CA: Sage.
Xu, X. (1999). Do Stringent Environmental Regulations Reduce the International Competitiveness of Environmentally Sensitive Goods? A Global Perspective. *World Development*, *27*(7), 1215-1226.
Zeng, S. X., Xu, X. D., Yin, H. T., & Tam, C. M. (2012). Factors that drive Chinese listed companies in voluntary disclosure of environmental information. *Journal of Business Ethics*, *109*(3), 309-321.