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Value in green pursuits

Relationship between sustainability disclosures and financial performance

by

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Abstract

Title:	Value in green pursuits: Relationship between sustainability disclosures and financial performance
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Key words:	Sustainability reporting, financial performance, Slack resources, Good management, Manufacturing industry, South Africa
Purpose:	The purpose of the research is to investigate the relationship between sustainability disclosures and financial performance from the slack resources and good management perspective in an emerging economy.
Methodology:	This is a mixed method study consisting of semi-structured interviews and the use of both descriptive and inferential statistics.
Theoretical perspective:	In our thesis, we discuss two compelling theories that explain why firms engage in sustainability reporting; legitimacy theory and stakeholder theory. In addition, we discuss the role of slack resources theory and the good management theory in explaining the relationship between sustainability disclosures and financial performance.
Empirical findings:	The empirical data consists of both primary and secondary data sources. The data was collected from interviews, integrated annual reports, sustainability reports and financial databases. Sustainability reporting in South Africa is majorly hinged on legislation from the government and the stock exchange. While sustainability awareness continues to rise, shareholders and customers marginally contribute to the drive of sustainability reporting. The regression analysis identifies a neutral relationship between sustainability disclosures and firm value, ceteris paribus. Despite the positive coefficient being insignificant, an interactive model illuminates that sustainability disclosure does play a role in financial performance of firms. In addition, profitability and cash position of firms reporting more on sustainability is lower than their peers who

report less on sustainability. Furthermore, prior longer-term financial performance heavily influences sustainability disclosures whereas the findings indicate that not all aspects of sustainability positively impact firm value; only the environmental aspect does. Working Capital as an indicator of slack is the only measure found consistent with the slack resources theorists' view. Lastly, no evidence of a high correlation between financial performance indicators and sustainability disclosures is found to support the good management theory.

Conclusions: While an original OLS regression showed there is a neutral relationship between value of the firm and sustainability disclosures, our interactive model informs that sustainability disclosures do have an impact on the value of the firm given that the level of spending on sustainability initiatives differ between more and less sustainable firms. That said, it does pay to be green; more sustainable firms have a higher firm value than the less sustainable firms.

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1 Introduction

In this chapter, we set the scene for the reader by providing information on what the thesis discusses. Section 1.1 provides background of the thesis, Section 1.2 problematizes the research question, Section 1.3 discusses the purpose and aim of the study, Section 1.4 discusses the limitations of the study, Section 1.5 discusses the potential target audience for the paper and finally, Section 1.6 provides the general outline of this paper.

1.1 Background

Sustainability is one of the most discussed topics in the world today under the term 'Climate change and global warming' and 'diversity'. Gunasekaran and Spalanzani (2012) indicate that companies are under increasing pressure for inclusion of sustainable business practices by both external bodies (government regulations, profit and not-for-profit organizations) and internal pressure (strategic objectives, top management vision, employee safety and well-being, cost).

Legitimation and stakeholder pressures have led to increased sustainability reporting by organizations as argued by Bellringer et al., (2011). An exponential growth of 63% in sustainability reporting has thus been seen in companies reporting on sustainability from the period of 1993 to 2017 according to KPMG (2017) report on Corporate Sustainability Reporting. Sustainability reporting has spilled over to the corporate world and is now being embraced by several companies in various industries with much zeal. As advanced by Visser (2002), companies are using various frameworks/standards: International Standards Organization, Institute of Social and Ethical Accountability, Global Reporting Initiative Guidelines and the United Nations' Global Compact Guidelines, as guidance on sustainability reporting to increase awareness and visibility of sustainability initiatives.

Successful businesses are currently being defined by integration of concepts such as management quality, environmental management, customer management and brand reputation (Lopez et al., 2007). Sustainability practices are seen to facilitate the development of better systems of internal control, decision making and cost saving innovativeness as indicated by Adams and Evans (2004) and to further create long-term value (Bebbington, 2001) for companies.

Dawkins and Ngunjiri (2008) indicate that region-specific institutional pressures play a significant role in shaping sustainability practices. This also explains the variation of sustainability practices across countries. In some countries, sustainability reporting is mandatory for a specific set of companies. For example, listed companies on France and South Africa respective stock exchanges are required to report on sustainability. In addition, state owned enterprises in Sweden and Denmark are required by the government to issue sustainability reports (King, 2010). Minimal and absence of sustainability disclosures is still a common practice by companies especially in the Middle East and Africa continents. The KPMG (2017) survey of Corporate Responsibility Reporting indicates that sustainability reporting continues to drop in the Middle East and Africa regions from 61% in 2011 to 52% in 2017.

1.2 Problematization

Sustainability reporting has been associated with a wide spectrum of both tangible and intangible benefits such as improved financial performance, employee loyalty and consumer reputation according to a survey carried out by Ernst and Young (EY) (2016). Nonetheless, some business leaders do not view sustainability as particularly relevant as they believe to have more urgent problems to worry about such as growth, productivity and profits (Elkington, 1998). However, Hubbard (2009) argues that in today's reality, firms are under tremendous pressure to monitor and report on more than just their economic performance.

Numerous studies have been done by academics to link sustainability disclosures to financial performance. Results from these studies show contradictory results. Some posit a positive relationship exists between sustainability disclosures and financial performance, others have concluded an existence of a negative relationship while others stipulate that there is no relationship between sustainability and financial performance.

A study carried out by Dimson et al., (2015) indicated that companies that engaged in sustainability reporting increased their share price by an average of 4.4% a year. A contradicting study carried our Jones et al., (2007), however, indicates that there is a negative relationship between sustainability reporting and abnormal returns. Extant studies focusing on accounting indicators as a measure of corporate financial performance have found differing views as well. A positive relationship between sustainability and performance (See McGuire et al., 1988; Lopez et al., 2007; Ameer and Othman, 2011), neutral relationships (See McWilliams and Siegel, 2000) while others show negative relationships on some indicators tested (See Jones et al., 2007).

Lack of uniformity on what aspects constitute sustainability can be attributed to the different results. For example, Ameer and Othman (2011) study was based on four dimensions of sustainability: Community, Environment, Diversity and Ethical Standards, while Schaltegger and Synnestvedt (2002) based their research on purely the environmental dimension. Expanding on Ameer and Othman (2011) measures, Dawkins and Ngunjiri (2008) use employee relations and human rights dimensions as measures of sustainability. Furthermore, majority of these studies do not stratify according to industry and countries but instead analyze wider samples (Lopez et al., 2007; Waldman et al., 2006; Hillman and Keim, 2001). The importance of stratifying according to company type and industry is emphasized by George (2005) who indicates that the environment in which a company operates in influences its ability to utilize resources. This implies that industries operating in the same competitive environment have the same complexities that also impact their performance.

Most of these studies investigating sustainability disclosures and performance use accounting measures of profitability and efficiency (McWilliams and Siegel 2000; Lopez et.al., 2007; Hart and Ahuja, 1996) and the explanation of findings are mainly geared towards the stakeholder theory. We posit that additional intervening variables impact financial performance and sustainability disclosures in this case the presence or lack of slack resources. Bourgeios (1981) defines slack resources as '…that cushion of actual or potential resources which allows an organization to adapt successfully to internal pressures for adjustment or to external pressures

for change in policy, as well as to initiate changes in strategy with respect to the external environment'(p.30).

Various studies have used slack resources as a variable in risk taking, (Wiseman and Bromiley, 1996), innovation (Voss et al., 2008), and performance (George, 2005). However, slack resources as a variable in sustainability disclosures has hardly been explored by researchers. To our knowledge, such a study has only been conducted by Waddock and Graves (1997) whose results indicate that there is a positive relationship between corporate social responsibility and slack resource availability. They define corporate social responsibility as 'multidimensional construct with behaviors ranging across wide variety of inputs e.g. investments in pollution control equipment, or other environmental strategies), internal behaviors or processes (e.g., treatment of women and minorities, nature of products produced, relationships with customers), and outputs (e.g., community relations and philanthropic programs)' (p. 304). This definition echoes the modern day sustainability explanation.

To begin with, Waddock and Graves (1997) research is marred by endogeneity problems. Endogeneity problems arise when an explanatory variable is correlated with the error term (Brooks, 2014). This firm specific error represents a unique aspect of a firm and is not directly obvious therefore affecting the regression coefficient of the other variables significantly (Garcia-Castro et al., 2009). Re-specification of models by accounting for endogeneity problems has an impact on the results of the study. In a replica study of Waddock and Graves (1997) investigation of sustainability and financial performance, McWilliams and Siegel (2000) found a neutral relationship from an earlier positive result. They did account for endogeneity problems by including research and development as an extra variable in the empirical model.

Secondly, while Waddock and Graves (1997) control for industry as a variable; they do not stratify their sample by industry through examining interactions in a longitudinal study. Hence their results are not generalizable as the companies analyzed operate in different complexities. Besides, these companies approach to resource utilization and allocation differ. In addition, mechanisms by which slack resources influence sustainability initiatives and firm performance we believe may vary. Thirdly, not controlling for various dimensions that are known to affect financial performance leads to model under-specification exposing their empirical study to omitted variable biases.

Fourthly, observations over longer-term periods to ascertain whether these relationships hold over time are largely unexplored. Waddock and Graves (1997) study explores short term interactions (1989-1991) and particularly omits controlling for aspects known to affect firm value such as capital intensity which when accounted for significantly changes the outcome arrived at in their study. We use capital intensity as a control mechanism and examine whether the neutral outcome arrived at by McWilliams and Siegel (2000) by re-specifying Waddock and Graves (1997) model holds.

Fifth, Waddock and Graves (1997) examine an entire sample of 469 firms from the S&P 500 and does not test for significant variations in sustainability disclosures to financial performance between more sustainable and less sustainable firms. They instead examine overall whether slack resources motivate firms to undertake sustainability initiatives. We solve for this by testing for any significant differences in sub-samples (more sustainable and less sustainable

firms) measured by the amount of disclosures on sustainability through use of an interaction model in our regression analysis. The independent terms interact with the dummy variable that takes one (1) if firms are listed on a sustainability index and zero (0) if not. We go beyond Waddock and Graves (1997) study to explicitly test whether financial performance differs between more sustainable firms and less sustainable firms measured by the level of sustainability disclosures. A gap therefore exists in studies linking sustainability disclosures to financial performance of a firm with slack resources as a moderating variable.

In addition, current studies on sustainability disclosures hardly examine the relationship of sustainability disclosures to financial performance from an emerging and developing markets perspective. Researchers investigating the relationship between sustainability disclosures and financial performance tend to cover developed economies rather than emerging markets (See Ameer and Othman 2011; Jones et al., 2007). This can be attributed in part by a backward slide in sustainability reporting by companies in the Middle East and Africa regions compared to companies in the Americas, Asia Pacific and European regions who have made significant strides in this direction (KPMG 2017). Emerging economies are defined by Hoskisson et al., (2000) as low-income, rapid-growth countries using economic liberalization as their primary engine of growth. These further fall into two groups. Group one comprises of developing countries in Asia, Latin America, Africa, and the Middle East whereas the second group transition the former Soviet Union and China. A study by Rahman and Momim (2009) on sustainability reporting in emerging markets indicates that most studies done in these markets are descriptive in nature and have focused on the extent and volume of disclosures.

Given the decline in reporting trends, a study linking sustainability disclosures to financial performance in an emerging market perspective could add to the current knowledge of economic benefits and or costs arising out of reporting. In addition, such a study could affirm that sustainability disclosures does influence firm performance in a negative, positive or maintain neutrality informing managers on strategic choices.

We undertake a mixed research approach examining why slack resources interaction with firm financial performance would impact the level of sustainability disclosures in an emerging economy perspective. Several factors explain why there would be a difference in sustainability disclosure practices between emerging countries and developed economies. The contradictory results can be explained by Schaltegger and Synnestvedt (2002) who argue that relationship between sustainability practices/initiatives and financial performance differs according to the regulatory regime in a country, cultural setting, type and size of industries, companies analyzed and time span.

Given the ambitious agenda of this research, this paper therefore adds to the literature and theory of the slack resources by studying the relationship between sustainability disclosures and financial performance in an emerging markets context. We add to Waddock and Graves (1997) research by solving for the endogeneity problem through use of a longitudinal study which gives a better insight on how a company operates in different strategic realms (Garcia-Castro et al., 2009). We also examine financial performance over longer term periods by lagging all explanatory variables in time periods -1 to -3, controlling for capital intensity and include additional specific indicators of slack resources.

1.3 Research Purpose and Aim

The purpose of the research is to investigate the relationship between sustainability disclosures and financial performance in an emerging economy perspective. We also investigate whether slack resources have an impact on sustainability reporting. The results of this study aim to inform on perceived benefits and costs attached to sustainability reporting of companies in emerging markets.

The research seeks to investigate:

Is there a relationship between sustainability reporting and corporate financial performance in an emerging markets perspective?

In the pursuit of answering this question, the following sub-questions guide our research efforts;

- Why do firms in emerging markets practice sustainability?
- What sustainability initiatives are reported on most by these companies?
- Do slack resources have an impact on sustainability initiatives undertaken by companies in an emerging market?
- Do more sustainable firms (measured by the level of disclosure) outperform their less-sustainable peers?

1.4 Research Limitations

We focus our study exclusively on manufacturing firms in South Africa listed on the FTSE/JSE Responsible Investment Index 2016 adopted from a universe of the Johannesburg All Share Index (JALSH). South Africa as an emerging economy takes the lead in Africa for the 'Most Sustainable Countries' according to a survey carried out by Robecosam and KPMG (2017).

The country comes fourth globally after India, Malaysia and the United Kingdom in highest rate of corporate responsibility information in annual financial reports (KPMG 2017). In addition, South Africa accounts for 95% of sustainable investments in Sub-Saharan Africa (IFC, 2011). Furthermore, International Finance Corporation (IFC, 2011) suggests that trends exhibited from South Africa are more likely to radiate across other developing African nations This motivates the focus of our study on the South African Market.

The choice of industry (manufacturing) is mainly motivated by the fact that according to our study of sustainability disclosures on base year 2016, the industry was the third highest contributor to GDP in the economy. It contributed 13.7% (percent) to the nations GDP coming after Government and Finance industry (*See Figure 1 below*). Our choice is also accrued to the fact that among the three top sectors, the manufacturing industry has the highest impact on the environment with high resource consumption.

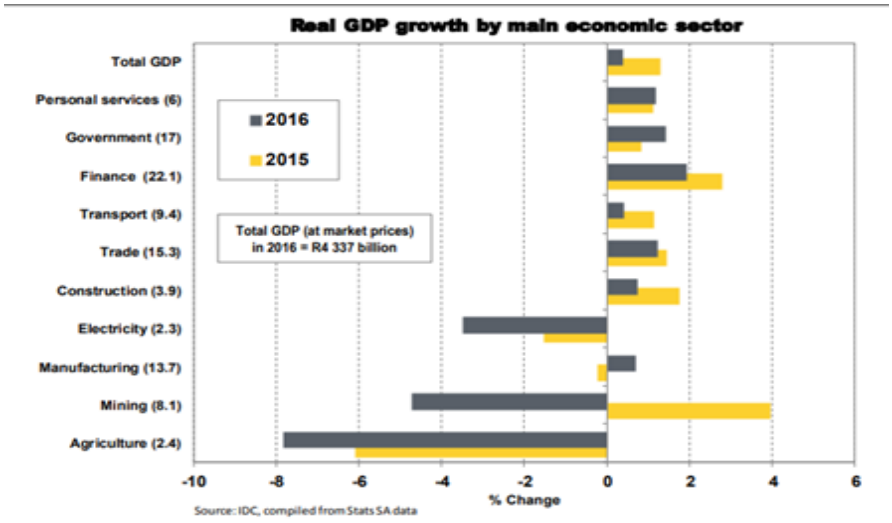


Figure 1: GDP growth per industry 2016
Source: Industrial Development Corporation South Africa (IDC, 2017)

We adopt the Statistics South Africa (Stattsa, 2014) definition and categorization of manufacturing firms in South Africa as companies in the divisions: Furniture and other manufacturing, Wood and wood products, paper, printing and publishing, Glass and non-metallic mineral products, Petroleum, chemical products, rubber and plastic products, Telecommunication and medical, Entire manufacturing industry, Electrical machinery, Food and beverages, Textiles and clothing, Motor vehicles, parts and accessories and other transport equipment, Basic iron and steel, non-ferrous metal products, metal products and machinery.

In addition, Schaltegger and Synnestvedt (2002) argue that results are more conclusive if industries with similar characteristics and legislation are analyzed. Therefore, based on our sampling bias our study is longitudinal in nature and may not be generalizable for the whole economy but rather for only manufacturing industries in emerging markets.

Lastly, our study is limited to publicly available information on manufacturing companies accessed through publicly used financial databases (Thomson Reuters and S&P Capital IQ) and respective company websites included in our research sample. We also limit our time period from 2013 to 2017 as earlier years' sustainability reports for majority of the companies included in the sample are not in existence. We further exclude companies that are subsidiaries of Multinational Corporations (MNC) outside Africa to limit the spillover of parent-effects.

1.5 Target Audience

The study is primarily intended for companies in evaluating the impact of sustainability practices on financial performance. The findings herein will inform managers on aligning strategic decisions to sustainability outcomes. The secondary target group is academia and students who study sustainability initiatives and economic performance.

1.6 Outline of the Thesis

We approach answering our research above through five chapters: Literature review, Methodology, Data analysis and results, Discussion of findings and Conclusion.

Chapter 2: Literature Review will explain the main parts of our research namely: Sustainability, Sustainability Reporting and Sustainability reporting and Disclosure and financial performance.

Chapter 3: Methodology discusses the research approach, sample size, data collection method and how our data will be analyzed.

Chapter 4: Analysis of Empirical results discusses the results from the mixed method approach.

Chapter 5: Discussion of findings explains the results of the analysis in relation to the tested hypotheses and the research question.

Chapter 6: Conclusion provides answers to our research question, implications, and contributions to research and limitations to our study as well as suggestions to future research.

2 Literature Review

This chapter seeks to analyze existing literature in order to determine relevant theoretical frameworks and hypotheses. We analyze existing literature to give the reader the knowledge and understanding of sustainability and financial performance. The chapter explains different aspects of sustainability and highlights the general trends on sustainability reporting/disclosures and financial performance. Findings from previous studies are highlighted for a deeper understanding before concluding with the hypotheses of this study.

2.1 Sustainability

According to the World Conservation Union (2006), sustainability is a concept that dates more than 60 years back. It was pushed to the forefront by the Brundtland report (1987) which attempted to define sustainable development as meeting 'the needs and aspirations of the present without compromising the ability of future generations to meet their own needs' (p.39). Viederman (1994) defined sustainability as "a participatory process that creates and pursues a vision of a community that respects and makes prudent use of all its resources" (p.5). The Brundtland definition according to Hopwood et al., (2005) clearly emphasizes the dependency of humans on the environment for their well-being rather than merely exploiting resources.

In defining sustainable development, the Brundtland report further introduced three principles: Environmental integrity, social equity and economic dimensions of sustainability. Slaper and Hall (2011) summarized the economic aspect as dealing with the bottom line flow of money from income, expenditure, taxes, business climate factors, employment and business diversity factors. In the environmental dimension, they indicated that the variables represent measurements of natural resources and reflect potential influences on the environments viability. Finally, the social dimension represents variables on communities or regions that may cover education, equity and access to social resources, health and wellbeing, quality of life and social capital (Slaper and Hall, 2011).

Various definitions of sustainability have proposed incorporating the three dimensions mentioned adopted from the Brundtland report. Barbier (1987) defined sustainability as "the simultaneous maximization of the biological, economic system and social systems goals" (p.103). Further, Institute of Directors of Southern Africa (IoD) (2009) define sustainability as "…the primary, moral and economic imperative of the 21st century" (p8).

Different organizations and scholars refer to the term sustainability to mean many various things. 'Vision expressions,' ' social recognition', ' moral development', 'value change towards a better future', 'corporate social responsibility' (See: Lee, 1993; Clark, 1989; Van, 2003; Waddock and Graves,1997) are some of the other diversity of terms used to mean sustainability.

Bansal (2002) found that some organizations do not distinguish the environmental aspect from sustainability while others equate sustainability with economic sustainability. Relatedly, Briassoulis (2001) argues that the concept of sustainability is understood instinctively but remains a difficult one to express in concrete operational terms. Robinson (2004) talks about apparent difficulties surrounding the definition of sustainability have led sustainability practices

to be indistinguishable from green-washing and branded as delusional, misrepresentational, and duplicitous. In contrast, Van (2003) argues that sustainability has led organizations to rethink their position and act in the 'complex social context' of which they are part of. Hubbard (2009) further argues that the emergence of sustainability concepts does reflect an influential change in global thinking which has caused firms to re-evaluate their approach to measuring organizational performance.

Embarking on this study, we adopt the Brundtland definition on sustainability as 'meeting the needs of the present generation without compromising the needs of the future generation.' We also adopt the use of the three dimensions; social, environmental and economic (SEE) proposed in the Brundtland 1987 report. This suggestion is supported by Slaper and Hall (2011) who argue that the concept of these dimensions can be used by companies to encourage economic development growth in a sustainable manner.

2.2 Sustainability reporting

Sustainability reporting also referred to as corporate social disclosure is defined by Songini and Pistoni as "the complex of information, mainly not financial, that a company decides to publish in order to communicate its performances concerning the impact on the relationship with the environment and society" (2015, p.1). GRI (2016) defines sustainability reporting as "an organization practice of reporting publicly on its economic, environmental and or social impacts, and hence its contributions - positive and negative towards the goal of sustainable development" (p.3).

We agree with both definitions of sustainability reporting as they do incorporate the three dimensions of sustainability included in the Brundtland report. These dimensions were further summarized by Elkington (1998) into the model he referred to as the 'Triple Bottom Line' (TBL) reporting whereby he stressed the importance of an organization reporting on its social, environmental activities the same way it reports on its financial activities *(See Figure 2: Triple bottom line model*)

Gray and Milne (2004) argue that TBL reporting shows the stakeholders where the actual accountability lies. They further indicate that TBL reporting remains a mirage and will continue to be since the practice of social and environmental reporting owes more to "rhetoric and ignorance than to practice and transparency" (Pg. 7)

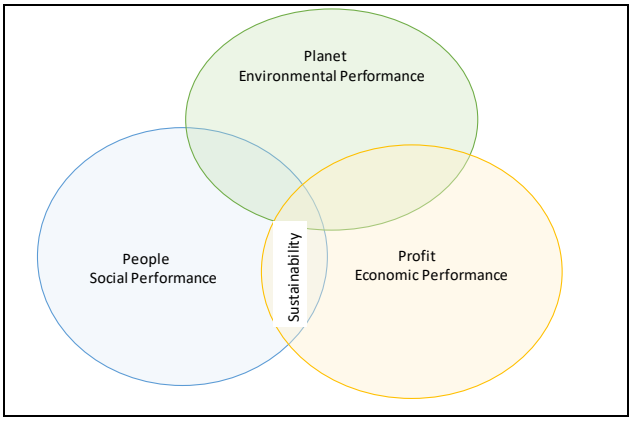


Figure 2: Triple bottom line model (Elkington, 1998)

In addition, similar to Ameer and Othman (2011), we approach the concept of sustainability disclosures and sustainability reporting as synonymous to an organization's take of its legitimate existence in society. Sustainability disclosures in this case reflect sustainability initiatives on the ground within business practices and therefore warranting the examination of its relationship to financial performance.

2.2.1 Rationale for Sustainability reporting

Hubbard (2009) indicates that sustainability practices are triggered by legal obligations such as employment standards accelerated by government, communities or customer pressure. However, while sustainability reporting could be viewed as an obligation by companies, it provides a balanced and reasonable representation of the sustainability performance of a reporting company including both positive and negative contributions (Maubane et al., 2014). Below we discuss the main drivers and benefits of sustainability reporting.

Bellringer et al., (2011) argue that legitimacy theory and stakeholder theory are the two main theories that have been advanced to explain motives for sustainability reporting. We review these two theories below followed by empirical studies on the motives for sustainability reporting.

Legitimation Theory

Suchman (1995) expresses legitimacy to be a general perception that an entity's actions are proper, desirable and appropriate within a social-cultural context of beliefs, norms, values and definitions. He further adds that it is a process through which an organization justifies its right to exist to a peer or a superior system in a cultural setting. Suchman (1995) further highlights three primary forms of legitimacy as pragmatic, moral and cognitive which separately hinge on different behavioral dynamics elaborated herein.

Pragmatic legitimacy is based on self-interest and that of the organization's most immediate audience- in this case, the stakeholders (Suchman, 1995) .He indicates that these audiences become constituencies who then scrutinize a firm's actions to determine specific consequences that accrue to them because of these behaviors after which they lend support to these organizational policies in other words giving rise to exchange legitimacy. In addition, Suchman (1995) indicates that pragmatic legitimacy gives rise to influence legitimacy which manifests when these audiences support the organization because of perception that the firm supports their broader interests.

Moral legitimacy hinges on audiences' normative approval and evaluations based on pro-social logic (Suchman, 1995). Within which he adds consequential legitimacy has audiences evaluating a firm's outputs, procedural legitimacy evaluates a firm's procedures and techniques, structural legitimacy evaluates a firm's categories while personal legitimacy looks at a firm's representatives and leaders.

Cognitive legitimacy is based on inevitability and interpretability (Suchman, 1995). While firms can source pragmatic legitimacy by redirecting resources to specific audiences, cognitive legitimacy is harder to attain as unlike these other two it doesn't rest on discursive evaluation (Suchman, 1995).

Within the legitimation perspective, Deegan (2002) argues that entities are assumed to be influenced by and in turn have influence upon the society in which they operate. Milne and Pattern (2002) argue that legitimacy gaps arise out of societal awareness, changing expectations of stakeholders and new information revealing the true self differing from a previously held notion on a firm's image. They further assert that identification of such gaps enables the employment of impression management.

Firms therefore have an incentive to offset a negative image that can be portrayed in sustainability disclosures through reporting on more favorable social performance indicators (Laufer, 2003; Milne and Pattern, 2002). In agreement, Laughlin (1987) report that the sustainability agenda has been appropriated by business interests only to a level a firm can easily accommodate due to capital-oriented values by incorporating dynamics related to cutting costs and shifting risks only to be discarded when fortune winds change. As such, sustainability initiatives should be realistically viewed as greenwashing at most and that firms' accounting dialects mask ulterior corporate agendas coming off as sources of disinformation (Brown and Fraser, 2006; Laufer, 2003).

Legitimacy is a resource on which a company is dependent on for its survival (Dowling and Pfeffer, 1975). Therefore, Deegan (2002) argues that managers then pursue strategies to ensure continued supply of resources considered particularly vital for an organization's success. Legitimacy theory is also closely related to the social contract concept as described by Matthews (1993) in which an organization's survival is threatened if society perceives it to breach its social contract. In essence, if society is not satisfied that the organization is not operating in an acceptable and legitimate way, then society revokes the organization contract to continue with its operation. Deegan (2002) further posits that central to the legitimacy theory is the institutional theory in which organizations will change their operations and strategies to conform to external expectations. These expectations that are considered legitimate and failure to undertake such conformance has direct implications on the organization's survival (Deegan, 2002).

Stakeholder theory

In contrast, Chen (1975) argues that management's primary stewardship responsibility is to society and managerial performance should be evaluated in terms of profits and accomplishment of social objectives. In agreement, Freeman (1984) argues that organizations are not only accountable to the shareholders but should also balance stakeholder's interests that can affect or are affected by the achievement of the firm's objectives. Brown and Fraser (2006) also indicate that a firm has responsibilities to a wider set of groups than simply shareholders. They further assert that stakeholder-business relationships can be mutually beneficial. For example, decent treatment of employees may reap benefits for the company through improved productivity.

Donaldson and Preston (1995) present three aspects of the stakeholder theory: descriptive, instrumental and managerial. The descriptive aspect to the stakeholder theory defines the investor-owned corporation as a unit made up of competitive and cooperative interests possessing intrinsic value which can be tested (Donaldson and Preston, 1995). Management feels obligated to cater to a wider set of audiences' needs and consider it unethical to solely

serve the shareowners' interests (Donaldson and Preston, 1995). They further add that statutory law and legal opinion have evolved in regarding the corporation's mandate as that limited to its owners with global trends requiring broader societal constituents' needs be factored in corporation's practices and decisions.

The instrumental aspect of the theory examines connections or lack thereof between the stakeholder management practice and achievement of corporate performance goals (Donaldson and Preston, 1995). They further indicate that by adherence to stakeholder practices, the firm will achieve its corporate performance objectives better than if it were to use rival approaches. The classic agency theory representing the principal as owners and agent as the managers is now expanded to include all other constituents making up the stakeholders as principals too (Donaldson and Preston, 1995). They continue to advance that the principals are then drawn in to agent activities in achieving efficiency for the firm thereby linking this theory to organizational performance. The normative aspect recognizes stakeholders' legitimate interest in the firm's activities as of intrinsic value and is exclusive of furthering the owner's needs (Donaldson and Preston, 1995). Through the normative aspect, they identify the philosophical and moral guidelines that underpin management of the firm. Changes in law dictate that even if a firm does not achieve profits and therefore does not satisfy its owners, it should ethically engage in philanthropy besides abiding by law (Donaldson and Preston, 1995).

The managerial aspect of the theory evaluates cause-effect relationships and recommends structures and practices for effective governance of constituents (Donaldson and Preston, 1995). They advance that managers have been recognized as powerful constituents in stakeholder management and may practice self-serving behaviors. The stakeholder theory though limits this aberration by prohibiting attention on any one single constituency (Donaldson and Preston, 1995).

Deegan (2002) builds on Donaldson and Preston (1995) research arguing that the stakeholder theory has two branches: ethical and managerial. He explains that the ethical branch provides prescriptions on how organizations should treat their stakeholders which re-emphasizes the responsibilities of organizations. He further informs that the managerial branch emphasizes the need to manage stakeholder groups particularly those considered powerful. Managers therefore have the incentive to disclose information about various initiatives to particular groups of stakeholders more especially the powerful ones to conform to their expectations (Deegan, 2002). This is similar to the normative and descriptive aspects of the stakeholder theory advanced by Donaldson and Preston (1995).

Agency theory

Venkataraman (2002) stresses that stakeholders do often have conflicting claims on the organization and hence the entrepreneurial process of the firm through value creation is supposed to address these arising conflicts. He adds that some of these conflicts arise through the agency relationships between agents working on behalf of the shareholders and stakeholders.

Jensen and Meckling (1976) infer that institutional pressures underscored by the agency relationship guide managers as agents to look out for its principals'- the shareholder's needs

(Waldman et al., 2006). The traditional role of the firm currently extends resource allocation to its stakeholders; delving in activities traditionally dealt with by non-profits and the government. The manager as the agent is therefore accountable to a broader audience - the principal (Donaldson and Preston, 1995).

Furthermore, revisionist views have emerged informing that investors are increasingly aware of sustainability investment benefits and are willing to pay a premium for it consistent with the notion that increased discretionary disclosure practices trigger a favorable investor preference (Altuwaijri et al., 2004).

That said, with both parties as utility maximizers; the agent doesn't always act in the principal's best interest (Jensen and Meckling, 1976). If these agents translate the reputational advantage associated with earning a certification emblem to prescribed standards as distancing the firm from any alleged wrongdoing, these senior managers' discharge of accountability towards sustainability initiatives may reduce (Laufer 2003). Further, commoditization of compliance increases white collar deviance if certain aspects of compliance is seen by managers as a hedge against liability since in some firms, this is sufficient to shift risk of loss (Laufer, 2003).

Preston and O'Bannon (1997) capture managerial opportunism as arising through senior managers cashing in on strong financial performance by reducing investments in sustainability initiatives so as to further their own short-term personal gains. They add that in periods of weak financial performance, these managers may try to offset and appear to justify the disappointing results by publicly engaging in sustainable programs. The discretionary disclosure model therefore capturing signaling issues related to sustainability disclosures explains why this trend holds (Verrecchia, 1983).

The discretionary disclosure model advanced by Verrecchia (1983) postulates that while traders have a rational expectation on a manager's motive to withhold unfavorable reports, presence of costs related to disclosure 'introduce noise by extending the range of possible interpretations of withheld information to include news which is actually favorable' (Verrecchia,1983, p.82). Disclosure-related costs in this regard include proprietary information (presenting proprietary costs) that may potentially damage a firm. This information (disclosed or otherwise) acts as a signal about the underlying assets a firm possesses (Verrecchia, 1983). He further advances even if the information released is favorable; it sometimes may harm a firm's prospects-subject to which firms may elect to minimize these disclosures. Specifically in existence of proprietary costs, speculation abounds on whether withheld information represents bad news or the opposite but not good enough to warrant the incurrence of proprietary costs (Verrecchia, 1983). He argues that in absence of proprietary costs though, managers practice full disclosure.

In order to avoid conflicts, Mendelow (1993) proposes that organizations need to first ascertain who their stakeholders are and then determine the outputs desired by these stakeholders as this process will then check the conflicting demands made by the different stakeholder groups. Gray et al., (1997) agrees with Mendelow's (1993) proposition and adds that through the application of the stakeholder model, an organization will be able to make specifications of the organization's potential accountabilities.

In summary, Gray et al., (1997) argue that treating the legitimacy and stakeholder theory as two separate theories is misleading as both theories are based on the assumption set in an economy. This is supported by Deegan (2002) who indicates that the stakeholder theory provides insights similar to those provided for in the legitimacy theory.

2.2.2 Empirical evidence for the rationale of sustainability disclosures

There have been numerous studies done by academics and researchers to examine the rationale for sustainability reporting adopted by companies worldwide. Gray et al., (1997) study on corporate social and environmental reporting indicated that legitimacy and stakeholder pressures were the main reasons for the increased number of sustainability reporting of UK companies studied over a period of 13 years (1979-1991).

Bellringer et al., (2011) research investigated the reasons for sustainability accounting by companies in New Zealand. Results from this study showed that companies engage in sustainability reporting for reasons of legitimation, accountability to stakeholders and for financial incentives. Further, in a survey conducted by Ernst and Young (EY) (2016) on members of the Center for Corporate Citizenship, improved reputation, increased employee loyalty, improved access to capital, increased efficiency and waste reduction were the top reasons cited by the professionals for reporting on sustainability. In addition, the survey reported that companies were motivated to report because of transparency with stakeholders, risk management advantages, stakeholder pressure, competitive advantage and brand reputation.

KPMG (2017) survey of 4900 companies in 49 countries notes that regulation, stock exchanges and investor pressure were the leading motivators and drivers for sustainability reporting. Similarly, a study by Farneti and Guthrie (2009) on Australian firms showed that accountability to stakeholders was the main motivation for reporting. However, in a study conducted by Hedberg and Malmborg (2003) on Swedish companies indicated that companies reported on sustainability because they were actually interested in the rationale of a sustainable world. Additional reasons cited were to seek legitimacy in their organization fields through brand reputation.

From these studies, it can be concluded that sustainability is motivated strongly more by pragmatism and economic rationales rather than the idealistic desire to ensure a sustainable world (Bellringer et al., 2011). In agreement Ehrenfeld (2005) asserts that new sustainability reports do not come close to representing the requirements of true social sustainability.

2.3 Sustainability reporting/disclosures and financial performance

2.3.1 Theoretical approaches to analyzing Sustainability reporting/disclosures and financial performance

Management of sustainability performance requires a framework that links environment and social sustainability initiatives to the business integrating the information with economic information and sustainability reporting (Schaltegger and Wagner 2006). Several theories have been discussed by academics in an attempt to link sustainability initiatives to firm performance. They include the Stakeholder theory, Legitimacy theory, Dynamic integration theory, Slack resources theory, Good Management theory and Theory of the firm. However, all these theories are interlinked and build on each other. For this study, we focus on the slack resources and good management theory and refer to the other theories for supplementary information.

Slack Resources and Good Management Theory

March (1979) definition of slack is captured by; 'organizations do not always optimize, they accumulate spare resources and unexploited opportunities which then become a buffer against bad times' (quoted in Stanford GSB, p.17). Bourgeois (1981) supplemented March's definition informing that organizational slack is an absorption mechanism that enables firms to adopt to environmental discontinuities and shifts thus furthering innovation. It translates to extra resources at a firm's disposal that can be used to solve a myriad of problems and or facilitate goal pursuit outside of those demanded for by the optimization principle (Bourgeois, 1981). Both definitions of slack are similar. We however consider Bourgeois (1981) definition to be more superior as it covers the financial, operational and strategic aspects of a business unit hence its adoption.

Slack can develop as a result of either efficient (deliberate) use of resources arising from accumulating resources deliberately for future use or inefficient use of resources (unintended) arising from incomplete information about future developments as advanced by Gral (2013). He further informs that slack can be created via actions of management or external factors to the firm. This is supported by good management theorists' argument that overall firm performance arises out of the good practices of the management team (Waddock and Graves, 1997). In addition, Hansen and Wernefelt (1989) agree that environmental factors (social, political, economic, technological) external to the firm affect overall organizational performance.

Bourgeious (1981) informs that effective firm performance leads to profits which can be translated into slack. Echoing similar sentiments, Waddock and Graves (1997) advances that better financial performance results in slack resources which are then invested in sustainability initiatives culminating in better corporate social performance. Gral (2013) further informs that financial slack resources can act as a buffer in rapidly changing environments allowing managers to have room for maneuvering. In addition, George (2005) adds that when firms experience growth, excess resources are absorbed that will be used during periods of distress thereby slack stabilizes the firm's operations in ensuring continuity. Moreover, slack resources

reduce goal conflict, improves system information processing needs and promotes a firm's political behavior (Bourgeois 1981; George 2005). Besides, effective resource management determines how competitive advantage and sustainable growth are achieved in an organization as argued by Gral (2013).

However, Gral (2013) and George (2005) indicate that slack resources do have negative implications. They argue that slack resources can lead to waste in resource allocation as managers become irrationally optimistic and risk averse. Researchers nonetheless argue that there is an optimal level of slack that positively affects organizational aspects such as innovation, performance and growth within a certain range (Chiu and Liaw, 2009; Nohria and Gulati, 1997 as cited by Gral, 2013) but small enough to avoid irresponsible behaviors by managers.

Voss et al., (2008) describe four types of slack which include: financial, customer relational, operational and human resources. Financial slack described by Kraatz and Zajac (2001) as cited by Voss et al., (2008) is the level of liquid assets that are valuable to an organization. He further describes customer relational slack as excess resources committed to an organization by specific relational stakeholders. Operational slack is described by Bourgeious (1981) as unused or underutilized operational resources. Human resource slack is referred to as specialized and skilled human resources that are rare and absorbed by the company (Mishina et al., 2004 as cited by Voss et al., (2008).

In this research paper, we mainly focus on three types of slack; financial, strategic and operational slack. We therefore use the term slack resources as synonymous to financial, strategic and operational slack. Considering financial slack, Bourgeois (1981) posits profits can be redistributed to shareholders and managers through dividends and bonuses or ploughed back into the business. This implies that changes in retained earnings, changes in dividend payout ratio, changes in administrative expenditures and changes in the financial leverage ratio can be indicators of financial slack in a firm. Voss et al., (2008) in agreement with Bourgeois (1981) indicates that the unabsorbed nature of financial slack implies that resources can be allocated to a range of exploration activities.

Bourgeois (1981) further informs operational slack as that which entails shock absorption in the internal workflow of a business. He indicates that during stress times, operational slack would be reduced to accommodate profit reduction thereby acting as a shock absorber. He further adds that in a manufacturing firm's context, slack would act as a technical buffer in the inputs stage by providing raw materials, absorbing the delivery schedules of suppliers while at the output stage by providing finished goods inventory to absorb demand fluctuations. In this case, inventory levels act as an operational slack measure. In addition, he argues that working capital operationalized captures liquidity necessary to support firm assets. He further informs that increase in working capital at a faster rate than corresponding sales indicates slack. However, Voss et al., (2008) contradicts this by saying that the unabsorbed nature of operational slack is likely to have a negative influence on a firm's performance especially regarding the innovativeness perspective.

Bourgeois (1981) and George (2005) additionally advance strategic slack as that which examines the organization as a total entity as opposed to operational slack which divides the

organization into subunits for examination. It relates to employment of the resource by higher management to experiment with novel ideas and deal with its competitive external environment minimizing hiccups to a firm. While strategic slack allows for investment outside of the traditional business realm through exploring new ideas, operational and financial slack absorb workflow hiccups (such as accommodation of low profits by re-assigning funds) ensuring processes run smoothly. These measures therefore impact managerial policy/ discretion.

Good management theory on the other hand advances that high correlation between sustainability practices and overall firm performance (among them financial) arises from good practices of the management team (Waddock and Graves 1997). Improved stakeholder perception on the firm's mandate besides its corporate function as a result becomes a basis for competition as it leads to reduced stakeholder management costs or increased sales (Waddock and Graves 1997). They further argue that this provides empirical basis for having financial performance as a dependent variable based on previous studies.

Expounding on the good management idea, proponents of social impact hypothesis advance that sustainability benefits outweigh the costs with high levels of sustainability indicators perceived to indicate superiority in management skill leading to lowering of explicit costs (Waddock and Graves 1997). Waddock and Graves (1997) inform that through this framework tension exists between a firm's explicit costs to its shareholders and implicit costs to its stakeholders reflected in sustainable initiatives. Therefore, an attempt to lower implicit costs by the firm through socially irresponsible acts will earn it a competitive disadvantage resulting in even higher explicit costs employed through damage control or similar measures (Waddock and Graves, 1997).

The above two theories complement each other and do not exist in isolation. Jones et al., (2007) takes on both theories informing that high performing companies across a number of financial indicators have effective management practices which spill over to sustainable activities and have discretionary resources to engage in more sustainability disclosures. They add that this differentiation factor in firms' investment portfolios creates a positive image through which stakeholders perceive them favorably. Lopez et al., (2007) underscores the same sentiments that changes in values due to adoption of superior sustainability practices create shifts in resource allocation reflected through changes in revenues. They add that cost savings are thought to accrue due to better exploitation of resources by firms engaging in sustainability activities which in turn reflect in higher profit growth. Therefore, a further differentiation should be reflected through increased business volume seen in sales and turnover (Lopez et al., (2007).

On the flipside however, Lopez et al., (2007) caution that in the short term, the changes may be minimal with the exception of scandalous actions of the firm impacting its performance negatively whose effects will be immediate on sales. Another way profits would reduce is through having surplus funds re-assigned to investments that have sustainability dimensions which then translate as costs for the firm (Lopez et al., 2007; McGuire et al., 1988, Orlitzky et al., 2003).

Hart and Ahuja (1996) advise that cost savings may also not be immediately realized because of supply contract renegotiation and internal processes reorganization required when savings have been realized from sustainability endeavors. In addition, when firms fail to meet

stakeholders' needs, market fears generated results in risk premium to the firm culminating in lost profit opportunities and or higher costs (McGuire et al., 1988: Preston and O'Bannon, 1997).

Barney (1991) advances in the resource-based view of the firm that for a firm to create value for its shareholders and outperform its competitors to achieve competitive advantage, it should be well organized to deploy valuable, inimitable and rare resources. These resources include unobserved firm specific characteristics such as knowledge assets, contractual relationships with suppliers, reputation and company culture (Barney, 1991; Garcia-Castro et al., 2009). Management's decision to improve its stakeholder performance therefore is endogenous and likely correlated with these firm-specific characteristics (Garcia-Castro et al., 2009).

While Waddock and Graves (1997) conclude that there is a positive relationship between financial performance and sustainability disclosures under both theories an improved study by McWilliams and Siegel (2000) using similar variables with additional control variables of advertising and R&D intensity arrived at a neutral conclusion. We therefore investigate whether the neutral relationship holds in our empirical examination.

Alternative theory: Theory of the firm

The theory of the firm is based on the premise that managers make optimal choices in attempting to maximize profits for the firm and therefore sustainability initiatives are perceived as a form of investment (McWilliams and Siegel, 2001). They further highlight that the theory looks at sustainability from two aspects of demand and supply. Two major sources of demand of sustainability: consumer demand and demand from other stakeholders such as investors, employee and communities are considered (McWilliams and Siegel, 2001). They indicate that consumer related sustainability involves intangible attributes such as reputation. Organizations therefore assess sustainability investment in terms of product differentiation seen in superior attributes in outputs and use of sustainability-related resources in the production process as a signal of firms' commitment. (McWilliams and Siegel, 2001). As a result, stakeholder demand increases and for the firm to fetch a diversification premium it may have to invest further in Research and Development (R&D) resulting in product and process innovations valued by end-users (McWilliams and Siegel, 2001).

On the supply side, McWilliams and Siegel (2001) note that to generate outputs bearing sustainability attributes, the inputs needed would come at additional capital expenditure costs which are higher for firms that delve more in sustainability than those who do not. Lopez et al., (2007) chimes in citing that reflective of the degree of resource exploitation and differentiation aspect it is expected that there would be significant differences in the performance ratios between firms listed on sustainability indexes and those not listed on these indices.

McWilliams and Siegel (2001), however, argue that there should be no difference between these two groups at equilibrium. They indicate that sustainability attributes are like any other attributes that a firm offers. Therefore, firms choose the level of attributes at which performance can be maximized given the demand and cost of providing the attribute subject to the caveat that managers are attempting to maximize shareholder wealth (McWilliams and Siegel, 2001).

In the demand and supply framework, McWilliams and Siegel (2001) advance that there is some optimal level of sustainability for the firm to provide depending on the demand for the characteristics and costs of generating them. Therefore, they add that companies that do not supply sustainability attributes have lower costs and face a lower demand curve than firms providing them. In essence, firms that supply sustainability attributes will have higher costs for production than firms that do not supply these attributes yet produce similar goods (McWilliams and Siegel, 2001). At equilibrium, both sets of firms (sustainability intense vs non-sustainability intense) will equally be profitable (McWilliams and Siegel, 2001). They affirm that the former may have higher costs but this is offset by higher revenues while the latter will have lower costs but lower revenues as well.

McWilliams and Siegel (2001) add that capital expenditures in generating outputs bearing sustainable attributes may not uniformly increase across firms since they carry a fixed cost attribute and may lead to economies of scale. They inform that larger diversified firms will then have lower average costs than smaller ones as they can spread costs leveraged across other products. Managerial decisions therefore should factor implications for this cost in making sustainability investment decisions (McWilliams and Siegel, 2001). 'To maximize profit, the firm should offer precisely that level of sustainability for which the increased revenue (from increased demand) equals the higher cost (of using resources to provide sustainability)' (McWilliams and Siegel 2001).

Diminishing returns has been theorized to come into play in the production sector sustainability practices. Frosch and Gallopoulos (1989) posit that in the early stage of sustainability practices, benefits of environmental initiatives undertaken are easily identifiable up to a point beyond which significant process overhaul and or adoption of entirely new technology would be required to sustain this green performance indicative of future increase in capital expenditure and heavy investment in R&D. McWilliams and Siegel (2001) argue that consumers who value sustainability are willing to pay a higher price for products with additional social characteristics than an identical product without that characteristic. They highlight that it is also important to note that sustainability attributes are dependent on certain characteristics of the market, degree of product differentiation, industry life cycle, demographic and technological changes among others.

Echoing similar sentiments, Lopez et al., (2007) inform that assuming sufficient economic results secure a firm's going concern; businesses can achieve long-term profits through reorienting operations and processes contributing to the triple bottom line. They further add that over time, these changes will then create differentiation elements a priori through superior disclosure practices and ultimately in business processes for the firm earning a competitive advantage.

This theory concludes by saying that there is an ideal level of sustainability which managers can determine via cost-benefit analysis. Further, each firm makes optimal choices and hence process at a profit maximizing level of output and that there is a neutral relationship between sustainability and financial performance.

2.3.2 Empirical evidence on sustainability reporting/disclosures and financial performance

Several studies have been carried out by different researchers regarding the link between sustainability and financial performance with varying results. Different variables, various methodologies and various companies in a range of years have been tested. Secondly, different dimensions have been tested uniquely defined by several researchers. The results from these studies hence bear varying conclusions (Simpson and Kohers, 2002).

Lopez et al., (2007) study on European companies listed on the Dow Jones Sustainability Index (DJSI) index for the period of 1998-2004 investigated whether there were significant differences in performance between companies that adopted sustainability practices and those that did not. The objective of their study was to obtain empirical evidence that the adoption of sustainability practices influence accounting indicators. From the study, they noted that significant changes were only observed in profitability indicators and no significant differences were found to variations in total assets, capital or revenues. They, therefore, concluded that the differences in performance were due to changes in costs.

Similarly, Ameer and Othman (2011) modelling after Lopez et al., (2007) tested whether companies that have superior sustainable practices have higher financial performance compared to those that do not engage in such practices. The study constituted of top 100 sustainable companies from developed and emerging markets for the period of 2006-2010. Results from the study indicated that higher sales growth, return on assets, profit before tax and cash flows were significant compared to the control group. These findings differ from Lopez et al., (2007) who found no significant differences in profitability ratios.

Waddock and Graves (1997) results indicate that there is a positive relationship between sustainability and prior financial performance. This they motivated was brought on by the fact that firms with available resources can afford sustainable initiatives unlike firms without available resources as those have little ability to make discretionary investments. Their results were based on a sample of S&P 500 companies tested for the period of 1989-1991.

A study carried out by Hillman and Keim (2000) on Fortune 1000 between the periods of 1994-1996 tested the relationship between shareholder value, stakeholder management and social sustainability. They argued that building better relationships with primary stakeholders helps firms develop valuable assets and could lead to increased shareholder wealth unlike using corporate resources for social issues not related to primary stakeholders. Their outcomes highlight that stakeholder management leads to improved shareholder value whereas social sustainability is negatively associated with shareholder value. They further add that if an activity is directly tied to primary stakeholders, then investments may benefit not only stakeholders but also lead to increased shareholder wealth.

McWilliams and Siegel (2000) research investigated the notion of misspecifications of models used in the linking of corporate social responsibility to financial performance. They demonstrated the flaws existing in economics studies of the relationship between social and

financial performance. They regressed the model estimated by Waddock and Graves (1997) by controlling for variables that included size, industry and risk. This replica model additionally controlled for R&D. They argued that R&D leads to product and process innovation which enhances firm productivity and hence excluding it in an econometric model would be problematic. From re-specifying the model, the results indicated a neutral relationship between CSR and financial performance which varied from Waddock and Graves (1997) who indicated a positive relationship.

Jones et al., (2007) study investigated market returns and financial performance of entities engaged in sustainability reporting. Top 100 companies listed on the Australian Stock Exchange for the period 2004 were used for the study. Results indicated that sustainability index is weakly associated with abnormal returns. However, the weakness in the relationship varied by industry with some industries having weaker negative returns than others. Jones et al., (2007) concluded by suggesting that industry may be influential on reporting on sustainability information. The second construct of financial performance indicated that there is a generally positive relationship between sustainability indices with financial performance since many various industries were analyzed.

Gray et al., (2001) studied the social and environmental disclosures and corporate characteristics of Top 100 UK companies for the period 1988 to 1995. Their results indicated that the relationship between social and environmental disclosures and company size and profit characteristics tend to vary over time. The variability in their results could be explained by industry sector suggesting that such factors play an important role in improving the explanatory power in the model. They conclude by noting that while researchers claim that there is a direct link between size, profit and industry to social and environmental disclosures, this is highly plausible as there was little systematic evidence from the sample reviewed.

McGuire et al., (1988) similarly investigated the relationship between corporate social responsibility and firm financial performance. Their study was based on companies in the Fortune 100 magazine ratings between the years 1983 to1985. Results indicated that prior performance of firms in terms of stock market returns and accounting based measures were more closely related to Corporate Social Responsibility than subsequent performance. In addition, the results indicated that measures of risk were closely related with Corporate Social Responsibility. Below we provide a summary of previous studies as discussed above.

Table 1: Summary of previous research

Study	Topic	Time data	Index	Results
Lopez et al., (2007)	Sustainable development and Corporate Performance	1998-2004	DJSI-European countries	Significant relationships with profitability indicators. No significant relationships with non-profitability indicators.
Ameer and Othman (2011)	Sustainable practices and corporate financial performance	2006-2010	Global 100 companies	Higher profitability over time for sustainable firms than non - sustainable firms.
Waddock and Graves (1997)	Corporate Social Performance and Financial Performance Link	1989-1991	S&P 500	Positive relationship between financial performance and CSP for prior performance
Hillman and Keim (2001)	Shareholder Value, Stakeholder Management, And Social Issues: What's The Bottom Line?	1994-1996	Fortune 1000	Activities directly linked to primary stakeholders lead to increased shareholder wealth unlike those not directly related.
McWilliams & Siegel (2000)	Corporate Social Responsibility And Financial Performance: Correlation Or Misspecification?	1991-1996	DSI 400	Neutral relationship between CSR and financial performance.
Jones et al.,(2007)	Empirical examination of the market returns and financial performance of entities engaged in Sustainability Reporting	2003-2004	Top 100 Australian Stock Exchange	Negative relationship between sustainability disclosures and abnormal returns. Positive relationship between sustainability indexes and financial performance.
Gray et al., (2001)	Social and Environmental Disclosure and Corporate Characteristics:	1988-1995	Top 100 UK companies	Relationship between sustainability and disclosures varied over time.

Study	Topic	Time data	Index	Results
McGuire et al., (1988)	Corporate Social Responsibility And Firm Financial Performance	1983-1985	Fortune Magazine 131 companies	Prior performance of stock returns and accounting based indicators are closely related to Corporate Social Responsibility. Risk based measures were also closely related to CSR.

As seen, hardly any studies have been conducted covering the emerging market and secondly, the findings from the above studies are contradictory.

2.4 Hypothesis development

To conduct our investigation on the relationship between sustainability disclosures and financial performance, we develop different hypotheses to be tested empirically. The hypotheses are based on theories discussed above and findings from similar studies done by different researchers. Our hypotheses are based on two main constructs, Sustainability disclosure and financial performance.

Waddock and Graves (1997) argue that highly profitable firms are more likely to engage in sustainable practices/disclosures than their counterparts and hence there is a positive relationship between sustainability disclosures and profitability. As earlier informed, this study faced endogeneity problems which when accounted for affects the relationship between the investigated variables. This is evidenced by a study conducted by McWilliams and Siegel (2000) who corrected for misspecifications resulting in a neutral relationship between sustainability disclosures and financial performance. In addition, the theory of the firm as advanced by McWilliams and Siegel (2001) stipulates that managers make optimal choices at a profit maximizing level of output and therefore, there is an ideal level of investment determined through a cost-benefit analysis.

This insight brings us to our Hypothesis 1 taking the South African context into consideration.

H1: There is a neutral relationship between sustainability disclosures and value of the firm for FTSE/JSE Responsible investment index manufacturing companies and less-sustainable manufacturing companies (control group) over the period 2013-2017.

Further, previous studies exploring the relationship between sustainability disclosures and financial performance tend to be geared towards the stakeholder theory when explaining results. However, intervening variables such as slack resources do have an impact on the relationship. Some empirical studies have indicated that there is a positive relationship between sustainability disclosures and firm performance (See Ameer and Othman 2011; Waddock and Graves 1997; Lopez et al., 2007) while other studies have indicated weak and neutral relationships between sustainability disclosures and firm performance (See Gray et al., 2001; Hillman and Keim 2001; Jones et al., 2007).

We go further and test whether there would be significant differences in financial performance ratios as a result of adoption of more sustainable practices by firms. Waddock and Graves (1997) inform that better financial performance results in slack resources which are then invested in sustainability initiatives culminating in better corporate social performance. McGuire et al., (1988) inform that expenditure in discretionary programs such as social programs is more sensitive to slack resources with more profitable firms more willing to undertake sustainability initiatives unlike less profitable companies. Ameer and Othman (2011) inform that sustainable companies have a competitive advantage over unsustainable companies and this is reflected in reduction in costs therefore bringing about higher cash flows and profits.

While Ameer and Othman (2011) results indicate that higher sales growth, return on assets, profit before tax and cash-flows were significant compared to the control group, Lopez et al., (2007) found no significant differences in profitability ratios between sustainable and unsustainable firms.

These findings hence bring us to our second hypothesis:

H2a: Profitability of most sustainable manufacturing companies ratified by FTSE/JSE Responsible investment index is higher than profitability of less sustainable manufacturing companies (control group) following on slack resources and good management theory over the period 2013-2017.

H2b: Cash Position of most sustainable manufacturing companies ratified by FTSE/JSE Responsible investment index is higher than cash position of less sustainable manufacturing companies (control group) following on slack resources and good management theory over the period 2013-2017.

Hilman and Keim (2001) posit that due to reporting practicalities, sustainability disclosure is not expected to have an immediate effect on value of the firm. They therefore examined a lagged effect on all independent variables in their empirical study finding no significant differences in the 3 year lag model.

We therefore investigate whether this relationship holds in our third hypothesis:

H3: Previous financial performance, captured by slack resources allocation (retained earnings and working capital) and profitability influences current sustainability disclosures and value of the firm for FTSE/JSE Responsible investment index manufacturing companies and less-sustainable manufacturing companies (control group) over the period 2013-2017.

2.5 Chapter Summary

This chapter has discussed existing literature in relation to our topic of sustainability disclosures and financial performance. Section 2.1 discusses our different definitions and understandings of sustainability by different academics. For the purpose of this study, we adopt the sustainability definition in the Brundtland report (1987) whereby sustainability is defined as "meeting the needs and aspirations of the present without compromising the ability of future generations to meet their own needs". This is attributed to the fact that this definition clearly emphasizes the dependency of humans on the environment for their well-being rather than

merely exploiting resources (Hopwood et al., 2005). Further this section discusses the three broad dimensions of sustainability: Environmental, Social and Economic sustainability. Section 2.2 discusses the developing norm of sustainability reporting focusing on two theories that ground why companies are increasingly reporting on sustainability; legitimacy and stakeholder theory. Reasons for sustainability reporting for firms are mainly hinged on these two theories. The other reasons for reporting such as risk management; financial performance, increased employee etc. are majorly attributed to these two theories. Section 2.3 discusses sustainability reporting and financial performance focusing on the slack resources and good management theory as linking theories.

According to slack resources theorists: Bourgeois (1981) and George (2005), firms that have spare resources are likely to indulge more in activities or opportunities presented than their counterparts without slack resources. On the contrary, the good management theorist, Waddock and Graves (1997) argue that high correlation between sustainability practices and financial performance arises from the good practices of the management team. We have gained an understanding of the topic by looking at empirical evidence on sustainability reporting and financial performance. The results tend to be varying as researchers tend to use different methodologies in form of variables tested and different definitions of sustainability. Finally, we conclude with Section 2.4 in which we develop the hypotheses of the study from the literature and empirical findings discussed.

3 Methodology

This section explains and motivates our research approach; followed by the data collection technique, sample size, how the hypotheses are operationalized into variables, and how econometrics is applied in data processing. Lastly, we discuss the limitations, validity and reliability of our chosen research design.

3.1 Research Approach

We apply a deductive approach also known as theory testing whereby our goal is to test concepts and patterns known from theory using new empirical data (Bhattacherjee, 2012). Bhattacherjee (2012) argues that a deductive approach is most productive when there are many competing theories and when the researcher is interested in knowing which theory works best under what circumstances. One theory, stakeholder theory, has been heavily used by academics to explore the relationship between sustainability reporting and financial performance. However, for this paper, we explore this relationship using the slack resources theory and the good management theory which have hardly been investigated.

Saunders et al., (2010) argues that there is no research approach inherently superior to the other. He further argues that the choice of approach should be guided by research questions, objectives, extent of existing knowledge and the amount of time available. In light of this, the main purpose of this study is to investigate the relationship between sustainability disclosures and financial performance. For the purpose and aim of this paper, we employ the idea of complementarity as referred to by Hammersley (1996) cited by Bryman and Bell (2013) whereby we use both qualitative and quantitative research for different aspects of the research purpose to be dovetailed and harmonized hence a mixed method approach.

A quantitative method is best suited for investigating a relationship on numerical data as argued by Bryman and Bell (2013) and more relevant for theory testing hence our choice. Further for this approach, we use both inferential and descriptive analysis, where we statistically describe, aggregate and present our two constructs and test our hypotheses. Since the relationship between sustainability and performance is heavily accrued to the cultural setting and the country in which an entity operates in (Schaltegger and Synnestvedt, 2002), a qualitative research in form of semi-structured interviews would deepen the understanding of the sustainability environment in South Africa. The qualitative method provides contextual information supplementing findings from the quantitative method (Bryman and Bell, 2013).

In addition, our choice of a mixed method approach is motivated by the fact that most studies on sustainability and financial performance are more quantitative focused. Introducing a qualitative approach to the research provides clearer contextual information to supplement the findings of quantitative research while enhancing the generality of findings as indicated by Bryman and Bell (2013).

Our hypotheses derived from the literature review are highlighted below:

H1: There is a neutral relationship between sustainability disclosures and value of the firm for FTSE/JSE Responsible investment index manufacturing companies and less-sustainable manufacturing companies (control group) over the period 2013-2017.

H2: Profitability of most sustainable manufacturing companies ratified by FTSE/JSE Responsible investment index is higher than profitability of less sustainable manufacturing companies (control group) following on good management and slack resources theory over the period 2013-2017.

H2b: Cash Position of most sustainable manufacturing companies ratified by FTSE/JSE Responsible investment index is higher than cash position of less sustainable manufacturing companies (control group) following on slack resources and good management theory over the period 2013-2017.

H3: Previous financial performance, in time period t-1 to t-3, captured by slack resources allocation (retained earnings and working capital) and profitability influences current value of the firm for FTSE/JSE Responsible investment index manufacturing companies and less-sustainable manufacturing companies (control group) over the period 2013-2017.

Hypotheses one and three will be tested through a regression analysis while hypothesis two will be observed from a run of descriptive statistics.

3.2 Sample size

Our sample was derived from a base universe of Financial Times Stock Exchange /Johannesburg Stock Exchange (FTSE/JSE) Responsible investment index for the year 2016 which ranks JSE All share index most sustainable firms in South Africa. The FTSE/JSE Responsible investment index firms had a total of 69 constituents in the period examined 2016. We applied a number of screens to derive our study sample outlined further. Interested in manufacturing firms only as earlier defined by the national statistical service of South Africa (Stattsa, 2014), we narrowed the sample down to 16 manufacturing firms. Further, we excluded firms that are subsidiaries of multinational corporations (MNCs) to limit parent effects and ensure homogeneity in disclosure practices thus narrowing down to 13 firms.

Another control group of 13 peer manufacturing firms listed on JSE All Share Index platform but not featured on the Responsible Investment Index for the year 2016 was determined for the study period 2013-2017. The JSE All share index is a market capitalization-weighted index with constituent companies making 'up the top 99% of total pre- free float market capitalization of all listed companies on the Johannesburg Stock Exchange' (Bloomberg 2018). Company matching for the control group was based on similarity in activity sectors and size captured by total sales, total assets or total market capitalization of a plus or minus 20% of sampled firms.

The FTSE/JSE Responsible Investment Index was chosen for reasons explained herein: First, the existence of the index gives credence to sustainability practices and value creation of firms and models closely around the UNGlobal compact and the widely adopted GRI index. Secondly, the index ratifies firms listed on the FTSE/JSE All Share Index platform as

sustainability champions. Third, fulfilment of sustainability criteria does inform on best practices relating to information disclosure on sustainability matching the regulators.

FTSE/JSE responsible investment index was adopted by the Johannesburg Stock Exchange after its predecessor the Sustainable Responsible Investment (SRI) index was discontinued in 2015. This SRI index, founded on the triple bottom line principles was launched in May 2004 using the Global Reporting Initiative (GRI) guidelines as a reference and recommendations from the King III report on Corporate Governance in South Africa (Maubane et al., 2014). The FTSE/JSE index was launched in October 2015 replacing the SRI to identify South African companies with leading environmental, social and governance practices (FTSE, 2018). The ratings on the FTSE/JSE Responsible Investment are based on FTSE Russell's Environment, Social and Governance (ESG) considerations (FTSE, 2018). *See Figure 3* on objective of ESG ratings. The Environmental pillar measures the quality of a company's management of Environmental Issues; Social pillar measures the quality of company's social issues while the Governance pillar delves in the management of governance issues of the triple bottom line including corporate governance (FTSE, 2018). 300 indicators are included in each pillar and on average, 125 indicators are applied per company (FTSE, 2018).

The FTSE Russell ESG ratings are based on a transparent and consistent methodology that measures risks and performance across the ESG areas (FTSE, 2018). These ratings not only aim at managing exposure to ESG aspects, but also meet manifested stewardship requirements, integrate ESG data into securities and portfolio analysis and implement ESG- aware investment strategies (FTSE, 2018).

Figure 3: Objective of ESG ratings

Source: FTSE (2018)

The key features of the ESG ratings and data model is that it minimizes subjectivity by having clearly defined rules for assessing and rating companies (FTSE, 2018). The ESG ratings and data model also has a separate measure for exposure calculated using the exposure weighted average allowing users to identify which ESG models are relevant for a given company (FTSE, 2018). The data is based on publicly available information of the companies and is not collected via private surveys therefore making the judgement independent (FTSE, 2018). Finally, the ESG data model is overseen by an independent external committee comprising of

experts from investment community, business, non-government organizations, unions and academia making the ratings credible (FTSE, 2018).

3.3 Data Collection Method

A mix of primary and secondary data collection methods was used. Traditional annual integrated reports and independent sustainability reports were scoured from the companies' websites primarily for information on sustainability disclosures for the selected sample. Data on financial performance for each company was sourced secondarily from Standard & Poors CapitalIQ financial database and Thomas Reuters.

Secondary data has its limitations as it has been collected for presumably different purposes and may not have been collected in a systematic manner as indicated by Bhatarcharjee (2012). Saunders et al., (2010) add that secondary data may not match the needs of the researchers. However, given the different reviews on reliability of market-intelligence databases posted on Trustradius (2018), the databases we use have no negative reviews. Besides, Bryman and Bell (2013) argue that secondary data is high quality data because rigorous procedures are usually applied in their generation and are additionally reviewed by highly experienced and qualified analysts and researchers.

Primary data was also sourced by carrying out semi-structured interviews with specialists on sustainability affairs in South Africa. A semi structured interview is defined by Bryman and Bell (2013) as one in which a 'researcher has a list of questions on fairly specific topics to be covered……but the interviewee has a great deal of leeway on how to reply' (p. 467). A semi-structured interview is relevant for adoption in our research since the study has a fairly clear focus given the subject themes obtained from the quantitative study

We conducted a web-search to aid the identification of our interview experts. Our key words were 'Sustainability reporting in South Africa' and 'Sustainability Specialists in South Africa'. We obtained three e-mail addresses and proceeded to contact the experts. We received one positive reply who recommended three other specialists in the sustainability field whom we contacted. We received two positive responses from these specialists hence bringing the total number of interviews to three. It is worth noting that all the participants have solid knowledge and a wealth of experience spanning several years on sustainability practices and initiatives in an emerging economy perspective more so in South Africa. Since different academics, researchers and field experts tend to define sustainability dimensions differently, we explained to the interviewees the different dimensions of sustainability our study covers. The interviews were recorded and transcribed to obtain an appropriate understanding of the interviewees' perspective on the topic. Bryman and Bell (2013) argue that the anonymity and privacy of those who participate in the research process should be respected. We therefore exclude the names of the persons we interviewed and refer to them as A, B and C.

Lastly, Fusch and Ness (2015) posit that failure to reach data saturation has an impact on the quality of the research and therefore hampers the content validity. They further argue that there is no one-size-fits-all in relation to the number of interviews to be conducted. It is best to think of data in terms of rich and thick (Dibley, 2011 as cited by Fusch and Ness (2015) rather than the sample size (Burmeister and Aitken, 2012 as cited by Fusch and Ness, 2015). With this

insight, we believe that our sample size of 3 is representative enough as the interviewees are specialists with undoubted expertise and knowledge in the field of sustainability and hence the results are enough to reach data saturation.

Below, we outline the way in which the interviews were carried out.

Table 2: Interview summary

Interviewee	Form	Structure	Date	Duration
A	Telephonic	Semi-structured	9 May 2018	35 minutes
B	Telephonic	Semi-structured	11 May 2018	23 minutes
C	Telephonic	Semi-structured	11 May 2018	53 minutes

The questions of the interview were guided by our research questions and preliminary findings from the quantitative study. Further, our interview guide was prepared according to guidelines proposed by Bryman and Bell (2013). They advise that the interview guide should have a certain amount of order for the questions to flow reasonably well, questions be formulated in a way that enables one to answer their research questions, using comprehensible and relevant language. See Appendix 1 on the interview questions.

3.4 Longitudinal study

Lopez et al., (2007) study on sustainability and performance recommended that a longer time frame be analyzed to determine continuity of sustainability practices and effects on firm performance. This in agreement with Bryman and Bell (2013) and Saunders et al., (2010) who argue that a longitudinal design helps map changes in business and management research allowing causal inferences to be made. We adapted this recommendation by carrying out a longitudinal study covering a period of five years (2013-2017).

3.5 Data Analysis

3.5.1 Regression model

We used content analysis method to analyze sustainability data from the sustainability reports/ annual integrated reports. This method enabled use of sustainability disclosures as a variable in the regressions run analyzing its relationship and or influence on financial performance. Regressions for the causal model were run on E-views10 statistical software.

Content analysis is defined by Bryman and Bell (2013) as an 'approach to the analysis of documents and text that seeks to quantify content in terms of pre-determined categories in a systematic and replicable manner' (p. 289). This definition conforms to our use of content analysis to review reports on sustainability disclosures for the selected sample enabling the quantification of sustainability as a variable in a regression run. Our coding manual or content analysis dictionary as referred to by Bryman and Bell (2013) is adopted from Dawkins and Ngunjiri (2008). Contents in a text with the sentence as the unit of measure were systematically analyzed through selective choosing of sample text as opposed to random methods and reduced to mutually exclusive categories (Bhattacherjee, 2012; Ameer and Othman 2011). A score was assigned per disclosure type and further aggregated per firm to derive the sustainability variable.

A number of researchers use the scoring methodology (Ameer and Othman 2011; Jones et al., 2007; Altuwaijri et al., 2004) in empirical measurement of financial performance to deduce the sustainability variable. We scored the key issues based on uncovering a similar pattern as did Dawkins and Ngunjiri (2008) on four level of activities in the sustainability reports after which numerical ranking was assigned to these activities. Dawkins and Ngunjiri (2008) were inspired by researchers: Hackston and Milne (1996), Thompson and Zakaria (2004), Warsame et al., (2002) and Wiseman (1982), earlier works. The scoring adopted a scale of 0 to 3. 0- no policy disclosure, 1-policy description, 2- policy activity, and 3- policy outcome. This approach is considered superior to others used by academics as in its simplicity minimizes individual judgement/ too much subjectivity further allowing for replicability and reduction of the margin of error.

The table below summarizes the coding criteria used as explained above.

Table 3: Summary of coding criteria

Score	**Activity**	**Criteria**
0	no policy disclosure	no mention was made of ESG activities reporting dimension
1	policy description	General mention of a ESG activities but gave no indication of a desired level of performance
2	policy activity	ESG activities were indicated but in a non-measurable manner
3	policy outcome	ESG activities were indicated but in a measurable manner

We further adopted four indexes in the definition of sustainability as proposed by Fadul (2004): Environmental index, Community Index, Diversity Index and Ethical Index. He argues that these four indices are indicators of social performance which can in turn contribute to firm

value. He defines the Environmental Index as one that measures a company's effort to do business in a manner that minimizes negative impact on the environment and Community Index as one that measures investments a company makes to help communities in which it operates. He additionally defines Diversity Index as a measure of what the company advocates for and builds a workforce with equal employment opportunity and the Ethical Index as to measure whether the company operates in a manner consistent with expected business conduct.

Specific questions adopted from Fadul (2004) to aid our content analysis are included in *Appendix 2*. A sample of our content analysis scoring has been included in *Appendix 3*. The unit of analysis is sentences since they are more reliable than words (Milne and Adler, 1999). It is important to note that the scoring applied was purely subjective since we lack an insight on actual implication for these actions on the ground. The aggregate score for total firms analyzed (split via more sustainable and less sustainable firms) was then used to derive the SSI score discussed below in Section 3.5.3.

Regarding the entire quantitative analysis, the Data set is a panel data as it has both cross-sectional and time dimensions appropriate for a pooled Ordinary Least Squares (OLS) regression. A preliminary descriptive statistics analysis was done with outliers revealing skewness defined as four standard deviations from the mean further corrected for as outlined in the subsequent section. Total number of observations narrowed down to 121 from an initial 130 giving an unbalanced panel data structure.

3.5.2 Model specifications

In it 'pays to be green' literature, measures of firms' economic performance are understood in form of financial ratios and market-based measures (Altuwaijri et al., 2004; Wagner, 2007). Our objective centers around costs and benefits from innovations in processes and or productivity gains/loss in embracing more sustainable initiatives. We specified three multivariate equations in which one variable is a function of several explanatory variables.

A number of common financial performance and operations measures were used to analyze variations if any accruing from adoption of sustainable practices. Additionally, to control for model misspecifications and variable omission bias that plagued previous studies, we include a number of variables that have not been widely used despite evidence of their explanatory power (see McWilliams and Siegel 2000) as highlighted below.

To determine direction of causality, we adopt Waddock and Graves (1997) view that the corporate social performance is both a predictor and a consequence of the firm's financial performance. Majority of extant research have treated indicators of sustainability as an independent variable that predicts firms' financial performance (Garcia-Castro et al., 2009). We therefore model direction of causality from the sustainability indicator to Tobin's Q after controlling for firm specific factors.

3.5.3 Dependent Variable

A number of studies (Waddock and Graves (1997); McWilliams and Siegel (2000); Garcia-Castro et al., 2009) have embraced accounting measures: ROA, ROE and ROS as appropriate variables for measuring firm performance. Hillman and Keim (2001) caution though that these measures focus more on firm's historical performance and are more short term in nature therefore falling short of capturing long term value created by the firm. Further they inform that these accounting measures largely capture transactional aspects which are easily duplicated by competitors while coming short of adequately assessing the relational intangible aspects of value in sustainability activities. Market-based measures too have been equally faulted as giving credence to investors' evaluation of a firm over other constituencies that hold claims to a firm (McGuire et al., 1988). In light of this, we use measures of financial performance and slack including both accounting-based and market-based measures.

Tobin Q is a common proxy for firm value denoted by ratio of a firm's market value to its asset replacement costs (Hillman and Keim, 2001). Conceptually a measure of value added by management, Tobin's Q as a measure of economic profit is more forward looking capturing the market's perception of current and potential profitability (Huselid, 1995). He adds that there is widespread agreement that capital market measures are superior to accounting measures which can be affected by timing issues, measurement errors and adjustment for depreciation. Previous studies that have used Tobin Q and its variations as a measure for economic profit are Garcia-Castro et al., (2009) and Huselid (1995). They however used a simplistic market value to book value ratio.

Extant literature investigating the role of sustainability disclosures to firm value have regressed Tobin's Q against several variables (Dowell et al., 2000; King and Lenox 2001; Konar and Cohen 2001; Ameer and Othman 2011).

Variations of Tobin's Q do exist:

i. Wagner (2010) uses log of the ratio of market value to replacement costs.

ii. Dowell et al., (2000) summed firm equity value with net current liabilities and book value of long term debt while calculated replacement costs as sum of net value PP&E to book value of inventory.

iii. Konar and Cohen (2001) use sum of market value of equity, debt and preferred stock to replacement value sum of PP&E, Inventory and short-term assets.

iv. King and Lenox (2001) used sum of firm equity value, net current liabilities and book value of long term debt dividing this by book value of total assets

For simplicity we adopt market value of equity ratio to book value of total assets.

3.5.4 Independent Variables

SSI_{it} is a sustainability scoring index based on content analysis of firm *i* over time period *t*. Historical studies have treated indicators of sustainability as an independent variable that predicts firms' financial performance (Castro 2009). Heterogeneity problems in previous research have been advanced due to lack of a uniform and reliable instrument with recent studies adopting indexed measures (Castro, 2009). Details on how this index was computed are discussed in section 3.5 above.

Profit Margin (MARGIN) adopted from Altuwaijri et al., (2004), measure captures both the presence of competitive markets and profitability. We additionally assume as Altuwaijri et al., (2004) that the large manufacturing firms analyzed from the JALSH index do operate in a national competitive market where cost management would involve price increases, cutting of costs or both. They further indicate that in such a market potential for price increases are limited, cost reduction is crucial affirming therefore that higher profit margins would signal better control of costs.

Working Capital (WCTA) denotes working capital ratio of firm *i* to total assets over period *t* while *Retained Earnings (*RETA) denotes ratio of retained earnings of firm *i* to total assets over period *t.* These two measures have been adopted to investigate whether more disclosure is likely to be adopted by firms with better than average financial performance since these firms would have the financial resources to devote to voluntary sustainability reporting (Jones et al., 2007).

Cash Position (CATA) and *Capital Expenditure (CAPEXTA)* follow from slack resources argument and serves to investigate whether more sustainable firms report a negative capital expenditure to suggest slack resources are being applied to capital expenditure activities (Jones et al., 2007).

Firm Beta (RISK) obtained from S&P CapitalIQ database is used as a measure of systematic risk (Garcia- Castro et al., 2009; McGuire et al., 1988). Higher investments in sustainability may lower a firm's financial risk and investors may perceive entities that do not invest significantly in sustainability as riskier investments attributing it to poor management skills (McGuire et al., 1988). They add that high investing firms in sustainability may therefore have access to better financial resources given their low risk status. They inform that impact of sustainability on systematic risk may be minimal given not all events affecting a firm's sustainability practices systematically affects all other firms in the market.

3.5.5 Control Variables

To avoid the omitted variable problem, we include control variables for variables known to affect Tobin Q and related to choice of sustainability disclosure (Dowell et al., 2000).

A significant number of studies (Hillman and Keim, 2001; Ameer and Othman, 2011; Lopez et al., 2007; Jones et al., 2007; Wagner, 2007 and Altuwaijri et al., 2004) propose *size* to be included in the model as a control variable and regressed to observe significance relative to other variables. They argue for size as appropriate citing that larger firms have more incentive to commit to society and commit more resources to sustainability therefore reporting more.

Different measures of size previously used are log of employees (Wagner, 2007), ratio of assets to sales (Jones et al., 2007) total assets (Lopez et al., 2007) and market value of common equity (Altuwaijri et al., 2004). We employ Jones et al., (2007) ratio of total assets to total sales as proxy for size. Size alone however doesn't appropriately control for influence of strategic decisions that create endogeneity problems and other firm specific variables are recommended to be used in estimations (Hart and Ahuja 1996; McWilliams and Siegel 2000).

Capital intensity (CAPSALES) affects both index disclosure rating (SSI) and financial performance (Hart and Ahuja 1996; McWilliams and Siegel 2000). For this reason, we adopt CAPSALES to blunt effects of differences in firm commitment and particularly solve for the endogeneity problem in Waddock and Graves (1997) study.

Further we include *Leverage (LEV)* (Hart and Ahuja 1996; Garcia-Castro et al., 2009; Dowell et al., 2000; Jones et al., 2007; Lopez et al., 2007) as control variable for risk. Highly levered firms may lack the ability to invest in superior sustainability practices while the opposite is true (Dowell et al., 2000).

3.5.6 Final regression equation

The final regression equation was selected for its explanatory power. It captures relationship of sustainability disclosures to financial performance while at the same time factoring in strategic effects of discretionary disclosures of managers.

To test for the hypotheses developed in chapter two, the below equations were selected for their explanatory power.

H1: There is a neutral relationship between sustainability disclosures and value of the firm for FTSE/JSE Responsible investment index manufacturing companies and less-sustainable manufacturing companies (control group) over the period 2013-2017.

$$Tobin\ Q_{it} = \alpha + \beta_1 SSI_{it} + \beta_2 MARGIN_{it} + \beta_3 CAPEXTA_{it} + \beta_4 CATA_{it} + \beta_5 RETA_{it} + \beta 6 WCTAit + \beta_7 RISK_{it} + \beta_8 SSID_{it} + \beta_9 CAPSALES_{it} + \beta_{10} SIZE_{it} + \beta_{11} LEV_{it} + \varepsilon_{it}$$

H2 will be tested by means from a descriptive statistical analysis.

H3: Previous financial performance, captured by slack resources allocation and profitability influences current sustainability disclosures and value of the firm for FTSE/JSE Responsible investment index manufacturing companies and less-sustainable manufacturing companies (control group) over the period 2013-2017.

To examine this relationship, we analyze three time periods of t-1 to t-3. Which brings our investigation to:

H3a: Previous financial performance, in time period t-1 captured by slack resources allocation and profitability influences current sustainability disclosures and value of the firm for FTSE/JSE Responsible investment index manufacturing companies and less-sustainable manufacturing companies (control group) over the period 2013-2017.

$$Tobin\ Q_{it} = \alpha + \beta_1 SSI_{it-1} + \beta_2 MARGIN_{it-1} + \beta_3 CAPEXTA_{it-1} + \beta_4 CATA_{it-1} + \beta_5 RETA_{it-1} +$$

$$\beta_6 WCTA_{it-1} + \beta_7 RISK_{it-1} + \beta_8 SSID_{it-1} + \beta_9 CAPSALES_{it-1} + \beta_{10} SIZE_{it-1} + \beta_{11} LEV_{it-1} + \varepsilon_{it}$$

H3b: Previous financial performance, in time period t-2 captured by slack resources allocation and profitability influences current sustainability disclosures and value of the firm for FTSE/JSE Responsible investment index manufacturing companies and less-sustainable manufacturing companies (control group) over the period 2013-2017.

$$Tobin\ Q_{it} = \alpha + \beta_1 SSI_{it-2} + \beta_2 MARGIN_{it-2} + \beta_3 CAPEXTA_{it-2} + \beta_4 CATA_{it-2} + \beta_5 RETA_{it-2} +$$

$$\beta_6 WCTA_{it-2} + \beta_7 RISK_{it-2} + \beta_8 SSID_{it-2} + \beta_9 CAPSALES_{it-2} + \beta_{10} SIZE_{it-2} + \beta_{11} LEV_{it-2} + \varepsilon_{it}$$

H3c: Previous financial performance, in time period t-3 captured by slack resources allocation and profitability influences current sustainability disclosures and value of the firm for FTSE/JSE Responsible investment index manufacturing companies and less-sustainable manufacturing companies (control group) over the period 2013-2017.

$$Tobin\ Q_{it} = \alpha + \beta_1 SSI_{it-3} + \beta_2 MARGIN_{it-3} + \beta_3 CAPEXTA_{it-3} + \beta_4 CATA_{it-3} + \beta_5 RETA_{it-3} +$$

$$\beta_6 WCTA_{it-3} + \beta_7 RISK_{it-3} + \beta_8 SSID_{it-3} + \beta_9 CAPSALES_{it-3} + \beta_{10} SIZE_{it-3} + \beta_{11} LEV_{it-3} + \varepsilon_{it}$$

Where:

Table 4: Summary of empirical model variables

Variable	Formula
$\boldsymbol{\alpha}$	Denotes a constant term
SSID	Denotes a dummy variable that takes the value of 1 for firms listed on the FTSE/JSE Responsible Investment index 2016 and 0 for firms not on the index in 2016 therefore making up the control group
Dependent Variable	
Tobin Q	$Q = \frac{Market\ Value\ Of\ Equity}{Book\ Value\ of\ Total\ Assets}$
Independent Variables	
Sustainability Score Index (SSI)	*SSI =∑(Ethical Disclosure score + Diversity Disclosure Score + Environmental Disclosure Score+ Community Disclosure Score)*
Profit Margin	$MARGIN = \frac{Net\ Income}{Net\ Sales}$

Variable	Formula
Working Capital	$WCTA = \frac{Working\ Capital}{Total\ Assets}$ where Working Capital = Current Assets - Current Liabilities
Retained Earnings	$RETA = \frac{Retained\ Earnings}{Total\ Assets}$
Cash Position	$CATA = \frac{Cash\ Position}{Total\ Assets}$ where Cash Position = Cash + Receivables
Capital Expenditure	$CAPEXTA = \frac{\text{Capital Expenditure}}{Total\ Assets}$
Firm Beta	$RISK = \beta$
Control Variables	
Size	$SIZE = \frac{Total\ Assets}{Total\ Sales}$
Capital Intensity	$CAPSALES = \frac{Total\ Capital}{Total\ Sales}$ where Total Capital = ∑(Book Value of Common equity + Preferred Equity+ Total Minority Interest + Total Debt)
Leverage	$LEV = \frac{Total\ Debt}{Total\ Equity}$

3.5.7 Interviews analysis

Unlike quantitative data analysis which has clear cut rules on how analyses should be carried out, qualitative data is not as straightforward to analyze (Bryman and Bell, 2013). Our qualitative analysis is guided by the analytic induction strategy as discussed by Bryman and Bell (2013). In the analytic induction, we begin with the definition of the research question and seek hypothetical explanations from the interviews through matching trends and patterns. We use pattern and trend matching as discussed by Yin (2009) to compare theory anticipations and preliminary results from the quantitative study to results from the interviews.

3.6 Limitations of Research Method

A combination of data sources by conducting a mixed method research design approach is considered preferable as it results in a balanced and in-depth understanding of the topic. However, it is important to note that the mixed method is not intrinsically superior to the mono-

method research as argued by Bryman and Bell (2013) given some researchers have questioned the quality of mixed method research.

For this fact, we employ the use of quantitative data analysis tools whereby we account for assumptions fitting to the OLS regression. Further, for the content analysis we carried out multiple cross checks as discussed below in Section 3.7. To control for endogeneity problems, it is recommended to use research and development intensity, advertising intensity and capital intensity as extra control variables (McWilliams and Siegel, 2000; Hart and Ahuja, 1996). We adopt only capital intensity as majority of entire firms analyzed did not have the advertising and research and development items captured by the financial databases we sourced data from.

For the qualitative data analysis, we transcribed the interviews and conducted a systematic review of the data as guided by the process of an analytic induction discussed by Bryman and Bell (2013).

3.7 Reliability, Replicability and Validity

Reliability, Replicability and Validity are the three most prominent criteria in the evaluation of business and management research as indicated by Bryman and Bell (2013). Below we discuss how we considered these criteria in our research paper.

3.7.1 Reliability

To ensure coding reliability in our content analysis, we report on the manner in which we constructed our decision categories and decision rules as advised by Milne and Adler (1999). In measuring coding stability, we used the test-retest method as referred to by Bryman and Bell (2013) whereby we re-tested the analysis thrice with a gap of one week between each analysis and recalibrated our criteria confirming that the coding was consistent across all periods.

To test for quantitative data reliability and robustness, we performed a series of diagnostic tests on E-views outlined in the subsequent chapter since in a regression model heteroscedasticity and multicollinearity may inflate variances (Garcia-Castro et al., 2009).

3.7.2 Replicability

Schaltegger and Synnestvedt (2002) argue that results are more conclusive if industries with similar characteristics and legislation are analyzed. Therefore, our study that is only based on a single industry may not be generalizable for the whole economy but rather for only manufacturing industries in South Africa.

3.7.3 Validity

Whether sustainability disclosures are the absolute measure of sustainability initiatives is a topic that has been discussed widely by academics and researchers. Ehrenfeld (2005) research concluded that new sustainability reports do not come close to representing the requirements of true social sustainability. This can be explained by the institutional theory by Suchman (1995) which states that as companies experience coercive and normative pressure from a powerful institution compliance is inevitable and only the bare minimum is given. However, Maubane

et al., (2014) argue that sustainability reports provide a balanced and reasonable representation of the sustainability performance of a reporting company.

3.8 Chapter Summary

This chapter motivates the choice of our entire research approach. We undertake a deductive approach in which we test sustainability reporting and financial performance using the slack resources theory and good management theory. Our choice for this study is based on the fact that researchers tend to heavily rely on the stakeholder theory when exploring this relationship. We, however, sense that slack resources and good management do have an impact on this relationship hence the focus on these two theories. Further, we adopt a mixed method research whereby we employ the idea of complementarity as referred to by Hammersley (1996) by use of both qualitative and quantitative research for different aspects of the study to create harmony.

In addition, most of the studies on the topic tend to adopt a mono-method focused approach. A mixed method study provides more contextual information enhancing the results and more so the discussion of the study. We also employ a mix of primary and secondary data in our analysis. We approach the qualitative hand by conducting interviews with specialists in the field of sustainability and the quantitative method by using regressions.
In Section 3.2 we argue for our sample size of the study. The sample is derived from the FTSE/JSE responsible investment index for the year 2016. Screens applied to this sample narrowed down the sample from an initial 69. Given that our focus is manufacturing firms, the sample further reduced to 16 then to a further 13 because we excluded 3 additional companies who are subsidiaries of MNCs given they would likely project parent effects leading to lack of homogeneity in the companies analyzed. For the control group, company matching for the 13 peer manufacturing firms was selected from the JSE All Share index primarily based on activity sector and company size.

In Section 3.5 we explain how our data will be analyzed. For the quantitative aspect, we employ the use of regressions to analyze the data using statistical software known as E-views. Model specifications for the regressions are based on existing literature and empirical findings from the research. For the qualitative method, we are guided by a strategy referred to as ‘analytic induction’ by Bryman and Bell (2013). We seek hypothetical explanations from interviews matching trends and patterns.

4 Analysis of Empirical Results

This chapter presents empirical findings from the regressions run. First, we discuss the diagnostic tests conducted to support the validity of the regression estimator and then present the results of the regression describing the relationships identified.

The regression models highlighted in the previous chapter sought to uncover the relationship between sustainability disclosure and financial performance and examine further whether sustainable manufacturing firms ratified by the FTSE/JSE responsible investment index in 2016 outperform the control group of manufacturing firms not on the index in 2016. We examine the period 2013-2017. The regressions were performed on an ordinary least squares (OLS) estimator on E-views 10 statistical software.

4.1 Diagnostic Tests

OLS has a series of assumptions for which we performed significant tests outlined further.

4.1.1 Non-normality

Brooks (2014) informs in determining normality, a normal distribution is symmetric around the mean with a kurtosis of 3 while a skewed distribution has one tail longer than another. Outliers which are extreme residuals cause the normality assumption to be rejected. A test for normality is the Jarque-Bera test with a bell shaped histogram distribution.

An initial run of descriptive statistics (*See Appendix 4*) revealed that the majority of these values (Q, MARGIN, CAPSALES and LEVERAGE) were highly skewed, had outliers and showed kurtosis. A further test for normality (*See Appendix 5*) revealed high Jarque-Bera values for variables Q, MARGIN and CAPSALES. Brooks (2014) recommends dummy variables or use of other transformations as corrections to fulfill this assumption. We therefore use log - transformation in the empirical model. The resulting regression (*See Appendix 7*) has a better fit than the original one (*See Appendix 6*) from an adjusted R squared of 73% to 80.6% .As a result, observations were reduced from 130 to 121 having an unbalanced panel data.

4.1.2 Multicollinearity

This assumption in OLS requires the explanatory variables not be highly correlated to one another (Brooks, 2014). Multicollinearity arises when one or more variables are highly correlated to one another with values above 0.8. No multicollinearity problems were found between the variables observed from a correlation matrix (*See Appendix 8*).

4.1.3 Endogeneity

To avoid the problem of omitted variable bias and model misspecification which introduces endogeneity problems we control for several factors in the regression model. Endogeneity problems arise when an explanatory variable is correlated with the error term (Brooks, 2014). Recent studies recommend for use of longitudinal data and or instrumental variables (Garcia-

Castro et al., 2009). We adopt the former in this study since variables herewith gathered are observable and limit the model from under-specification problems.

An initial regression run reveals leverage having a positive coefficient to Q which violates our expectation of a negative sign indicating possible presence of endogeneity. To rule out additional measurement errors and or reverse causality, we include cross-section random effects and run a Hausman test (*See Appendix 9*) for endogeneity given that our data is unbalanced panel and therefore cannot have two way effects testing for cross-section and period. The result gives a p value of 1.000 meaning the test couldn't be performed perhaps due to few time periods (5 years). We therefore keep to transforming the leverage variable in the model.

4.1.4 Autocorrelation

Another OLS assumption requires that the errors should not be correlated to each other. To test for this we examine the Durbin Watson statistic value at 0.8. It however does not confidently inform of level of autocorrelation given the rule of thumb is values closer to 2 would mean the lack of autocorrelation. We run a further cross-section dependence test (*See Appendix 10*) which informs of low p-values indicating presence of spatial autocorrelation.

4.1.5 Heteroscedasticity

OLS requires same variance i.e. homoscedasticity the absence of which causes heteroscedasticity. Unequal variance can heavily undermine parameter estimates' statistical power (Jones et al., 2007). Plotting residuals to check for presence of heteroscedasticity reveals the residuals are systematically changing variability on the sample indicative of potential heteroscedasticity (*See Appendix 11*). Subsequent testing reveals the heteroscedasticity occurs more in cross-section than period (*See Appendix 12*).

We applied White cross-section standard errors (*See Appendix 13*) to estimate the regression using heteroscedasticity robust standard errors (Brooks, 2014). Comparing this to the initial regression reveals marginal changes to parameters from the ordinary standard errors estimate. The p-values are now smaller for variables; t-values have increased while the r-squared is consistent as previous estimation.

4.2 Analysis of results

Firm value depends on profit margin, capital expenditure, cash position, sustainability practices, retained earnings, working capital and level of risk. We therefore explored whether these independent variables have an explanatory power in the model in line with the theories tested.

4.2.1 Correlation Matrix Analysis

A correlation matrix analysis revealed that there's a highly significant moderate negative correlation between sustainability disclosures and profit margin for the control group (*See Appendix 14*). As sustainability disclosure increases, the less sustainable manufacturing firms' profit margin increases slightly.

However, a weak positive correlation not significant at all levels is seen between sustainability disclosures and profit margin for the responsible investment index group firms (*See Appendix 15*). This means changes in sustainability disclosures has no relationship on the profit margin trends of responsible investment index firms.

There is a negative weak correlation between sustainability disclosures and cash position for the responsible investment index group firms- not significant at all levels while a weak positive correlation significant at 0.1 is seen for the control group.

There's a weak negative correlation between sustainability and value of the firm for both the responsible investment index group and the control sample as well. The correlation is not significant for the control group at all levels while it is significant at 0.1 level for the responsible investment index group.

Additionally we examined the correlation patterns between sustainability disclosures and slack resources indicators used in addition to risk. For the responsible investment index firms, there's no significant correlation between sustainability disclosures and slack resources indicators. Changes in sustainability disclosures have no relationship to the slack resources trends of responsible investment index firms.

There's a weak significant correlation between sustainability disclosure and firm risk at 0.005 level. Otherwise sustainability disclosure is not significantly correlated to slack resources indicators for the control group. Meaning as the control group firms disclose and therefore practice sustainability more, their systematic risk goes down to a smaller extent. We posit that for the control group, sustainability is therefore used as a tool to hedge against risk.

4.2.2 Descriptive Statistics Analysis

Investigation of whether financial performance ratios; cash position and profitability is higher for responsible investment index companies than the control group is explained further via descriptive statistics analyses.

Descriptive statistics indicate that responsible investment index firms (*See Appendix 16*) have a firm value higher than the control group (*See Appendix 17*) depicted by their means. Additionally, their profit margins are lower than the control group.

For the control group, capital expenditure and cash position of the control group is higher than that of the responsible investment index companies. This is in contrast to slack resources theory which advances that these should be higher for more sustainable firms.

Responsible investment companies have a higher retained earnings and working capital compared to the control group firms. All control variables are highly significant in controlling for levels of firm commitment meaning they do have an explanatory power in the relationship between firm value and sustainability disclosures.

4.2.3 Causal Model - Regression Analysis

Analyzing the regression model (See table 7 and *Appendix 18*), we find that sustainability disclosures have no relationship to firm value. While the coefficient sign is positive, it's p values (0.1096) is not significant at all levels. The empirical model's goodness of fit is 81% highlighting a superior explanatory power.

To test if these trends endure over time we examine whether past financial performance impacts sustainability disclosure and firm value by lagging all independent variables -1 to -3 years. Overall there's no significant relationship between firm value and sustainability disclosures for lag -1 and lag-2 and the coefficient sign is still positive consistent with the baseline model. Lag -3 while also maintaining a positive coefficient for sustainability disclosures, has a highly significant relationship to firm value (See Table 8 and *Appendix 19 to 21*).

To test for significant differences between sustainable and less sustainable sub-samples we run an integration model (See Table 6 and *Appendix 22*) in which the independent variables interact with the dummy that takes 1 if firms are on the responsible investment index and 0 if not. This particular regression has a better fit and reduced standard error than the initial one with adjusted r squared of 85.8% compared to the initial one of 80.7%. The intercepts for both models and all independent variables are significantly different from each other.

To determine whether indulging in all aspects of sustainability increases firm value, we examined ethical, diversity, environmental and community disclosure aspects further. All dimensions are moderately positively correlated to each other (*See Appendix 23*) with the exception of diversity which has a strong positive correlation to environmental and community aspects. Meaning disclosure and practice on diversity aspect is highly correlated to environmental practices and disclosures and the community.

Descriptive statistics informs that both groups practice more and therefore report more on environmental aspect with a mean (median) of 40% (44.5%) followed by diversity with a mean (median) of 33.6% (38%).Community and ethical aspects are equally practiced and reported on with a mean (median) of 22% (*See Appendix 24*).The more sustainable firms do practice and report more on aspects; environmental, diversity and community than the control group captured by their higher means and medians (*See Appendix 25*). The control group reports more on ethical dimension than the responsible investment index manufacturing firms though (*See Appendix 26*).

Investigating whether one aspect of sustainability influences firm value more than the other reveals the following: Overall, only the environmental aspect has a positive coefficient to firm value significant at 0.05 level. This translates to a positive impact on firm value by engaging in environmental sustainability. The other aspects; ethical, diversity and community have a negative coefficient (relationship) (*See Appendix 27*).

Relating the variables estimated effects to standard deviation reveals diversity is more costly to the entire lot followed by community and ethical respectively. Benefits from environmental aspect are minimal though to the value of the firm (See Table 5). Examining the sub-samples split at their mean reveals that for each group, more sustainable companies and the control

group, there is a positive relationship between diversity (significant at 0.05 level) and value of the firm meaning for each particular sub-sample, diversity does influence firm value positively.

Table 5: Relative variable comparison to Standard Deviation.

general sample	coeff	sd	q SD	
ethical	-0,147286	9,622961	1,29	-1,099
diversity	-1,003975	11,27104		-8,772
environmental	0,071412	13,44577		0,7443
community	-0,699769	9,31982		-5,056
sustainable sample	coeff	sd	q SD	
ethical	-0,33967	9,391972	1,661493	-1,92
diversity	3,332388	9,516559		19,087
environmental	-0,01187	8,965747		-0,064
community	-3,936338	7,70708		-18,26
unsustainable sample	coeff	sd	q SD	
ethical	0,294132	9,877860	0,539712	5,3832
diversity	0,954748	12,20813		21,596
environmental	-0,023667	15,49271		-0,679
community	-0,393535	10,2914		-7,504

In addition, for the control group ethical aspects (not statistically significant) of sustainability do have a positive relationship to the value of the firm (*See Appendix 28*). For the more sustainable firms' sample, any benefits that would have been realized from diversity are minimal as costs in community sustainability endeavors are comparatively high (*See Appendix 29*). The control group benefits more from diversity activities and ethical reporting which increases their firm value whereas environmental and community sustainability aspects are costly to them.

Assuming that the sub-samples (responsible investment index and the control group) are independent, we perform a Kruskal-Wallis nonparametric rank-based test (*See Table 6 and Appendix 30)* to ascertain the statistical significance in the difference between the sustainability disclosure aspects. The Kruskal-Wallis tests the null hypothesis that the 'subgroups have the same general distribution, against the alternative that at least one subgroup has a different distribution' (Eviews 2018).

Table 6: Kruskal Wallis non parametric test

	Community	**Environmental**	**Diversity**	**Ethical**
Mean Rank Responsible investment index firms	71.26923	77.80769	74.92308	63
Mean Rank control group firms	59.73077	53.19231	56.07692	68
asymptotic significance	0.0797***	0.000200	0.0041**	0.4482
grouping: cohort	df=1			
n=65 control group firms	n=65 responsible investment index firms			

p≤0.05* p≤0.01 p≤0.1*****

The mean difference in ranking for community aspect is significant at 0.1 level and not beyond while for Environmental and Diversity aspects significance is at 0.001 and 0.005 level respectively. Ethical dimension ranking is not significantly different between the subgroups.

See Figure 4 below on interaction of level of sustainability disclosures to financial performance for manufacturing firms in South Africa.

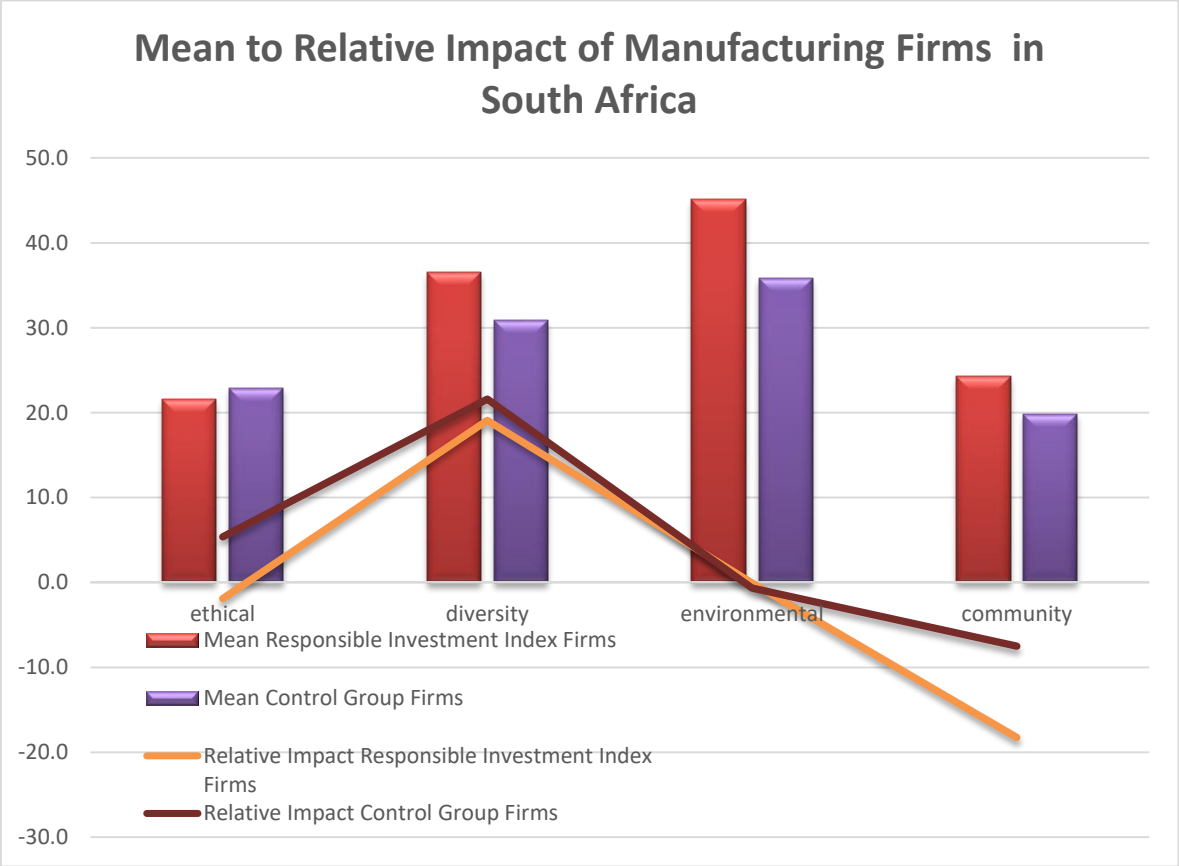


Figure 4: Interaction of sustainability disclosures to financial performance

Table 7: Baseline and interaction model regression outputs

Year 2013 to 2017	**Dependent variable Tobin Q**		
Independent financial and control variables	**coefficient**	**t-value**	**p value**
(constant)			
Combined indices	3.29395	8.07939	0.0000**
Interaction model	1.56712	5.68264	0.0000**
Sustainability Scoring index			
Combined indices	0.00188	1.61328	0.1096
Interaction model	0.00081	0.170164	0.8652
Margin (net income/net sales)			
Combined indices	0.35485	8.17356	0.0000**
Interaction model	0.87659	4.55214	0.0000**
Capital Expenditure/Total Assets			
Combined indices	-1.02649	-2.76372	0.0067**
Interaction model	-1.59265	-3.06520	0.0028**
Total Capital /Total Assets			
Combined indices	-2.31043	-2.55844	0.0119*
Interaction model	-2.29934	-1.08316	0.2814
Retained Earnings/Total Assets			
Combined indices	0.72398	2.20577	0.0295*
Interaction model	1.28576	2.04237	0.0438*
Working Capital /Total Assets			
Combined indices	-0.22875	-0.36451	0.7162
Interaction model	-2.24660	-2.22171	0.0286*
RISK			
Combined indices	-0.36368	-1.47664	0.1427
Interaction model	0.71826	0.79412	0.4290
SSID			
Combined indices	0.14346	2.35809	0.0202*
Interaction model	4.12035	8.54724	0.0000**
Capsales (total capital to total sales)			
Combined indices	0.85587	18.17900	0.0000**
Interaction model	0.43762	1.32520	0.1882
Size (total assets/total sales)			
Combined indices	-1.19382	-16.93688	0.0000**
Interaction model	-1.03300	-3.91057	0.0002**
Leverage (total debt/total equity)			
Combined indices	-0.09601	-1.69575	0.0928***
Interaction model	0.24553	1.30328	0.1955
N			
Combined indices	121		
Interaction model	121		
Adjusted R sq.			
Combined indices	81.0%		
Interaction model	86.6%		

p≤0.05* p≤0.01** p≤0.1***

Table 8: Causal model lagged time periods

Year 2013 to 2017	**Dependent variable Tobin Q**		
Independent financial and control variables	**coefficient**	**t-value**	**p value**
(constant)			
Lagged 1	3.73070	16.09027	0.0000**
Lagged 2	3.35913	5.48588	0.0000**
Lagged 3	4.93003	21.54140	0.0000**
Sustainability Scoring index			
Lagged 1	0.00220	0.91606	0.3622
Lagged 2	0.00345	1.318010	0.1924
Lagged 3	0.00544	105.8642	0.0000**
Margin (net income/net sales)			
Lagged 1	0.23584	3.57792	0.0006**
Lagged 2	0.17922	4.43589	0.0000**
Lagged 3	0.15159	3.77768	0.0006**
Capital Expenditure/Total Assets			
Lagged 1	-1.81277	-4.57238	0.0000**
Lagged 2	-1.87952	3.24158	0.0019**
Lagged 3	-3.55154	-14.42407	0.0000**
Total Capital /Total Assets			
Lagged 1	-3.50748	-13.70897	0.0000**
Lagged 2	-2.72969	-9.62622	0.0000**
Lagged 3	-4.48201	-9.69070	0.0000**
Retained Earnings/Total Assets			
Lagged 1	0.72274	1.44151	0.1531
Lagged 2	0.50028	0.51439	0.6088
Lagged 3	0.44698	0.50955	0.6135
Working Capital /Total Assets			
Lagged 1	-0.10625	-0.11540	0.9084
Lagged 2	-1.73054	-7.35507	0.0000**
Lagged 3	-2.07861	-2.20786	0.0337*
RISK			
Lagged 1	-0.66767	-1.83591	0.0699***
Lagged 2	-0.59038	-6.01000	0.0000**
Lagged 3	-0.85915	-4.02854	0.0003**
SSID			
Lagged 1	0.12744	1.32765	0.1878
Lagged 2	0.25519	1.82245	0.0733***
Lagged 3	0.08245	0.64934	0.5202
Capsales (total capital to total sales)			
Lagged 1	0.99250	17.69497	0.0000**
Lagged 2	1.15761	11.10514	0.0000**
Lagged 3	1.35066	379.74190	0.0000**
Size (total assets/total sales)			
Lagged 1	-1.37851	-24.59804	0.0000**
Lagged 2	-1.51219	-7.32017	0.0000**

Lagged 3			-2.17212	-28.72966	0.0000**
Leverage (total debt/total equity)					
Lagged 1			-0.05810	-2.49814	0.0144*
Lagged 2			-0.12360	-1.25814	0.2131
Lagged 3			-0.00193	-0.01993	0.9842
N	**Lagged 1 (97)**	**Lagged 2 (77)**		**Lagged 3 (48)**	
Adjusted R sq.	**Lagged 1 (79.9%)**	**Lagged 2 (76.5%)**		**Lagged 3(86.6%)**	

p≤0.05* p≤0.01 p≤0.1*****

4.2.4 Interview findings

Interviewee A

The Interviewee had similar views to the various academics who strongly believed that sustainability is being viewed as a tick-box/ compliance practice rather than companies embracing transformation through innovativeness and creativity by being sustainable. *A* indicated that companies in South Africa will only do the bare minimum regarding sustainability so that their products are fit for export through abiding by the International Organization for Standardization (ISO) or FTSE/JSE standards. *A*, however, argued that this is bound to differ industry to industry.

In addition, *A* indicated that government is the biggest influencer of sustainability due to the sustainability regulations especially in the manufacturing industry. However, *A* argued that customers and shareholders to an extent influence the level of sustainability initiatives undertaken by companies. *A* rather states though the investor subset in South Africa is rather small, they are increasingly becoming aware of sustainability issues and are demanding for it. However, *A* believes in the next years, the market is likely to move to a deeper understanding of sustainability due to the numerous links of sustainability practice to performance and the rising global awareness and interest on the topic.

Interviewee B

Interviewee B shares the same sentiments with Interviewee A regarding the strongest motivator for sustainability reporting in South Africa. *B* argues that companies in South Africa report on sustainability issues majorly because it is a corporate governance requirement passed through the stock exchange. *B* also indicates that it is majorly companies listed on the JSE that are reporting on sustainability in South Africa. Only a handful of private companies (not listed on JSE) do report on sustainability. Whereas South Africa ranks highly in the most sustainable countries in the world, *B* indicates that companies in general do not understand the business case for sustainability reporting. Compliance has overridden the moral case for sustainability. *B* also indicates that this has led companies to provide the bare minimum so as to abide by the legislation.

Interviewee C

C argues that all the initiatives being undertaken by the companies are a mirage of being sustainable and only exist to ensure businesses can continue to be a going concern and maximize shareholder wealth in the long-term. *C* argues that the increasing number of indices ranking companies on sustainability continue to mislead companies and in effect killing the moral value of sustainability. *C* emphasizes that the main influencer of sustainability reporting who also majorly informed on sustainability practices are the primary stakeholders; shareholders. These publics entrust their investments with the agents who are responsible for the utilization of resources at their own discretion so as to maximize shareholder wealth and in turn also their own wealth. C concludes by saying that there is no relationship between sustainability and organizational performance as sustainability initiatives are majorly engaged in as a form of risk management by trying to keep the secondary stakeholders in check (government, customers, and communities) to avoid any occurrences that might result to the company not being a going concern.

4.3 Chapter summary

This chapter presents the empirical findings from both the qualitative and quantitative investigations done. Diagnostic tests in section 4.1 to fulfill assumptions of the OLS estimator were performed and further corrective tests were applied. The data was non-normal defined as highly skewed data with outliers. It did not meet a histogram test for bell-shaped distribution besides variables possessing high Jarque Bera Values. No multicollinearity problems were found while endogeneity problems as expected abound. Leverage showed a positive sign to firm value indicating possibility of endogeneity problems. Being an unbalanced panel data, we cannot have two-way effects testing and therefore use cross-section random effects to run a Hausman test. The test is inconclusive we suspect given out time period of 5 years is not long-enough. We therefore stick to transforming the leverage variable. A cross-section dependence test illustrates presence of spatial autocorrelation while presence of unequal variance is indicative of heteroscedasticity. We applied White cross-section standard errors to correct for the autocorrelation and heteroscedasticity problems.

Section 4.2 highlights findings from a correlation matrix, descriptive statistics, regression analysis and the semi-structured interviews. Aside from the semi-structured interviews, the rest of the analysis was discerned from E-views 10 statistical software. Correlation matrix inform of absence of high correlations between sustainability disclosures and financial performance variables as advanced by the good management theory. Descriptive statistics inform the responsible investment firms have higher firm value, retained earnings, and working capital compared to the less responsible firms. Additionally, their profitability, cash position, and capital expenditure are lower than the control group. The causal model highlighted that the coefficient sign for sustainability disclosures is positive though not significant and therefore bearing a neutral relationship to firm value. The empirical model's goodness of fit is 81% highlighting a superior explanatory power. Prior longer term performance t-3 influences sustainability disclosure relationship to firm value positively. An integration model reveals sustainability disclosures do play a role in financial performance of firms while indulging in environmental disclosures pays off for firms as opposed to aspects diversity, community and ethical which come bearing costs overall. Relating the variables estimated effects to standard

deviation reveals diversity is more costly to the entire lot followed by community and ethical aspects respectively. The responsible investment index firms disclose more on all aspects community, diversity and environmental than the control group who disclose more on the ethical dimension which we find rather odd. All three interviewees maintain the view that sustainability is embraced in South Africa more for compliance than for moral consciousness by listed manufacturing firms. Regulators drive need for sustainability in the country with mushrooming indices serving to drive firms further towards legitimating their existence through sustainability initiatives.

5 Discussion of Findings

This chapter presents our discussion of the collected and analyzed quantitative and qualitative empirical data. Our study attempts to address whether there is a relationship between sustainability reporting and financial performance in an emerging markets perspective. In undertaking the study, we first discuss our findings from hypotheses developed followed by arguments discussing the sustainability environment in South Africa.

5.1 Sustainability disclosures and financial performance

The results obtained from our empirical analysis indicate that there is a neutral relationship between sustainability disclosures and firm value. This hypothesis supports a similar study undertaken by McWilliams and Siegel (2000) affirming that endogeneity problems which marred Waddock and Graves (1997) study causes the hypothesized relationship to change when the empirical model is correctly specified. Hypothesis one is accepted. The neutral relationship suggests that there are other variables, unobserved which mediate the relationship between sustainability disclosures and firm performance (Garcia-Castro et al., 2009). Given that the environment in which the manufacturing firms operate in is legislation intensive, a neutral relationship between sustainability disclosures and firm value would be expected. Normative pressure implies that firms are not actually exploring and exploiting the benefits through innovation but rather are doing the bare minimum to ensure their companies do not lose out on revenue. This relationship can also be explained by our alternative theory, theory of the firm stipulated by McWilliams and Siegel (2001) which argues that managers will make optimal choices so as to maximize profits and hence there is an optimal level of investments on sustainability that a firm can make depending on the costs and the benefits.

The interactive model results suggest that more sustainability practices and therefore disclosures (captured by firms on the responsible investment index) have a significant impact on firm value as sustainability level of investments differ between the responsible investment index firms and those not on it. We also find no evidence of a high correlation between sustainability disclosures and firm performance due to management's practices. This is consistent with Garcia-Castro et al., (2009) who informs that management decisions originate from within the firm and are more likely to be correlated instead with unobservable firm-specific characteristics such as culture.

Profitability of responsible investment index firms is lower than the control group. We therefore reject hypothesis 2a. This reduction in overall profit margin can be explained by; engaging in sustainability initiatives come as a cost to the firm reducing the profits. In addition, cash position for the responsible investment group is lower than that of the control group. We therefore reject hypothesis 2b. This can also be observed due to the responsible investment index firms increase in working capital with high investments in working capital reducing cash for these firms. Working capital could be reassigned to sustainability activities from other primary firm activities. The costs manifest in form of training, research, risk management, quality control and effectiveness utilization of capacity (Lopez et al., 2007).

Profit arises when revenues are more than costs therefore the more sustainable firms can increase their output base to spread out costs through volume we recommend in order to maintain a gain from sustainability endeavors. Ameer and Othman (2011) inform that for sustainability endeavors to be rewarding, a new rethinking would have to be done by managers by identifying specific restrictions and incentives they seek to gain from these endeavors. Failure to which we posit such trends as the one we have analyzed arise. This is consistent with interviewee A and C view that sustainability endeavors is not seen from an innovation perspective that would bring about competitive advantage to firms.

Likewise, for the more sustainable firms, any perceived benefits from sustainability endeavors would in turn necessitate supply chain renegotiation and internal processes reorganization which would come at additional costs affecting their finances (Hart and Ahuja,1996) Redistribution of some measures of slack resources explained below from primary activities of the firm to sustainability activities affects profitability (Lopez et al., 2007). A myriad of competing claims by different publics on a firm's sustainability practices could also be another reason that may lead to higher costs translating to lost profit opportunities. As we have shown, not aspects of sustainability are practiced equally with some dimensions disclosed more than others. This failure to meet a specific subset of stakeholders' needs will generate market fears from these groups resulting in a risk premium to the firm (McGuire et al., 1988: Preston and O'Bannon, 1997). Indeed the more sustainable firms do have higher risk than the control group.

For the other measures of slack resources, we observe that while increase in slack resources capital expenditures and cash position is seen for the control group, the responsible investment index firms have a higher working capital and retained earnings. Because profits are low for the responsible investment index firms, their corresponding slack measures reduce too consistent with Bourgeois (1981) definition of operational slack as that which acts as a shock absorber in the internal workflow during stress times of a business by accommodating profit reduction.

Nevertheless, not all indicators of slack can be said to contribute to value of the firm given that the responsible investment index firms have lower profit margins than the control group besides having a higher firm value. The interesting trend for the control group firms can be attributed to the non-exclusivity in form of slack resources capital expenditure and cash position. For the control group there exists managerial irrational exuberance in undertaking entrepreneurial sustainability initiatives via experimentation (George, 2005; Gral, 2013). Additionally, an attempt at lowering sustainability implicit costs by firms not on the responsible investment index thereby practicing fewer initiatives may result in higher explicit costs brought on by competitive disadvantage necessitating extra funds allotted to damage control measures. We believe this is what the control group exhibits.

We however point out that while profit margin and cash position are low; the value of the firm for the more sustainable firms is higher compared to the control group. Therefore responsible investment firms may have to make a trade off in regards to what index to pursue reflective of returns or costs from sustainability endeavors. Multiple yardsticks as a benchmark for financial performance may distract them from seeing the bigger picture and we therefore recommend that the costs sacrificing a reduction in profits should not overshadow the higher overall value accrued to the firm.

Hypothesis three rejection for lagged periods -1 and -2 but accepted for -3 period affirms that previous longer-term financial performance does affect positively the relationship between sustainability disclosure and financial performance. This can be explained by strategic decisions of firms taking a longer period to be realized. Prior longer term sustainability practices affects a firm's liability exposure and value as the market is more aware of the company's corporate citizenship stance (Hart and Ahuja 1996). Sustainability investments require substantial funding (Lopez et al., 2007) and the longer time frame additionally enables firms to accumulate resources and strategically allocate to sustainability functions thereby increasing the firms' performance. Also consumer awareness of the ethics surrounding sustainability takes time to manifest and therefore their subsequent demand for this from firms may not be immediate (Lopez et al., 2007).

In addition, structural factors such as assets take time to develop and firm-specific characteristics such as culture and organizational processes too take time to manifest (Lopez et al., 2007). Therefore value creation from sustainability practices is not an immediate realization. Besides development of sustainability in outputs, adoption of technology that supports sustainability and firm differentiation are strategic patterns that take time to reveal positive effects to firms. Moreover, the baseline model neutral relationship can be construed to mean that these firms have already adopted sustainability practices thereby conforming to standards and any benefits seen in prior -3 period is neutral in the current state has not been sustained. This can be because of imitability factor of sustainability practices and shifting audience focus as discussed by Lopez et al., (2007).

5.2 Sustainability reporting and initiatives in South Africa.

Breaking down sustainability disclosures by aspects to determine effects on firm value as examined further supports the notion that not all aspects of sustainability practices increase the value of the firm; only delving in environmental sustainability does increase firm value. This is in contrast to Ameer and Othman (2011) who found community aspect sustainability practices as the one that influences firm value.

As expected of high impact industries, our results are not surprising given that firms in the manufacturing industry in South Africa report more on environmental issues. This is similar to the findings of Dawkins and Ngunjiri (2008) who argue that institutional pressures through laws and regulations especially from governments in emerging markets tend to play a significant role by driving and shaping sustainability especially environmental sustainability.

Further, Laufer (2003) argues that the commoditization of compliance increases white collar deviance if certain aspects of compliance is seen by managers as a hedge against liability since in some firms, this is sufficient to shift risk of loss. This is emphasized by Interviewee C who indicates that sustainability is being used as a risk management strategy for firms. Firms are not interested in the moral case for sustainability but are rather more interested in ensuring they abide by legislation. Compliance for them will in turn enable them meet the interests of all the stakeholders but more importantly the shareholder whose major interest is maximizing his returns on investment.

In addition, Interviewee A and B argued that the increasing global awareness on sustainability issues especially environmental disclosure has heavily influenced the amount of reporting. This to a large extent is responsible for the adoption of sustainability practices in South Africa. It also relates to Friedman's (1970) shareholder approach who argues that the sole existence of a business is to generate profits and hence businesses will engage in activities that will in the short or long term lead to growth in shareholder wealth. Still heavily bound by legislation as indicated by the interviewees, businesses engage in sustainability to meet the stakeholders needs and wants.

Using Suchman (1995) categorization of legislation, the South African manufacturing industry is more hinged on pragmatic legitimacy compared to cognitive and moral aspects. Companies seek legitimacy through complying with the existing laws as failure to comply has an impact on their returns and more so their business continuity. This is supported and re-emphasized by Matthew's (1993) notion that an organization's survival is threatened if it breaches its social contract because society can revoke the organization's contract to continue its operations.

Our findings also indicate that the diversity and community index disclosure on sustainability is relatively high despite them being more costly for the firms that engage in them. Despite this negative effect though, firms still delve in them affirming the need to meeting their 'social contract' with stakeholders and its need for legitimacy. We posit this is so because of the high requirement /legislation put in place requiring black empowerment (Dawkins and Ngunjiri, 2008), HIV/AIDS and King's code of corporate governance bearing extra costs. These legislation requirements aim at inclusivity of marginalized persons in economic participation (Dawkins and Ngunjiri, 2008). While engaging in environmental sustainability does come at a cost, it is offset by higher value to the firm re-enforcing the theory of the firm discussed by McWilliams and Siegel (2001).

In addition, the above findings are similar to Dawkins and Ngunjiri (2008), who argues that emerging economies are bound to engage more and report more on social sustainability. This can be attributed to the nature of tangible benefits accrued to this index hence it is more likely for it to have an impact and maintain the company's social contract with the stakeholders. Improved firm reputation can spur the community to engage more with the organization's offerings while the reverse can lead to total shunning of its existence altogether.

Splitting the groups though revealed less sustainable firms report more on ethical aspect of sustainability than do the more responsible investment index firms. This in turn is reflected as a benefit to their firm value. This trend is suspect and the pattern can be attributed to fueling the legitimation theorists view of sustainability practices being a 'smokes-and-mirrors' construct. The responsible investment index firm's hesitation may be explained by the discretionary disclosure model which holds that in presence of proprietary costs, managers may withhold favorable information to investors when such news may lead to negative consequences (Verrecchia, 1983). An example is reporting on political contributions yet this may result to a bias from its community.

5.3 Chapter Summary

This chapter begins by discussing findings from hypotheses developed after which the South African sustainability environment is elaborated on. Hypothesis one is accepted that there is a neutral relationship between sustainability disclosures and financial performance affirming McWilliams and Siegel (2000) claim that endogeneity problems not correctly accounted for influenced Waddock and Graves (1997) earlier study. Normative pressure backs up why this outcome is observed while our alternative theory –the theory of the firm claim that there is an optimal level of investments on sustainability that a firm can make depending on the costs and the benefits illuminates our findings further. No evidence of good management role on sustainability disclosure relationship to financial performance is found confirming that management decisions are endogenous and are more likely to be correlated with unobserved firm-specific characteristics such as culture as proposed by Garcia-Castro et al., (2009).

Hypothesis 2 (a) on profitability and 2 (b) on cash position is rejected that these indicators on more sustainable firms is higher than the control group. For the control group the opposite is seen because they do not bear the accompanying sustainability costs the responsible investment index firms bear. Working capital as a slack resource is reassigned to sustainability endeavors cutting back on the responsible investment index firms' cash position. Competing publics needs therefore giving rise to market fears from select constituents give rise to a risk premium for the responsible investment index firms resulting in lost profit opportunities. These firms' capital expenditure is low reflective of lower profits. The control group had higher capital expenditure and cash position indicating over-indulgence in sustainability endeavors as a damage control measure. The value of the firm is higher though for the responsible investment index firms than the control group which we believe should be the metric managers uphold to as opposed to profitability.

Hypothesis 3 rejection for lagged periods t-1 and t-2 but accepted for lagged period t-3 confirms that markets take time to reflect awareness of sustainability practices of firms and this in turn takes time to be reflected in a firm's financial performance. Structural factors too take time to manifest such as organizational processes. Furthermore, not all aspects of sustainability increase a firm's value- only the environmental aspect does highlighting the legislative intensive atmosphere manufacturing firms in South Africa operate in. More stringent regulations on social issues passed down through laws rhymes with higher sustainability disclosures in those aspects as well by manufacturing firms in South Africa.

6 Conclusion

This chapter presents conclusions arrived at, recommendations and suggestions for further research.

6.1 Research Aims

This research paper sought to investigate the existence of a relationship between sustainability disclosures and financial performance of manufacturing firms in an emerging market - South Africa. We examined why these firms indulge in sustainability practices and which aspect they do report on more. Additionally we investigated the role of good management, slack resources, legitimation and our alternative theory- the theory of the firm in explaining the rationale for sustainability practices by these firms. We went further to ascertain the performance of more sustainable firms compared to the performance of the less sustainable firms not on the FTSE/JSE responsible investment index 2016.

While an original OLS regression showed there is a neutral relationship between value of the firm and sustainability disclosures, our interactive model informs that sustainability disclosures do have an impact on the value of the firm given that the level of spending on sustainability initiatives differ between more and less sustainable firms. That said, it does pay to be green; more sustainable firms have a higher firm value than the less sustainable firms. Sustainability is a new pursuit for companies demanded from increasing awareness of publics. The regulator to a larger extent drives the need for sustainability practices by companies. Organizations therefore are spurred to delve in these activities mainly for compliance purposes and additionally so that their outputs can gain first mover advantage in 'green' export markets.

Failure to fully embrace sustainability endeavors has less sustainable firms expending more slack resources to save face as they are seen to delve more in ethical aspect disclosure- merely a token effort. Not all measures of slack resources impact sustainability disclosures and financial performance. Only working capital is consistent with slack resources theory. The responsible investment group who engage more in sustainability practice experience a reduction in profits but an overall increase in firm value. Their managers must therefore make a trade-off on what financial metric to prioritize and therefore pursue. Pursuing firm value as a metric is in line with social-welfare maximization presenting a win-win scenario for both the firm and its stakeholders.

We establish not all aspects of sustainability influence the value of the firm positively. Only the environmental aspect does. Additionally, firms in South Africa report more on the social aspect of sustainability largely given the regulator puts more emphasis on these factors.

6.2 Practical Implications

Manufacturing firms in South Africa delve in sustainability practices for legitimation purposes. We posit this is to secure their reason for existence with the stakeholders as opposed to the need

for doing good. We therefore advance that if management pursues sustainability practices beyond a tick-box exercise, the positive relationship of sustainability disclosures to financial performance will be a significant one capturing additional competitive advantages brought on from this differentiating factor. The regulators to encourage embracement of sustainability in the region may offer these firms incentives to offset their social obligations to the community.

6.3 Further Areas for Research

Previous research and ours included have largely focused on analysis of public companies with little exploration done on private companies analysis. For further research, we recommend an exploration of the relationship between sustainability disclosure and financial performance of private companies in South Africa to establish if an umbrella trend does exist between listed and unlisted firms. Future work could also replicate such a study and examine whether additional factors known to correct for endogeneity problems (research and development intensity and advertising intensity) would sustain a neutral relationship as ours has. While we have used capital intensity to factor endogeneity problems, we consider it adequate given supplementary information that compliance largely drives sustainability practices. The extra control factors would provide a glimpse on whether innovation too can impact firm value arising from sustainability practices or affirm that company's pursuit of sustainability is myopic, limited to checking of boxes and or hinged on gaining a first -mover advantage in 'green' export markets.

References

Adams, C. & Evans, R. (2004). Accountability, completeness, credibility and the audit expectations gap. *Journal of Corporate Citizenship*, [e-journal] vol 14, pp.97–115, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 23 March 2018]

Altuwaijri, 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*, [e-journal] vol.29, no.5-6, pp.44o.7-471, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 21 March 2018]

Ameer, R. & Othman, R. (2011). Sustainability practices and corporate financial performance: A study based on the top global corporations. *Journal of Business Ethics*, [e-journal] vol.108, no.1, pp.61-79, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 18 April 2018]

Bansal, P. (2002). The corporate challenges of sustainable development. *Academy of Management Review*, [e-journal] vol.16, no 2, pp.122–131, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 28 March 2018]

Barbier, E.B. (1987). The concept of sustainable economic development. *Environmental conservation*, [e-journal] vol. 14 no. 2, pp.101-110. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 8 April 2018]

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, [e-journal] vol.17, no 1, pp.99-120, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 12 April 2018]

Bebbington, J. (2001). Sustainable development: A review of the international development, business and accounting literature. *Accounting Forum*, vol.25, no.2, pp.128–157.Available at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.456.7371&rep=rep1&type=pdf [Accessed 29 March 2018]

Bellringer, A., Amanda, B. & Russell C. (2011). Reasons for sustainability reporting by New Zealand local governments. *Sustainability Accounting, Management and Policy Journal*, [e-journal] vol.2, no. 1, pp. 126-138. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 31 March 2018]

Bhattacherjee, A. (2012). Social science research: Principles, methods, and practices:USF Tampa Bay Open Access Textbooks Collection [pdf] Available at: http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1002&context=oa_textbooks [Accessed 28 March 2018]

Bloomberg (2018). FTSE/JSE All Africa Share Index. Available Online: https://www.bloomberg.com/quote/JALSH:IND [Accessed 14 April 2018]

Bourgeois III, L.J. (1981). On the measurement of organizational slack. *Academy of Management review*,[e-journal] vol.6, no.1, pp.29-39, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 17 April 2018]

Briassoulis, H. (2001) Sustainable development and its indicators: through a (planner's) glass darkly. *Journal of Environmental Planning and Management*, [e-journal] vol.44, no.3, pp.409-427. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 25 March 2018]

Brooks, C., (2014). Introductory econometrics for finance. Cambridge university press.

Brown, J. & Fraser, M. (2006). Approaches and perspectives in social and environmental accounting: an overview of the conceptual landscape. *Business Strategy and the Environment*, [e-journal] vol.15, no.2, pp.103-117. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 25 March 2018]

Brundtland, G.H. (1987). Report of the World Commission on environment and development:" our common future.", United Nations.[pdf] Available at: http://www.un-documents.net/our-common-future.pdf [Accessed 8 March 2018]

Bryman, A & Bell, E. (2013). Business research methods. Oxford: Oxford University Press

Burmeister, E. & Aitken, L. M. (2012). Sample size: How many is enough? *Australian Critical Care*, vol.25, pp. 271-274.

Chen, R.S. (1975). Social and financial stewardship. *The Accounting Review*, [e-journal] vol. 50, no. 3, pp 533-543, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 18 March 2018]

Chiu, Y.C. & Liaw, Y.C. (2009) "Organizational slack: is more or less better?", *Journal of Organizational Change Management*, vol. 22, no. 3, pp. 321–342,

Clark, W.C. (1989). Managing planet earth. *Scientific American*, [e-journal] vol. 261, no. 3, pp.47-54, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 17 April 2018]

Dawkins, C. & Ngunjiri, F.W. (2008). Corporate social responsibility reporting in South Africa: A descriptive and comparative analysis. *The Journal of Business Communication*, [e-journal] vol.45, no.3, pp.286-307. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 18 March 2018]

Deegan, C. (2002). Introduction: The legitimizing effect of social and environmental disclosures: a theoretical foundation. *Accounting, Auditing & Accountability Journal*, [e-journal], vol.15, no.3, pp.282-311. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 18 March 2018]

Dibley, L. (2011). Analyzing narrative data using McCormack's lenses. Nurse Researcher, vol.18, no. 3, p. 13-19. Available online: http://nurseresearcher.rcnpublishing.co.uk/news-andopinion/commentary/analysing-qualitative-data

Dimson E., Karakas.O & Li.X. (2015).Active Ownership. *The Review of Financial Studies*. [e-journal], vol.28, no.12, pp.3225-3268. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 28 March 2018]

Donaldson, T. & Preston, L.E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of management Review*, [e-journal], vol. 20, no.1, pp.65-91. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 21 March 2018]

Dowell, G., Hart, S. & Yeung, B. (2000). Do corporate global environmental standards create or destroy market value? *Management science*, [e-journal] vol.*46, no.*8, pp.1059-1074. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 22 March 2018]

Dowling, J. & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific sociological review*, [e-journal], vol.18, no.1, pp.122-136. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 28 March 2018]

Ehrenfeld, J.R. (2005). The roots of sustainability. *MIT Sloan Management Review*, [e-journal], vol.46, no.2, p.23. Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 18 March 2018]

Elkington, J. (1998). Cannibals with forks. The triple bottom line of 21st century, [e-book] Oxford: Capstone. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 26 March 2018]

EY (2016). Value of sustainability reporting A study by EY and Boston College Center for Corporate Citizenship [pdf] Available at: http://www.ey.com/Publication/vwLUAssets/EY_Sustainability_reporting_-_the_time_is_now/$FILE/EY-Sustainability-reporting-the-time-is-now.pdf [Accessed 13 March 2018]

Fadul, J. (2004). Business ethics, corporate social responsibility, and firm value in the oil and gas industry, PhD thesis, Department of Applied Management and Decision Sciences, Walden University, Available online: https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=1000&context=dilley [Accessed 15 April 2018]

Farneti, F. & Guthrie, J. (2009). Sustainability reporting by Australian public-sector organizations: Why they report. *In Accounting forum*, [e-journal], vol. 33, no. 2, pp. 89-98. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 26 March 2018]

Freeman, R.E. (1984). Strategic Management: A Stakeholder Approach, Boston: Pitman, Organizational Studies, vol. 7, no. 3, p.302

Friedman, M. (1970). "The Social Responsibility of Business is to Increase Its Profits." Ethical Issues in Business. A Philosophical Approach. pp. 217-223.

Frosch, R.A. & Gallopoulos, N.E. (1989). Strategies for manufacturing. *Scientific American,* [e-journal] vol. 261, no. 3, pp.144-153. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 26 March 2018]

FTSE. (2018). ESG Ratings and data model. Available online :http://www.ftse.com/products/downloads/ESG-ratings-overview.pdf?796 [Accessed 15 April 2018]

Fusch, P.I. and Ness, L.R. (2015). Are we there yet? Data saturation in qualitative research. *The qualitative report,* [e-journal], vol. 20, no.9, pp.1408. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 21 May 2018]

Garcia-Castro, R., Ariño, M.A. & Canela, M.A. (2009). Does social performance really lead to financial performance? Accounting for endogeneity. *Journal of Business Ethics*, [e-journal] vol.92, no.1, pp.107-126. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 15 April 2018]

George, G. (2005). Slack resources and the performance of privately held firms. *Academy of Management Journal*, [e-journal], vol.48, no.4, pp.661-676. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 20 March 2018]

Gral, B. (2013). How Financial Slack Affects Corporate Performance: An Examination in an Uncertain and Resource Scarce Environment. Springer Science & Business Media.

Gray, R. & Milne, M. (2004). Towards reporting on the triple bottom line: mirages, methods and myths. The triple bottom line: Does it all add up, pp.70-80, Available online: https://www.researchgate.net/profile/Markus_Milne/publication/45417330_Towards_reporting_on_the_triple_bottom_line_mirage_methods_and_myths/links/560364e208ae08d4f171626b/Towards-reporting-on-the-triple-bottom-line-mirage-methods-and-myths.pdf [Accessed 21 March 2018]

Gray, R., Dey, C., Owen, D., Evans, R. & Zadek, S. (1997). Struggling with the praxis of social accounting: Stakeholders, accountability, audits and procedures. *Accounting, Auditing & Accountability Journal*, [e-journal], vol.10, no.3, pp.325-364. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 16 April 2018]

GRI (2016). Sustainability reporting guidelines. Available online: https://www.globalreporting.org/resourcelibrary/G3.1-Guidelines-Incl-Technical-Protocol.pdf [Accessed 15 April 2018]

Gunasekaran, A. & Spalanzani, A. (2012). Sustainability of manufacturing and services: Investigations for research and applications. *International Journal of Production Economics*, [e-journal], vol.140, no.1, pp.35-47. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 26 April 2018]

Hackston, D. & Milne, M.J. (1996). Some determinants of social and environmental disclosures in New Zealand companies. *Accounting, Auditing & Accountability Journal*, [e-journal], vol.*9*

, *no.*1, pp.77-108. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 29 March 2018]

Hammersley, M. (1996). The relationship between qualitative and quantitative research: Paradigm loyalty versus methodological eclecticism.

Hansen, G. & Wernerfelt, B. (1989). Determinants Of Firm Performance: The Relative Importance Of Economic And Organizational Factors, *Strategic Management Journal*, [e-journal], vol.10,no.5, pp. 399-411. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 16 May 2018]

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*, [e-journal], vol.5, no.1, pp.30-37. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 26 March 2018]

Hedberg, C.J. & Malmborg, V.F. (2003). The global reporting initiative and corporate sustainability reporting in Swedish companies. *Corporate social responsibility and environmental management*, [e-journa], vol.10, no.3, pp.153-164. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 16 April 2018]

Hillman, A.J. & Keim, G.D. (2001). Shareholder value, stakeholder management, and social issues: What's the bottom line*? Strategic management journal*, [e-journal], vol.22, no.2, pp.125-139. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 16 March 2018]

Hoskisson, R. E., Eden, L., Lau, C. M., & Wright, M. (2000). Strategy in emerging economies. *Academy of management journal*, [e-journal] vol.*43 no.*3,pp. 249-267. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 16 March 2018]

Hopwood, B., Mellor, M, & O'Brien, G. (2005). Sustainable development: mapping different approaches. *Sustainable Development*, [e-journal], vol.13, no.1, pp. 38-52, Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 24 March 2018]

Hubbard, G. (2009). Measuring organizational performance: beyond the triple bottom line. Business strategy and the environment, [e-journal], vol.18, no.3, pp.177-191. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 21 March 2018]

Huselid, M.A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of management journal*, [e-journal] vol. *38, no.*3, pp.635-672. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 28 March 2018]

IDC, (2017). Economic trends: Key trends in the South African economy. [pdf] Available at: https://www.idc.co.za/images/2017/IDC_RI_publication_Key-trends-in-SA-economy_31-March-2017.pdf

IFC (2011). Sustainable investment in Sub-Saharan Africa. Available Online: https://www.ifc.org/wps/wcm/connect/65c3300048865905b7faf76a6515bb18/IFC_Sustainable_Investment_in_SubSaharan_Africa.pdf?MOD=AJPERES&CACHEID=65c3300048865905b7faf76a6515bb18 [Accessed 20 April 2018]

IOD Institute of Directors of Southern Africa. (2009). King III report on corporate governance for South Africa. Available Online: http://african.ipapercms.dk/IOD [Accessed 27 March 2018]

Jensen, M.C. & Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, [e-journal], vol.3, no.4, pp.305-360. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 29 March 2018]

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*,[e-journal], vol. 17, no.41, pp.78-87. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 29 March 2018]

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*, [e-journal] vol.*5*, no.1, pp.105-116. . Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 11 April 2018]

King, M. E. (2010). The synergies and interaction between King III and the Companies Act 61 of 2008. *Acta Uridica*,[e-journal], no.1, 446–455. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 6 April 2018]

Konar, S. & Cohen, M.A. (2001). Does the market value environmental performance? *Review of economics and statistics*, [e-journal], vol.83 no.2, pp.281-289. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 4 April 2018]

KPMG (2017), The road ahead: The KPMG Survey of Corporate Responsibility Reporting. Available online: https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/10/kpmg-survey-of-corporate-responsibility-reporting-2017.pdf [Accessed 17 April 2018]

Kraatz, M. S. & Zajac, E. J. (2001). How organizational resources affect strategic change and performance in turbulent environments: Theory and evidence. Organization Science, vol.12, pp. 632– 657.

Laufer, W.S. (2003). Social accountability and corporate greenwashing. *Journal of business ethics*,[e-journal],vol.43, no.3, pp.253-261. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 12 April 2018]

Laughlin, R.C. (1987). Accounting systems in organisational contexts: a case for critical theory. *Accounting, Organizations and Society*, [e-journal], vol.12, no.5, pp.479-502. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 21April 2018]

Lee, K.N. (1993). Greed, scale mismatch and learning. *Ecological Applications*, [e-journal], vol. 3 no. 4, pp. 560-564. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 22 March 2018]

Lopez, M.V., Garcia, A& Rodriguez, L. (2007).Sustainable development and corporate performance: A study based on the Dow Jones sustainability index. *Journal of Business Ethics*.[e-journal], vol.75, no. 3, pp. 285-300. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 28 March 2018]

Matthews, M.R. (1993). Socially Responsible Accounting. London: Chapman and Hall

Maubane, P., Prinsloo, A. and Van Rooyen, N. (2014). Sustainability reporting patterns of companies listed on the Johannesburg securities exchange. *Public Relations Review*,[e-journal], vol. 40, no.2, pp.153-160. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 12 April 2018]

Mendelow, A.L. (1983). Setting corporate goals and measuring organizational effectiveness—A practical approach. *Long Range Planning*, [e-journal] vol.16, no.1, pp.70-76. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 29 March 2018]

McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. *Academy of Management Journal*, 31(4), 854–872. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 28 March 2018]

McWilliams, A. & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. *Academy of management review*, [e-journal], vol.26, no.1, pp.117-127. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 18 March 2018]

McWilliams, A. & Siegel, D., (2000). Corporate social responsibility and financial performance: correlation or misspecification*?*. *Strategic management journal*, [e-journal], vol.21, no.5, pp.603-609. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 11 April 2018]

Milne, M. J., & Patten, D. M. (2002). Securing organizational legitimacy: An experimental decision case examining the impact of environmental disclosures. *Accounting Auditing and Accountability Journal*, vol.15, no.3,pp. 372–405. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 18 March 2018]

Milne, M.J. and Adler, R.W. (1999). Exploring the reliability of social and environmental disclosures content analysis. *Accounting, Auditing & Accountability Journal*, [e-journal] vol.12, no.2, pp.237-256. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 8 March 2018]

Mishina, Y., Pollock, T. G., & Porac, J. F. (2004). Are more resources always better for growth? Resource stickiness in market and product expansion. *Strategic Management Journal*, vol.25, pp.1179 –1197.

Nohria, N. and Gulati, R. (1997). "What is the Optimum Amount of Organizational Slack? A Study of the Relationship between Slack and Innovation of Multinational Firms", *European Management Journal*, vol. 15 no. 6, pp. 603–611

Orlitzky, M., Schmidt, F.L. & Rynes, S.L. (2003). Corporate social and financial performance: A meta-analysis. *Organization studies*, [e-journal], vol.24, no.3, pp.403-441. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 31 March 2018]

Preston, L.E. & O'bannon, D.P. (1997). The corporate social-financial performance relationship: A typology and analysis. *Business and Society*, vol. 36, no.4, pp.419-429. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 10 March 2018]

Rahman, B.A. & Momin, M. (2009). Corporate social reporting (CSR) in emerging economies: A review and future direction. *Accounting in Emerging Economies* [e-journals], pp.119-143 Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 8 March 2018]

RobecoSam. (2017). Country Sustainability Ranking Update-November 2017. Available online: http://www.robecosam.com/images/Country_Ranking_Update_October_2017.pdf

Robinson, J. (2004). Squaring the circle? Some thoughts on the idea of sustainable development. *Ecological economics*, [e-journal], vol.48, no.(4), pp.369-384. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 31 March 2018]

Saunders, M.., Lewis, P. & Thornhill, A. (2010), Research Methods for Business Students, Pearson Education, London.

Schaltegger, S. & Synnestvedt, T. (2002). The link between 'green' and economic success: environmental management as the crucial trigger between environmental and economic performance. *Journal of Environmental Management*, [e-journal], vol.65, pp.339–346. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 18 April 2018]

Schaltegger, S. and Wagner, M. (2006). Integrative management of sustainability performance, measurement and reporting. *International Journal of Accounting, Auditing and Performance Evaluation*, 3(1), pp.1-19. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 21 March 2018]

Simpson, W.G.& Kohers, T. (2002). The link between corporate social and financial performance: Evidence from the banking industry. *Journal of business ethics*, vol.35, no.2, pp.97-109. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 29 March 2018]

Slaper, T. F. & Hall, T. J. (2011). The Triple Bottom Line: What Is It and How Does It Work? *Indiana Business Review*, [e-journal],vol. 86, no.1, pp. 4–8. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 29 March 2018]

Songini, L. & Pistoni, A. (2015). Sustainability disclosure: State of the art and new directions. Emerald Group Publishing,Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 21 March 2018]

Stattsa, (2014). Manufacturing industry: Financial 2014 [pdf]. Available at: http://www.statssa.gov.za/publications/Report-30-02-03/Report-30-02-032014.pdf [Accessed: 28 March 2018]

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, vol.20, pp. 571-610. , Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 31 March 2018]

Thompson, P. and Zakaria, Z., (2004). Corporate social responsibility reporting in Malaysia. *Journal of Corporate Citizenship*, [e-journal], vol.*13*, pp.125-136. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 26 March 2018]

Trustradius (2018). Capital IQ reviews Available online: https://www.trustradius.com/products/capital-iq/reviews [Accessed Online: 8 April 2019]

Van. M., (2003). Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of business ethics*, [e-journal] , vol.44, no.2-3, pp.95-105. ,Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 21 March 2018]

Venkataraman, S. (2002). Stakeholder value equilibration and the entrepreneurial process. *The Ruffin Series of the Society for Business Ethics*, [e-journal], vol. 3, pp.45-57. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 19 April 2018]

Verrecchia, R.E. (1983). Discretionary disclosure. *Journal of accounting and economics*,[e-journal], vol.5, pp.179-194. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 14 April 2018]

Viederman, S. (1994). The economics of sustainability: Challenges. New York: Jessie Smith Noyes Foundation

Visser, W.A.M.T. (2002). Sustainability reporting in South Africa. *Corporate Environmental Strategy*, [e-journal], vol.9, no.1, pp.79-85. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 8 April 2018]

Voss, G.B., Sirdeshmukh, D. &Voss, Z.G. (2008). The effects of slack resources and environmental threat on product exploration and exploitation. *Academy of Management Journal*, [e-journal], vol.51, no.1, pp.147-164. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 18 May 2018]

Waddock, S.A. & Graves, S.B. (1997). The corporate social performance-financial performance link. *Strategic management journal*, [e-journal], pp.303-319. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 14 April 2018]

Wagner, M. (2007). Integration of environmental management with other managerial functions of the firm: empirical effects on drivers of economic performance. *Long Range Planning*, [e-journal], vol.40, no.6, pp.611-628. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 2 April 2018]

Waldman, D. A., De Luque, M. S., Washburn, N., House, R. J., Adetoun, B., Barrasa, A… et al. (2006). Cultural and leadership predictors of corporate social responsibility values of top management: A GLOBE study of 15 countries. *Journal of International Business Studies*, [e-journal] vol.37, pp. 823-837. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 12 April 2018]

Warsame, H., Simmons, C.V. Neu, D. (2002). Responding to "discrediting" events: Annual report disclosure responses to environmental fines. *Accounting and the Public Interest*, [e-journal] vol.*2*, *no*.1, pp.22-40. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 5 May 2018]

Wiseman, J., (1982). An evaluation of environmental disclosures made in corporate annual reports. *Accounting, Organizations and Society*, [e-journal] vol.*7*,*no*.1, pp.53-63. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 15 April 2018]

Wiseman, R. & Bromiley, P. (1996). Towards a model of risk in declining organizations: An empirical examination of risk, performance and decline. *Organization Science*, [e-journal], vol.7, pp.524- 543. Available through: LUSEM University Library website http://www.lusem.lu.se/library [Accessed 22 April 2018]

World Conservation Union (2006). The Future of Sustainability Re-thinking Environment and Development in the Twenty-first Century [pdf] Available at: http://cmsdata.iucn.org/downloads/iucn_future_of_sustanability.pdf [Accessed 21 March 2018]

Yin, R.K., (2009). Case study research: Design and methods (applied social research methods). London and Singapore: Sage.

APPENDIX 1: INTERVIEW QUESTIONS

General questions on Sustainability

- How would you describe the overall sustainability normative landscape pertaining to manufacturing firms in South Africa?

- What general approaches do manufacturing firms in South Africa use in implementing sustainability practices?

- Which group(s) of people would you say majorly influence/ drive companies' attention to sustainability in South Africa?

Sustainability disclosures

- Our findings indicate that investigated manufacturing firms report more on environmental followed by diversity aspects compared to equal reporting on community and ethical aspects. Why do you think this appears to be so especially in a country (South Africa) where people empowerment is critical

- We explored relative impact of sustainability individual disclosures to firm value and found some patterns:
    - Both groups of manufacturing firms analysed benefit most from environmental sustainability practices to a small degree.
    - More sustainable firms do benefit more from environmental practices while community is equally costly for them. Ethical sustainability comes close in cost followed by environmental sustainability practices.
    - Less sustainable firms benefit most from diversity followed by ethical practices while community practices is most costly for them followed by environmental practices. This group also reports more on ethical sustainability dimensions than the most sustainable firms.

  How would you comment on these trends?

- In your opinion, why have very few companies in South Africa adopted the practice of issuing separate sustainability reports?

- Would you consider South African consumers to be aware of sustainability practices of companies and therefore base their interactions with firms' outputs on their level of practise? If yes, what key sustainability aspect would you say is more preferred by consumers? (Community work, diversity, environment, ethical)

- Does the existence of sustainability ranking of companies by e.g Robescom, FTSE/JSE index and other indices fuel more adoption of sustainability practices by South African manufacturing companies?

- How would you perceive the environment manufacturing firms operate in: Does it have an impact –if any, on the level of sustainability practices other than prevailing legislation from the government and oversight authorities?

- Do financial institutions such as banks in South Africa focus on sustainability affairs of companies before approving finances or lines of credit for companies?

- How do you envision the future of sustainability reporting and disclosures would look like in South Africa in the next 5 years?

APPENDIX 2: Questions for content analysis adopted from Fadul (2004)

Ethical Standards Index (ESI)

- Does the company have a written Code of Business Conduct used as a guide to help employees live up to the company's ethical standards?

- Does the code go beyond the legal minimums?

- Does the code include corporate policies dealing with business conduct specifically related to Equal Employment Opportunity?

- Does the code include corporate policies dealing with business conduct specifically related to conflicts of interest?

- Does the code include corporate policies dealing with business conduct specifically related to commercial bribery?

- Does the code include corporate policies dealing with business conduct specifically related to international business relationships?

- 7.Does the code include corporate policies dealing with business conduct specifically related to use and public disclosure of inside information, and the use of confidential and proprietary information?

- 8.Does the code include corporate policies dealing with business conduct specifically related to export compliance and international economic sanctions?

- 9.Does the code include corporate policies dealing with business conduct specifically related to political contributions?

- 10.Does the code include corporate policies dealing with business conduct specifically related to antitrust and competition laws?

- 11.Does the code include corporate policies dealing with business conduct specifically related to health, safety and environment?

- 12. Does the code include corporate policies dealing with business conduct specifically related to harassment?

- 13.Has the company, its executives, managers, and employees consistently operated within the framework provided by the Code of Business Conduct in the past three years?

Community Service Index (CSI)

- Does the company have a charitable foundation and if so, how much was given during the most recent fiscal year?
- Does the company have exceptional or particularly innovative charitable-giving programs?
- Is the company an industry leader with respect to its performance in Community activism?
- Does the company have exceptional volunteer programs?
- Is there evidence of new initiatives implemented by or awards given to the company with respect to its performance in this category?
- What community programs does the company have in place?
- Does the company have employee volunteer programs?
- Do the company's volunteer programs involve a large portion of the company's current and former workforce?
- Does the company participate in public/private partnerships related to education, job training, or urban revitalization and if so, what is the nature of the company's commitment to them?
- Does the company have partnerships with local schools or community-based groups?
- Does the company have a corporate giving program and if so, how much was given during the most recent fiscal year?
- Is the company committed to donating a given percentage of its pretax profits to charitable organizations and if so, what percentage is the target goal?

Environmental Index (El)

- Is the company in compliance with environmental laws and regulations?
- What civil lawsuits, particularly those covering overseas issues, has the company been subject to, with respect to its environmental performance in the past three years?
- What assets has the company accrued for pollution remediation?
- Does the company have environmental remediation liabilities?
- Does the company have current substantial liabilities for the remediation of asbestos?
- Is the company dedicated to the conservation of energy and natural resources, with emphasis on the impact of operations on the local community?

- Is the company proactive in its environmental efforts?
- Has the company demonstrated a commitment to change, with respect to its environmental performance?
- Has the company developed new products and/or processes that will reduce or minimize environmental impact?
- Has the company adopted new technologies and/or redesigned products to conserve the use of energy, water, materials, and/or land?
- Is the company involved with the new development or use of clean energy, sustainable renewable energy, or natural foods?
- Is the company perceived as an industry leader, with respect to its performance in this category?
- What is the effectiveness of the company's environmental policies; specifically, are the company's established programs and/or goals actually improving its environmental performance?
- Has the company taken positive steps toward preserving our environment?
- Does the company have environmental policies in effect with measurable goals, companywide responsibility, and quantitative accountability?
- Does the company have voluntary programs in place, including recycling?
- Does the company have specific environmental policies and if so, what are they?
- What are the company's major policies to prevent air and water pollution?
- Does the company have an environmental report, including quantitative data on emissions/pollution? What are the company's levels of emission? What are the company's levels of environmental data, e.g., TRI, spills, etc. ?
- What are the company's recycling efforts?
- Are all company operations (including those abroad) in compliance with environmental statutes?
- What is the nature and amount of EPA violations and fines paid?

Diversity Index (DI)

- Has the company demonstrated a commitment to workforce diversity?
- Does the company actively hire and promote minorities and women?
- Has the company demonstrated its commitment to diversity through strong representation of women, minorities, and the disabled on boards of directors, in top management, and/or among the company's highest paid employees?
- Has the company demonstrated its commitment to diversity through its training and advancement programs (e.g., support networks, management reviews, mentoring)?
- Has the company demonstrated its commitment to diversity through participation in women and minority vendor and banking programs?
- Has the company demonstrated its commitment to diversity through implementation of innovative work/life programs (e.g., flextime, job sharing, child care, elder care)?
- Does the company have programs to train woman for advancement?
- Does the company conduct diversity training for its employees?
- Does the company have a history of violations in the area of abusive labor conditions?
- Does the company have a poor Equal Employment Opportunity Commission (EEOC) record?
- Does the company's record in this area show a systematic or repeated disregard for the need to foster an open and diverse work environment?
- Does the company have affirmative action programs pertaining to recruitment and promotion?
- Does the company, at a minimum, have in place specifically stated policies against discrimination in hiring and promotion based upon sexual orientation?
- Does the company have a set of standards for its overseas operations and non-U.S. contractors and suppliers?
- Does the company have a board or staff task force or committee set up to address diversity related issues?
- Does the company clearly exclude women from positions in operating top management?
- Does the company have women and minorities serving in positions with substantial profit and loss responsibilities?

- Does the company have gender equity in wages?

- How does the company portray woman in advertising and marketing materials?

- What is the nature and extent of any civil discrimination lawsuits brought against the company?

- Does the company have an understanding of the need for minority constituencies to have more of a voice in business?

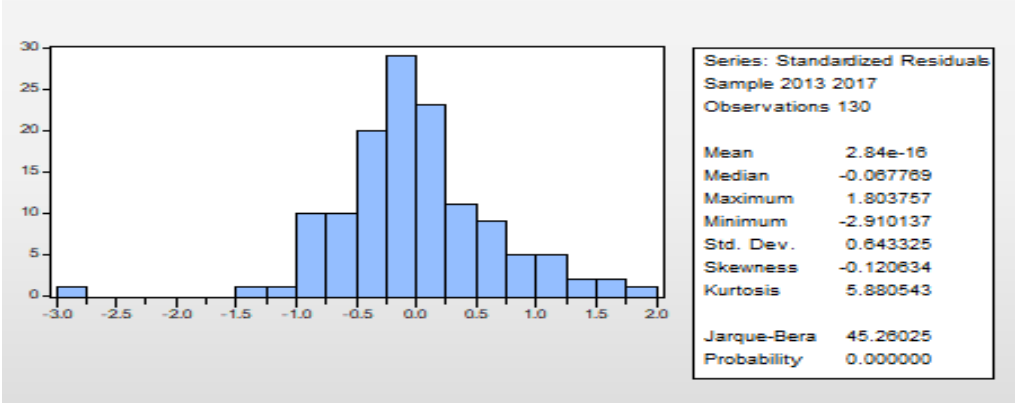
APPENDIX 3: Content Analysis scoring

Statement in Sustainability report	Score
Company W is proud to say that we have met and exceeded our objectives; and what started out as a small project has turned into a full-scale recycling programme benefiting the communities of Northern KwaZulu-Natal.	2
Company X does not unfairly discriminate on any arbitrary ground against individuals or groups of people and supports the principle of developing and promoting employees from within where vacancies arise. If no suitably qualified candidates are available, vacancies are advertised externally.	2
A flagship project was undertaken in 2015/2016 in respect of x mine and was finalized during the course of 2016. This project was a joint venture between the mine and its key suppliers whereby the mine provided a maths and science laboratory affording eight schools in the area access to library equipment. The maths and science educational software worth R112 000 was donated towards the project.	3
We experienced a significant increase in the number of lost time and medical treatments and a slight increase in the number of lost working days of 116 (2015: 104), equally spread across employees and contractors. Five incidents were related to manual handling activities and the majority of these injuries point to unsafe behavior by operators and drivers, and in some cases, a hindered management line of sight. The total recordable incidents were marginally higher from the previous year at 25 (2015: 24).	3
We support and are committed to the concept of broad-based black economic empowerment and actively promote the empowerment of staff members and the communities (continued) in which we operate. We have a 100% score on enterprise development, mainly as a result of our strategy to use contract growers with a Black ownership component. We also scored 100% in socio-economic development as a result of our wellness programme. Our rating improved to a Level BBBA, which is an improvement of 90% since our first rating.	2
Car rental operations in South Africa produced 105 179 t carbon dioxide (2015: 99 162 tCO2,e) an increase of 6% from 2015. This figure has been included in our external assurance review for the first time this year. Over 2015, emissions intensity per rental day increased marginally while emissions intensity per kilometre decreased marginally. We intend to report emissions from other significant rental fleets. These processes are being refined and disclosure will be considered in due course.	2

APPENDIX 4: Descriptive Statistics combined firms

	Q	SSI	MARGIN	CAPEXTA	CAPSALES	SIZE	LEVERAGE	CATA	RETA	WCTA	RISK
Mean	1.412887	118.3462	0.166298	0.308479	1.134308	1.151527	0.565170	0.270223	0.336737	0.179236	0.481936
Median	1.028595	124.0000	0.065162	0.299303	0.724059	1.003762	0.442402	0.244315	0.332718	0.157871	0.477618
Maximum	8.664330	175.0000	5.891075	0.714870	9.330173	3.591752	2.598609	0.756591	0.829748	0.672708	0.953712
Minimum	0.163257	22.00000	-0.183801	0.033186	0.229964	0.416529	0.000000	0.091891	0.017201	-0.203124	-0.109480
Std. Dev.	1.295399	36.23025	0.603517	0.162126	1.536412	0.597972	0.546409	0.117622	0.181796	0.137644	0.232838
Skewness	3.401855	-0.991764	7.728391	0.234743	4.183783	1.837886	2.108391	1.962744	0.253045	0.905805	-0.295120
Kurtosis	17.69413	3.762436	68.10446	2.557915	20.67788	6.427121	7.639423	8.287199	2.477676	4.775032	3.061523
Jarque-Bera	1420.293	24.45999	24253.14	2.252553	2072.002	136.8058	212.9047	234.8879	2.865143	34.84364	1.907573
Probability	0.000000	0.000005	0.000000	0.324238	0.000000	0.000000	0.000000	0.000000	0.238694	0.000000	0.385279
Sum	183.6753	15385.00	21.61875	40.10225	147.4600	149.6986	73.47207	35.12893	43.77576	23.30062	62.65168
Sum Sq. Dev.	216.4694	169329.4	46.98598	3.390726	304.5126	46.12660	38.51466	1.784715	4.263425	2.444002	6.993573
Observations	130	130	130	130	130	130	130	130	130	130	130

APPENDIX 5: Normality Test Initial regression combined firms



APPENDIX 6: Initial regression combined firms

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/06/18 Time: 15:27
Sample: 2013 2017
Periods included: 5
Cross-sections included: 26
Total panel (balanced) observations: 130

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.543474	0.497475	5.112768	0.0000
SSI	-0.000546	0.001943	-0.281208	0.7790
MARGIN	0.333816	0.127636	2.615378	0.0101
CAPEXTA	-2.070311	0.583313	-3.549226	0.0006
CATA	-2.352244	0.924038	-2.545614	0.0122
RETA	1.943649	0.507509	3.829781	0.0002
WCTA	-0.161065	0.763904	-0.210845	0.8334
RISK	-0.437575	0.317872	-1.376575	0.1713
SSID	0.022937	0.166747	0.137555	0.8908
CAPSALES	0.793722	0.050874	15.60184	0.0000
SIZE	-1.063338	0.130761	-8.131940	0.0000
LEVERAGE	0.089830	0.175920	0.510626	0.6106

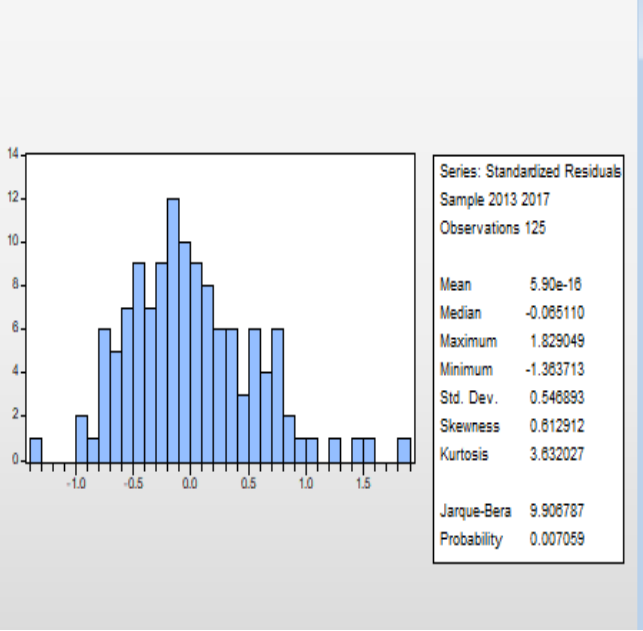
R-squared	0.753366	Mean dependent var	1.412887
Adjusted R-squared	0.730374	S.D. dependent var	1.295399
S.E. of regression	0.672642	Akaike info criterion	2.132559
Sum squared resid	53.38879	Schwarz criterion	2.397254
Log likelihood	-126.6163	Hannan-Quinn criter.	2.240113
F-statistic	32.76738	Durbin-Watson stat	0.772575
Prob(F-statistic)	0.000000		

APPENDIX 7: Transformed empirical model for combined firms

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/06/18 Time: 15:30
Sample: 2013 2017
Periods included: 5
Cross-sections included: 26
Total panel (unbalanced) observations: 125

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.199736	0.458161	6.983867	0.0000
SSI	0.002051	0.001856	1.105283	0.2714
LOGMARGIN	0.347976	0.079313	4.387392	0.0000
CAPEXTA	-1.258882	0.545878	-2.306160	0.0229
CATA	-1.995457	0.784496	-2.543618	0.0123
RETA	1.121629	0.472251	2.375068	0.0192
WCTA	0.082793	0.673288	0.122968	0.9024
RISK	-0.381463	0.286355	-1.332134	0.1855
SSID	0.047479	0.143463	0.330946	0.7413
CAPSALES	0.851887	0.045499	18.72306	0.0000
SIZE	-1.215449	0.113273	-10.73027	0.0000
LEVERAGE	0.086577	0.156561	0.552994	0.5814

R-squared	0.824078	Mean dependent var	1.405383
Adjusted R-squared	0.806953	S.D. dependent var	1.303895
S.E. of regression	0.572893	Akaike info criterion	1.814840
Sum squared resid	37.08739	Schwarz criterion	2.086358
Log likelihood	-101.4275	Hannan-Quinn criter.	1.925144
F-statistic	48.12100	Durbin-Watson stat	0.818186
Prob(F-statistic)	0.000000		



APPENDIX 8: Correlation Matrix combined firms

Sample: 2013 2017
Included observations: 130

Correlation t-Statistic Probability	Q	SSI	MARGIN	CAPEXTA	CAPSALES	SIZE	LEVERAGE	CATA	RETA	WCTA	RISK
Q	1.000000										

SSI	-0.055071	1.000000									
	-0.624004	-----									
	0.5337	-----									
MARGIN	0.076650	-0.430993	1.000000								
	0.869751	-5.403775	-----								
	0.3861	0.0000	-----								
CAPEXTA	0.094197	0.024421	-0.290929	1.000000							
	1.070478	0.276377	-3.440299	-----							
	0.2864	0.7827	0.0008	-----							
CAPSALES	0.713328	-0.143340	0.008325	0.299910	1.000000						
	11.51547	-1.638628	0.094187	3.556826	-----						
	0.0000	0.1037	0.9251	0.0005	-----						
SIZE	-0.177718	-0.231268	0.152089	-0.129862	0.254916	1.000000					
	-2.043174	-2.689410	1.740938	-1.481765	2.982575	-----					
	0.0431	0.0081	0.0841	0.1409	0.0034	-----					
LEVERAGE	0.223266	-0.203775	0.053905	0.481334	0.551209	0.315747	1.000000				
	2.591375	-2.354862	0.610753	6.212714	7.474180	3.764868	-----				
	0.0107	0.0201	0.5424	0.0000	0.0000	0.0003	-----				
CATA	-0.004367	0.136898	0.056307	-0.435325	-0.208537	-0.354623	-0.439502	1.000000			
	-0.049411	1.563550	0.638058	-5.470722	-2.412366	-4.290980	-5.535708	-----			
	0.9607	0.1204	0.5246	0.0000	0.0173	0.0000	0.0000	-----			
RETA	-0.001085	0.295762	-0.213617	-0.244518	-0.320488	-0.221860	-0.569833	0.413006	1.000000		
	-0.012273	3.502882	-2.473907	-2.853004	-3.827809	-2.574212	-7.845269	5.130658	-----		
	0.9902	0.0006	0.0147	0.0051	0.0002	0.0112	0.0000	0.0000	-----		
WCTA	0.068327	0.168773	-0.083605	-0.496939	-0.171739	-0.308361	-0.483503	0.740001	0.475802	1.000000	
	0.774844	1.937239	-0.949202	-6.478812	-1.972308	-3.667424	-6.249223	12.44735	6.120255	-----	
	0.4399	0.0549	0.3443	0.0000	0.0507	0.0004	0.0000	0.0000	0.0000	-----	
RISK	0.056611	-0.152031	0.329755	-0.004609	0.144369	0.249952	0.156780	-0.382093	-0.104543	-0.357741	1.000000
	0.641514	-1.740261	3.951787	-0.052148	1.650639	2.920583	1.795978	-4.677827	-1.189283	-4.334217	-----
	0.5223	0.0842	0.0001	0.9585	0.1013	0.0041	0.0749	0.0000	0.2365	0.0000	-----

APPENDIX 9: Hausman Test for endogeneity

Correlated Random Effects - Hausman Test
Equation: EQN1TRANSFORMED
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	8	1.0000

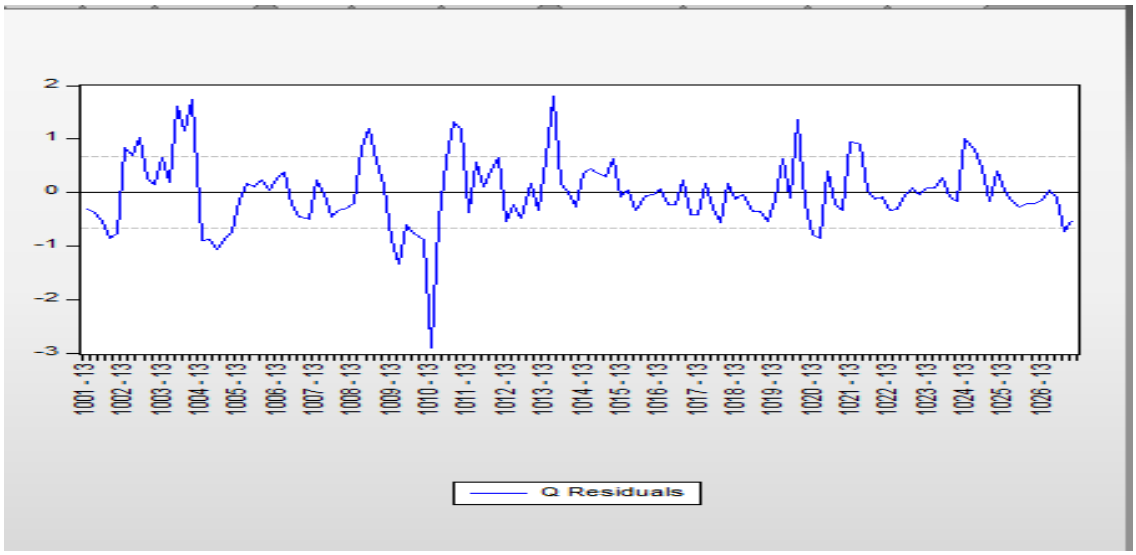
* Cross-section test variance is invalid. Hausman statistic set to zero.
** WARNING: robust standard errors may not be consistent with
assumptions of Hausman test variance calculation.

APPENDIX 10: Autocorrelation test for combined firms model

Residual Cross-Section Dependence Test
Null hypothesis: No cross-section dependence (correlation) in residuals
Equation: Untitled
Periods included: 5
Cross-sections included: 26
Total panel (unbalanced) observations: 125
Note: non-zero cross-section means detected in data
Test employs centered correlations computed from pairwise samples

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	495.0523	325	0.0000
Pesaran scaled LM	6.669999		0.0000
Pesaran CD	-0.456873		0.6478

APPENDIX 11: Heteroscedasticity Residual check for combined firms model



APPENDIX 12: Heteroscedasticity Test for combined firms model

Cross-Section Test

Panel Cross-section Heteroskedasticity LR Test
Null hypothesis: Residuals are homoskedastic
Equation: SLACKRESOURCESNEW
Specification: Q C SSI LOGMARGIN CAPEXTA CATA RETA WCTA RISK SSID CAPSALES SIZE LEVERAGE

	Value	df	Probability
Likelihood ratio	84.11597	26	0.0000

LR test summary:

	Value	df
Restricted LogL	-101.4275	113
Unrestricted LogL	-59.36953	113

Unrestricted Test Equation:
Dependent Variable: Q
Method: Panel EGLS (Cross-section weights)
Date: 05/07/18 Time: 16:21
Sample: 2013 2017
Periods included: 5
Cross-sections included: 26
Total panel (unbalanced) observations: 125
Iterate weights to convergence
Convergence achieved after 64 weight iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.535871	0.249855	14.15169	0.0000
SSI	0.006249	0.001026	6.088535	0.0000
LOGMARGIN	0.573618	0.047292	12.12915	0.0000
CAPEXTA	-0.385109	0.346295	-1.112081	0.2685
CATA	-1.165308	0.357279	-3.261622	0.0015
RETA	0.213697	0.215272	0.992684	0.3230
WCTA	-0.495379	0.236175	-2.097504	0.0382
RISK	-1.478950	0.174404	-8.480011	0.0000
SSID	0.418590	0.092714	4.514864	0.0000
CAPSALES	0.841577	0.034300	24.53590	0.0000
SIZE	-1.046332	0.061959	-16.88756	0.0000
LEVERAGE	-0.156897	0.136465	-1.149724	0.2527

Weighted Statistics

R-squared	0.929988	Mean dependent var	2.770681
Adjusted R-squared	0.923173	S.D. dependent var	3.104260
S.E. of regression	0.638787	Akaike info criterion	1.141913

Weighted Statistics

R-squared	0.929988	Mean dependent var	2.770681
Adjusted R-squared	0.923173	S.D. dependent var	3.104260
S.E. of regression	0.638787	Akaike info criterion	1.141913
Sum squared resid	46.10947	Schwarz criterion	1.413431
Log likelihood	-59.36953	Hannan-Quinn criter.	1.252216
F-statistic	136.4551	Durbin-Watson stat	1.311591
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.781282	Mean dependent var	1.405383
Sum squared resid	46.10954	Durbin-Watson stat	0.697791

Period Test

Panel Period Heteroskedasticity LR Test
Null hypothesis: Residuals are homoskedastic
Equation: SLACKRESOURCESNEW
Specification: Q C SSI LOGMARGIN CAPEXTA CATA RETA WCTA RISK SSID CAPSALES SIZE LEVERAGE

	Value	df	Probability
Likelihood ratio	4.878315	26	1.0000

LR test summary:

	Value	df
Restricted LogL	-101.4275	113
Unrestricted LogL	-98.98836	113

Unrestricted Test Equation:
Dependent Variable: Q
Method: Panel EGLS (Period weights)
Date: 05/07/18 Time: 16:21
Sample: 2013 2017
Periods included: 5
Cross-sections included: 26
Total panel (unbalanced) observations: 125
Iterate weights to convergence
Convergence achieved after 9 weight iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.376824	0.442884	7.624626	0.0000
SSI	0.002531	0.001808	1.399738	0.1643
LOGMARGIN	0.373509	0.077561	4.815706	0.0000
CAPEXTA	-1.337040	0.515702	-2.592662	0.0108
CATA	-2.292158	0.768980	-2.980778	0.0035
RETA	1.049589	0.457784	2.292762	0.0237
WCTA	0.115779	0.658569	0.175804	0.8608
RISK	-0.467230	0.277459	-1.683959	0.0950
SSID	0.038806	0.136761	0.283752	0.7771
CAPSALES	0.874638	0.042725	20.47124	0.0000
SIZE	-1.233874	0.106643	-11.57018	0.0000
LEVERAGE	0.069227	0.153722	0.450339	0.6533

Weighted Statistics

R-squared	0.845770	Mean dependent var	1.444086
Adjusted R-squared	0.830756	S.D. dependent var	1.404574
S.E. of regression	0.574558	Akaike info criterion	1.775814
Sum squared resid	37.30317	Schwarz criterion	2.047332

Unrestricted Test Equation:
Dependent Variable: Q
Method: Panel EGLS (Period weights)
Date: 05/07/18 Time: 16:21
Sample: 2013 2017
Periods included: 5
Cross-sections included: 26
Total panel (unbalanced) observations: 125
Iterate weights to convergence
Convergence achieved after 9 weight iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.376824	0.442884	7.624626	0.0000
SSI	0.002531	0.001808	1.399738	0.1643
LOGMARGIN	0.373509	0.077561	4.815706	0.0000
CAPEXTA	-1.337040	0.515702	-2.592662	0.0108
CATA	-2.292158	0.768980	-2.980778	0.0035
RETA	1.049589	0.457784	2.292762	0.0237
WCTA	0.115779	0.658569	0.175804	0.8608
RISK	-0.467230	0.277459	-1.683959	0.0950
SSID	0.038806	0.136761	0.283752	0.7771
CAPSALES	0.874638	0.042725	20.47124	0.0000
SIZE	-1.233874	0.106643	-11.57018	0.0000
LEVERAGE	0.069227	0.153722	0.450339	0.6533

Weighted Statistics

R-squared	0.845770	Mean dependent var	1.444086
Adjusted R-squared	0.830756	S.D. dependent var	1.404574
S.E. of regression	0.574558	Akaike info criterion	1.775814
Sum squared resid	37.30317	Schwarz criterion	2.047332
Log likelihood	-98.98836	Hannan-Quinn criter.	1.886117
F-statistic	56.33368	Durbin-Watson stat	0.762140
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.823055	Mean dependent var	1.405383
Sum squared resid	37.30317	Durbin-Watson stat	0.850496

APPENDIX 13: Applied heteroscedasticity white correction for combined firms model

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/06/18 Time: 15:39
Sample: 2013 2017
Periods included: 5
Cross-sections included: 26
Total panel (unbalanced) observations: 125
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.199736	0.307396	10.40915	0.0000
SSI	0.002051	0.001024	2.003760	0.0475
LOGMARGIN	0.347976	0.041505	8.383862	0.0000
CAPEXTA	-1.258882	0.367020	-3.430006	0.0008
CATA	-1.995457	0.629324	-3.170793	0.0020
RETA	1.121629	0.367879	3.048910	0.0029
WCTA	0.082793	0.437729	0.189142	0.8503
RISK	-0.381463	0.201347	-1.894553	0.0607
SSID	0.047479	0.051028	0.930445	0.3541
CAPSALES	0.851887	0.053313	15.97889	0.0000
SIZE	-1.215449	0.039630	-30.66979	0.0000
LEVERAGE	0.086577	0.137555	0.629401	0.5304

R-squared	0.824078	Mean dependent var	1.405383
Adjusted R-squared	0.806953	S.D. dependent var	1.303895
S.E. of regression	0.572893	Akaike info criterion	1.814840
Sum squared resid	37.08739	Schwarz criterion	2.086358
Log likelihood	-101.4275	Hannan-Quinn criter.	1.925144
F-statistic	48.12100	Durbin-Watson stat	0.818186
Prob(F-statistic)	0.000000		

APPENDIX 14: Correlation Matrix control group firms

Sample: 2013 2017
Included observations: 65

Correlation t-Statistic Probability	Q	SSI	MARGIN	CAPEXTA	CAPSALES	SIZE	LEVERAGE	CATA	RETA	WCTA	RISK
Q	1.000000										

SSI	-0.053673	1.000000									
	-0.426629	-----									
	0.6711	-----									
MARGIN	0.416635	-0.498836	1.000000								
	3.637703	-4.568369	-----								
	0.0006	0.0000	-----								
CAPEXTA	-0.459805	0.098515	-0.364807	1.000000							
	-4.109801	0.785759	-3.109891	-----							
	0.0001	0.4350	0.0028	-----							
CAPSALES	-0.292179	-0.502428	0.190519	-0.026533	1.000000						
	-2.424917	-4.612319	1.540409	-0.210675	-----						
	0.0182	0.0000	0.1285	0.8338	-----						
SIZE	-0.285682	-0.498514	0.173621	-0.033291	0.982373	1.000000					
	-2.366141	-4.564448	1.399324	-0.264387	41.71277	-----					
	0.0211	0.0000	0.1666	0.7923	0.0000	-----					
LEVERAGE	-0.224851	-0.257485	0.093451	0.543726	0.248576	0.266978	1.000000				
	-1.831600	-2.115039	0.745005	5.142241	2.036949	2.198890	-----				
	0.0717	0.0384	0.4590	0.0000	0.0459	0.0316	-----				
CATA	0.400191	0.291007	0.037353	-0.510045	-0.461603	-0.408818	-0.498438	1.000000			
	3.466073	2.414286	0.296690	-4.706578	-4.130220	-3.555598	-4.563523	-----			
	0.0010	0.0187	0.7677	0.0000	0.0001	0.0007	0.0000	-----			
RETA	0.181658	0.309488	-0.257873	-0.031970	-0.136771	-0.123951	-0.451903	0.517143	1.000000		
	1.466259	2.583314	-2.118448	-0.253886	-1.095883	-0.991476	-4.020853	4.795769	-----		
	0.1476	0.0121	0.0381	0.8004	0.2773	0.3252	0.0002	0.0000	-----		
WCTA	0.450995	0.315054	-0.084890	-0.562066	-0.358041	-0.321529	-0.559843	0.852422	0.525340	1.000000	
	4.010708	2.634845	-0.676234	-5.393909	-3.043634	-2.695172	-5.362814	12.94028	4.900448	-----	
	0.0002	0.0106	0.5014	0.0000	0.0034	0.0090	0.0000	0.0000	0.0000	-----	
RISK	-0.071749	-0.367815	0.470002	-0.069456	0.410330	0.384830	0.144812	-0.374093	-0.124933	-0.484365	1.000000
	-0.570960	-3.139528	4.226432	-0.552625	3.571398	3.309356	1.161654	-3.201745	-0.999457	-4.394422	-----
	0.5701	0.0026	0.0001	0.5825	0.0007	0.0015	0.2498	0.0021	0.3214	0.0000	-----

APPENDIX 15: Correlation Matrix Responsible Investment index firms

Sample: 2013 2017
Included observations: 65

Correlation t-Statistic Probability	Q	SSI	MARGIN	CAPEXTA	CAPSALES	SIZE	LEVERAGE	CATA	RETA	WCTA	RISK
Q	1.000000										

SSI	-0.246671	1.000000									
	-2.020322	-----									
	0.0476	-----									
MARGIN	0.009314	0.051306	1.000000								
	0.073930	0.407762	-----								
	0.9413	0.6848	-----								
CAPEXTA	0.380107	-0.063975	-0.637800	1.000000							
	3.261826	-0.508826	-6.572790	-----							
	0.0018	0.6127	0.0000	-----							
CAPSALES	0.786739	-0.176374	-0.224761	0.526592	1.000000						
	10.11613	-1.422217	-1.830825	4.916609	-----						
	0.0000	0.1599	0.0719	0.0000	-----						
SIZE	-0.165817	0.253748	0.398241	-0.278194	0.130025	1.000000					
	-1.334607	2.082216	3.445985	-2.298848	1.040881	-----					
	0.1868	0.0414	0.0010	0.0248	0.3019	-----					
LEVERAGE	0.422598	-0.165241	-0.242280	0.409911	0.769813	0.383622	1.000000				
	3.700981	-1.329844	-1.982092	3.567019	9.573084	3.297171	-----				
	0.0005	0.1884	0.0518	0.0007	0.0000	0.0016	-----				
CATA	-0.126747	-0.095150	0.092589	-0.345331	-0.173057	-0.303686	-0.366145	1.000000			
	-1.014200	-0.758675	0.738072	-2.920651	-1.394641	-2.529915	-3.123057	-----			
	0.3144	0.4509	0.4632	0.0048	0.1680	0.0139	0.0027	-----			
RETA	-0.259442	0.105246	0.442025	-0.523244	-0.611596	-0.339691	-0.820986	0.508004	1.000000		
	-2.132269	0.840029	3.911317	-4.873508	-6.135712	-2.866670	-11.41325	4.681180	-----		
	0.0369	0.4041	0.0002	0.0000	0.0000	0.0056	0.0000	0.0000	-----		
WCTA	-0.161749	-0.248972	0.107388	-0.374783	-0.234393	-0.280806	-0.398448	0.559466	0.381742	1.000000	
	-1.300974	-2.040404	0.857327	-3.208613	-1.913752	-2.322264	-3.448118	5.357555	3.278246	-----	
	0.1980	0.0455	0.3945	0.0021	0.0602	0.0235	0.0010	0.0000	0.0017	-----	
RISK	0.000303	0.091129	-0.308871	0.150860	0.034812	0.078587	0.171235	-0.327805	-0.335165	-0.204801	1.000000
	0.002402	0.726333	-2.577625	1.211278	0.276480	0.625698	1.379515	-2.754045	-2.823612	-1.660761	-----
	0.9981	0.4703	0.0123	0.2303	0.7831	0.5338	0.1726	0.0077	0.0063	0.1017	-----

APPENDIX 16: Descriptive Statistics Responsible Investment index firms

	Q	SSI	MARGIN	CAPEXTA	CAPSALES	SIZE	LEVERAGE	CATA	RETA	WCTA	RISK
Mean	1.816250	127.3077	0.080450	0.298710	1.425399	1.118820	0.583154	0.251942	0.399066	0.195089	0.536348
Median	1.301439	134.0000	0.070530	0.286643	0.720654	0.934731	0.438849	0.237523	0.381185	0.190799	0.551371
Maximum	8.664330	174.0000	0.253923	0.618474	9.330173	2.929775	2.419540	0.545803	0.829748	0.445895	0.820053
Minimum	0.328789	53.00000	-0.030717	0.067209	0.406202	0.590438	0.038796	0.144932	0.041208	0.017081	0.200987
Std. Dev.	1.661493	27.69923	0.045038	0.145638	2.071994	0.547906	0.530411	0.082022	0.160884	0.104887	0.181964
Skewness	2.578814	-1.086766	0.875519	0.340246	3.025201	1.822298	1.752181	1.539991	0.150803	0.415619	-0.313239
Kurtosis	10.34486	4.866701	5.289142	2.478139	10.84789	5.985091	6.180956	5.799661	3.282529	2.621845	2.108990
Jarque-Bera	218.1511	22.23221	22.49624	1.991731	265.9494	60.10834	60.66407	46.92022	0.462552	2.258641	3.213093
Probability	0.000000	0.000015	0.000013	0.369404	0.000000	0.000000	0.000000	0.000000	0.793521	0.323253	0.200579
Sum	118.0562	8275.000	5.229257	19.41614	92.65093	72.72332	37.90504	16.37623	25.93929	12.68078	34.86265
Sum Sq. Dev.	176.6758	49103.85	0.129821	1.357462	274.7621	19.21283	18.00546	0.430569	1.656548	0.704087	2.119099
Observations	65	65	65	65	65	65	65	65	65	65	65

APPENDIX 17: Descriptive Statistics control group firms

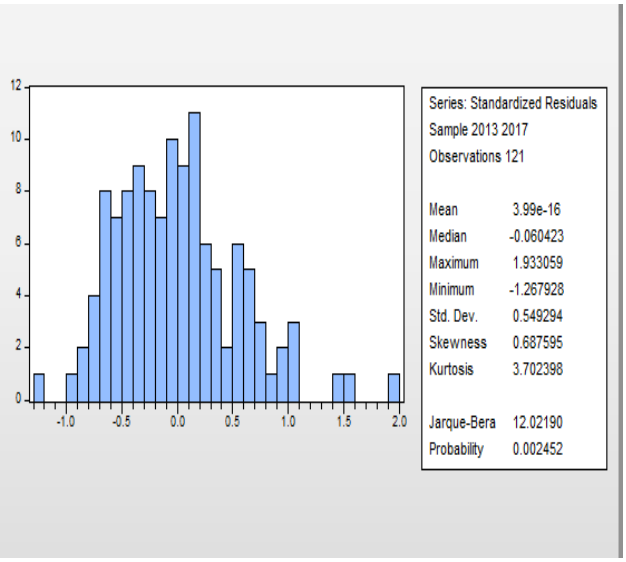
	Q	SSI	MARGIN	CAPEXTA	CAPSALES	SIZE	LEVERAGE	CATA	RETA	WCTA	RISK
Mean	1.009524	109.3846	0.252146	0.318248	0.843216	1.184234	0.547185	0.288503	0.274407	0.163382	0.427524
Median	0.892246	119.0000	0.054334	0.343051	0.727464	1.021021	0.443615	0.271820	0.231279	0.125233	0.451231
Maximum	2.588006	175.0000	5.891075	0.714870	2.446072	3.591752	2.598609	0.756591	0.723164	0.672708	0.953712
Minimum	0.163257	22.00000	-0.183801	0.033186	0.229964	0.416529	0.000000	0.091891	0.017201	-0.203124	-0.109480
Std. Dev.	0.539712	41.41735	0.846851	0.177696	0.541049	0.646803	0.565508	0.143107	0.181221	0.163327	0.264858
Skewness	0.787761	-0.656648	5.354489	0.118873	1.722282	1.787751	2.414273	1.655902	0.631702	1.159417	0.023807
Kurtosis	3.129970	2.795023	33.43451	2.466746	5.600809	6.290423	8.854990	6.220693	2.469896	4.776202	2.966167
Jarque-Bera	6.768556	4.784979	2819.217	0.923227	50.45416	63.94672	155.9885	57.79831	5.084088	23.10718	0.009240
Probability	0.033902	0.091402	0.000000	0.630266	0.000000	0.000000	0.000000	0.000000	0.078705	0.000010	0.995391
Sum	65.61909	7110.000	16.38949	20.68611	54.80907	76.97524	35.56703	18.75270	17.83647	10.61984	27.78903
Sum Sq. Dev.	18.64252	109785.4	45.89807	2.020858	18.73501	26.77470	20.46715	1.310702	2.101834	1.707242	4.489582
Observations	65	65	65	65	65	65	65	65	65	65	65

APPENDIX 18: Final regression equation

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/08/18 Time: 17:17
Sample: 2013 2017
Periods included: 5
Cross-sections included: 26
Total panel (unbalanced) observations: 121
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.293949	0.407698	8.079393	0.0000
SSI	0.001876	0.001163	1.613280	0.1096
LOGMARGIN	0.354852	0.043415	8.173561	0.0000
CAPEXTA	-1.026491	0.371417	-2.763717	0.0067
CATA	-2.310428	0.903061	-2.558442	0.0119
RETA	0.723979	0.328221	2.205765	0.0295
WCTA	-0.228745	0.627551	-0.364505	0.7162
RISK	-0.363683	0.246290	-1.476642	0.1427
SSID	0.143460	0.060838	2.358087	0.0202
CAPSALES	0.855870	0.047080	18.17900	0.0000
SIZE	-1.193821	0.070486	-16.93688	0.0000
LOGLEV	-0.096010	0.056618	-1.695747	0.0928

R-squared	0.827796	Mean dependent var	1.407423
Adjusted R-squared	0.810418	S.D. dependent var	1.323680
S.E. of regression	0.576344	Akaike info criterion	1.829682
Sum squared resid	36.20685	Schwarz criterion	2.106950
Log likelihood	-98.69576	Hannan-Quinn criter.	1.942291
F-statistic	47.63365	Durbin-Watson stat	0.806667
Prob(F-statistic)	0.000000		



APPENDIX 19: Lag -1 regression combined firms

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/08/18 Time: 17:35
Sample (adjusted): 2014 2017
Periods included: 4
Cross-sections included: 26
Total panel (unbalanced) observations: 97
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.730695	0.231860	16.09027	0.0000
SSI(-1)	0.002196	0.002397	0.916060	0.3622
LOGMARGIN(-1)	0.235835	0.065914	3.577915	0.0006
CAPEXTA(-1)	-1.812765	0.396460	-4.572383	0.0000
CATA(-1)	-3.507481	0.255853	-13.70897	0.0000
RETA(-1)	0.722743	0.501380	1.441506	0.1531
WCTA(-1)	-0.106249	0.920735	-0.115396	0.9084
RISK(-1)	-0.667669	0.363672	-1.835907	0.0699
SSID	0.127442	0.095991	1.327652	0.1878
CAPSALES(-1)	0.992499	0.056089	17.69497	0.0000
SIZE(-1)	-1.378509	0.056041	-24.59804	0.0000
LOGLEV(-1)	-0.058100	0.023257	-2.498141	0.0144

R-squared	0.822015	Mean dependent var	1.408082
Adjusted R-squared	0.798982	S.D. dependent var	1.408055
S.E. of regression	0.631302	Akaike info criterion	2.033300
Sum squared resid	33.87614	Schwarz criterion	2.351821
Log likelihood	-86.61504	Hannan-Quinn criter.	2.162094
F-statistic	35.68805	Durbin-Watson stat	0.961949
Prob(F-statistic)	0.000000		

APPENDIX 20: Lag -2 regression combined firms

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/08/18 Time: 17:43
Sample (adjusted): 2015 2017
Periods included: 3
Cross-sections included: 26
Total panel (unbalanced) observations: 73
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.359126	0.612322	5.485879	0.0000
SSI(-2)	0.003448	0.002616	1.318010	0.1924
LOGMARGIN(-2)	0.179215	0.040401	4.435887	0.0000
CAPEXTA(-2)	-1.879523	0.579816	-3.241584	0.0019
CATA(-2)	-2.729694	0.283569	-9.626222	0.0000
RETA(-2)	0.500283	0.972567	0.514394	0.6088
WCTA(-2)	-1.730544	0.235286	-7.355071	0.0000
RISK(-2)	-0.590382	0.098233	-6.009999	0.0000
SSID	0.255185	0.140023	1.822445	0.0733
CAPSALES(-2)	1.157613	0.104241	11.10514	0.0000
SIZE(-2)	-1.512187	0.206578	-7.320166	0.0000
LOGLEV(-2)	-0.123604	0.098244	-1.258141	0.2131

R-squared	0.804083	Mean dependent var	1.319547
Adjusted R-squared	0.768754	S.D. dependent var	1.430486
S.E. of regression	0.687893	Akaike info criterion	2.238815
Sum squared resid	28.86503	Schwarz criterion	2.615329
Log likelihood	-69.71676	Hannan-Quinn criter.	2.388863
F-statistic	22.75966	Durbin-Watson stat	1.105602
Prob(F-statistic)	0.000000		

APPENDIX 21: Lag -3 regression combined firms

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/08/18 Time: 17:51
Sample (adjusted): 2016 2017
Periods included: 2
Cross-sections included: 26
Total panel (unbalanced) observations: 48
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.930034	0.228863	21.54140	0.0000
SSI(-3)	0.005441	5.14E-05	105.8642	0.0000
LOGMARGIN(-3)	0.151589	0.040128	3.777679	0.0006
CAPEXTA(-3)	-3.551541	0.246223	-14.42407	0.0000
CATA(-3)	-4.482010	0.462506	-9.690703	0.0000
RETA(-3)	0.446980	0.877211	0.509547	0.6135
WCTA(-3)	-2.078612	0.941462	-2.207857	0.0337
RISK(-3)	-0.859149	0.213265	-4.028544	0.0003
SSID	0.082450	0.126975	0.649340	0.5202
CAPSALES(-3)	1.350658	0.003557	379.7419	0.0000
SIZE(-3)	-2.172119	0.075605	-28.72966	0.0000
LOGLEV(-3)	-0.001928	0.096765	-0.019927	0.9842

R-squared	0.820255	Mean dependent var	1.223965
Adjusted R-squared	0.765334	S.D. dependent var	1.297392
S.E. of regression	0.628488	Akaike info criterion	2.121318
Sum squared resid	14.21989	Schwarz criterion	2.589118
Log likelihood	-38.91163	Hannan-Quinn criter.	2.298100
F-statistic	14.93494	Durbin-Watson stat	1.173446
Prob(F-statistic)	0.000000		

APPENDIX 22: Interaction model regression combined firms

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/08/18 Time: 18:02
Sample: 2013 2017
Periods included: 5
Cross-sections included: 26
Total panel (unbalanced) observations: 121
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.567116	0.275772	5.682643	0.0000
SSI	0.000344	0.002893	0.118965	0.9055
SSI*RICD	0.000814	0.004786	0.170164	0.8652
LOGMARGIN	0.256795	0.109087	2.354040	0.0205
LOGMARGIN*RICD	0.876590	0.192566	4.552142	0.0000
CAPEXTA	0.534199	0.590667	0.904400	0.3680
CAPEXTA*RICD	-1.592648	0.519591	-3.065195	0.0028
CATA	-0.312612	0.945091	-0.330774	0.7415
CATA*RICD	-2.299342	2.122817	-1.083156	0.2814
RETA	-0.279590	0.279637	-0.999833	0.3198
RETA*RICD	1.285756	0.629541	2.042370	0.0438
WCTA	1.587991	0.356667	4.452306	0.0000
WCTA*RICD	-2.246604	1.011207	-2.221706	0.0286
RISK	0.098947	0.298802	0.331144	0.7412
RISK*RICD	0.718261	0.904472	0.794123	0.4290
SSID	4.120348	0.482068	8.547239	0.0000
CAPSALES	0.427137	0.318744	1.340063	0.1833
CAPSALES*RICD	0.437617	0.330226	1.325203	0.1882
SIZE	-0.604357	0.201364	-3.001318	0.0034
SIZE*RICD	-1.032997	0.264155	-3.910566	0.0002
LOGLEV	-0.136196	0.111677	-1.219551	0.2255
LOGLEV*RICD	0.245528	0.188393	1.303278	0.1955

R-squared	0.889182	Mean dependent var	1.407423
Adjusted R-squared	0.865676	S.D. dependent var	1.323680
S.E. of regression	0.485133	Akaike info criterion	1.554177
Sum squared resid	23.30001	Schwarz criterion	2.062502
Log likelihood	-72.02770	Hannan-Quinn criter.	1.760627
F-statistic	37.82666	Durbin-Watson stat	1.383556
Prob(F-statistic)	0.000000		

APPENDIX 23: Correlation Matrix sustainability disclosures combined firms

Covariance Analysis: Ordinary
Date: 05/03/18 Time: 16:05
Sample: 2013 2017
Included observations: 130

Correlation t-Statistic Probability	ETHICAL	DIVERSITY	ENVIRONM...	COMMUNITY
ETHICAL	1.000000 ----- -----			
DIVERSITY	0.500003 6.532033 0.0000	1.000000 ----- -----		
ENVIRONMENTAL	0.514658 6.791141 0.0000	0.822875 16.38400 0.0000	1.000000 ----- -----	
COMMUNITY	0.481764 6.219935 0.0000	0.650634 9.693407 0.0000	0.447743 5.665233 0.0000	1.000000 ----- -----

APPENDIX 24: Descriptive statistics sustainability disclosures combined firms

	ETHICAL	DIVERSITY	ENVIRONM...	COMMUNITY
Mean	22.26923	33.69231	40.42308	22.03846
Median	22.00000	38.00000	44.50000	26.00000
Maximum	39.00000	48.00000	56.00000	35.00000
Minimum	4.000000	10.00000	5.000000	1.000000
Std. Dev.	9.622961	11.27104	13.44577	9.319816
Skewness	-0.125893	-0.810997	-1.116001	-0.805176
Kurtosis	2.104976	2.601378	3.274390	2.473733
Jarque-Bera	4.682519	15.11123	27.39277	15.54686
Probability	0.096206	0.000523	0.000001	0.000421
Sum	2895.000	4380.000	5255.000	2865.000
Sum Sq. Dev.	11945.58	16387.69	23321.73	11204.81
Observations	130	130	130	130

APPENDIX 25: Descriptive statistics sustainability disclosures responsible investment index firms

	ETHICAL	DIVERSITY	ENVIRONM...	COMMUNITY
Mean	21.61538	36.53846	45.07692	24.23077
Median	21.00000	39.00000	47.00000	26.00000
Maximum	39.00000	48.00000	54.00000	34.00000
Minimum	6.000000	13.00000	22.00000	5.000000
Std. Dev.	9.391972	9.516559	8.965747	7.707077
Skewness	0.094325	-1.121583	-1.303985	-1.347928
Kurtosis	2.389039	3.577515	3.976285	4.070382
Jarque-Bera	1.107335	14.53107	21.00214	22.78617
Probability	0.574838	0.000699	0.000028	0.000011
Sum	1405.000	2375.000	2930.000	1575.000
Sum Sq. Dev.	5645.385	5796.154	5144.615	3801.538
Observations	65	65	65	65

APPENDIX 26: Descriptive statistics sustainability disclosures control group firms

	ETHICAL	DIVERSITY	ENVIRONM...	COMMUNITY
Mean	22.92308	30.84615	35.76923	19.84615
Median	27.00000	34.00000	41.00000	25.00000
Maximum	36.00000	48.00000	56.00000	35.00000
Minimum	4.000000	10.00000	5.000000	1.000000
Std. Dev.	9.877860	12.20813	15.49271	10.29143
Skewness	-0.335809	-0.483588	-0.619423	-0.361034
Kurtosis	1.959238	2.024552	2.132746	1.839645
Jarque-Bera	4.155276	5.110431	6.193606	5.058637
Probability	0.125226	0.077675	0.045193	0.079713
Sum	1490.000	2005.000	2325.000	1290.000
Sum Sq. Dev.	6244.615	9538.462	15361.54	6778.462
Observations	65	65	65	65

APPENDIX 27: Model regression Q versus sustainability disclosures combined firms

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/04/18 Time: 09:40
Sample: 2013 2017
Periods included: 5
Cross-sections included: 26
Total panel (balanced) observations: 130
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.448082	0.556242	7.996668	0.0000
LOG(ETHICAL)	-0.147286	0.115567	-1.274463	0.2049
LOGDIVERSITY	-1.003975	0.363656	-2.760784	0.0066
ENVIRONMENTAL	0.071412	0.018420	3.876793	0.0002
LOG(COMMUNITY)	-0.699769	0.128463	-5.447223	0.0000

R-squared	0.279736	Mean dependent var	1.412887
Adjusted R-squared	0.256688	S.D. dependent var	1.295399
S.E. of regression	1.116835	Akaike info criterion	3.096577
Sum squared resid	155.9151	Schwarz criterion	3.206867
Log likelihood	-196.2775	Hannan-Quinn criter.	3.141392
F-statistic	12.13688	Durbin-Watson stat	0.293127
Prob(F-statistic)	0.000000		

APPENDIX 28: Model regression Q versus sustainability disclosures control group firms

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/04/18 Time: 09:51
Sample: 2013 2017 IF SSID<@MEDIAN(SSID,"2013 2017")
Periods included: 5
Cross-sections included: 13
Total panel (balanced) observations: 65
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.125952	0.671922	-1.675719	0.0990
LOG(ETHICAL)	0.294132	0.213217	1.379495	0.1729
LOG(DIVERSITY)	0.954748	0.338040	2.824362	0.0064
ENVIRONMENTAL	-0.023667	0.015773	-1.500433	0.1387
LOG(COMMUNITY)	-0.393535	0.075639	-5.202794	0.0000

R-squared	0.250074	Mean dependent var	1.009524
Adjusted R-squared	0.200079	S.D. dependent var	0.539712
S.E. of regression	0.482710	Akaike info criterion	1.455001
Sum squared resid	13.98052	Schwarz criterion	1.622261
Log likelihood	-42.28752	Hannan-Quinn criter.	1.520996
F-statistic	5.001969	Durbin-Watson stat	1.105911
Prob(F-statistic)	0.001514		

APPENDIX 29: Model regression Q versus sustainability disclosures responsible investment index firms

Dependent Variable: Q
Method: Panel Least Squares
Date: 05/04/18 Time: 09:52
Sample: 2013 2017 IF SSID>=@MEDIAN(SSID,"2013 2017")
Periods included: 5
Cross-sections included: 13
Total panel (balanced) observations: 65
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.711846	0.882007	4.208408	0.0001
LOG(ETHICAL)	-0.339670	0.092607	-3.667879	0.0005
LOG(DIVERSITY)	3.332388	0.925821	3.599387	0.0006
ENVIRONMENTAL	-0.011870	0.002095	-5.665565	0.0000
LOG(COMMUNITY)	-3.936338	0.850025	-4.630851	0.0000

R-squared	0.672155	Mean dependent var	1.816250
Adjusted R-squared	0.650298	S.D. dependent var	1.661493
S.E. of regression	0.982533	Akaike info criterion	2.876439
Sum squared resid	57.92232	Schwarz criterion	3.043699
Log likelihood	-88.48426	Hannan-Quinn criter.	2.942434
F-statistic	30.75328	Durbin-Watson stat	0.514663
Prob(F-statistic)	0.000000		

APPENDIX 30: Kruskal-Wallis non parametric test

Test for Equality of Medians of COMMUNITY
Categorized by values of SSID
Date: 05/11/18 Time: 09:24
Sample: 2013 2017
Included observations: 130

Method	df	Value	Probability
Wilcoxon/Mann-Whitney		1.743787	0.0812
Wilcoxon/Mann-Whitney (tie-adj.)		1.750120	0.0801
Med. Chi-square	1	0.000000	1.0000
Adj. Med. Chi-square	1	0.032500	0.8569
Kruskal-Wallis	1	3.048918	0.0808
Kruskal-Wallis (tie-adj.)	1	3.071104	0.0797
van der Waerden	1	2.654549	0.1033

Category Statistics

SSID	Count	Median	> Overall Median	Mean Rank	Mean Score
0	65	25.00000	25	59.73077	-0.136909
1	65	26.00000	25	71.26923	0.136563
All	130	26.00000	50	65.50000	-0.000173

Test for Equality of Medians of DIVERSITY
Categorized by values of SSID
Date: 05/11/18 Time: 09:26
Sample: 2013 2017
Included observations: 130

Method	df	Value	Probability
Wilcoxon/Mann-Whitney		2.849660	0.0044
Wilcoxon/Mann-Whitney (tie-adj.)		2.865434	0.0042
Med. Chi-square	1	7.090909	0.0077
Adj. Med. Chi-square	1	6.176970	0.0129
Kruskal-Wallis	1	8.133836	0.0043
Kruskal-Wallis (tie-adj.)	1	8.224131	0.0041
van der Waerden	1	8.258738	0.0041

Category Statistics

SSID	Count	Median	> Overall Median	Mean Rank	Mean Score
0	65	34.00000	20	56.07692	-0.243360
1	65	39.00000	35	74.92308	0.231673
All	130	38.00000	55	65.50000	-0.005844

Test for Equality of Medians of ENVIRONMENTAL
Categorized by values of SSID
Date: 05/11/18 Time: 09:27
Sample: 2013 2017
Included observations: 130

Method	df	Value	Probability
Wilcoxon/Mann-Whitney		3.722718	0.0002
Wilcoxon/Mann-Whitney (tie-adj.)		3.730469	0.0002
Med. Chi-square	1	19.23077	0.0000
Adj. Med. Chi-square	1	17.72308	0.0000
Kruskal-Wallis	1	13.87597	0.0002
Kruskal-Wallis (tie-adj.)	1	13.93381	0.0002
van der Waerden	1	12.77660	0.0004

Category Statistics

SSID	Count	Median	> Overall Median	Mean Rank	Mean Score
0	65	41.00000	20	53.19231	-0.300827
1	65	47.00000	45	77.80769	0.299340
All	130	44.50000	65	65.50000	-0.000744

Test for Equality of Medians of ETHICAL
Categorized by values of SSID
Date: 05/11/18 Time: 09:29
Sample: 2013 2017
Included observations: 130

Method	df	Value	Probability
Wilcoxon/Mann-Whitney		0.754322	0.4507
Wilcoxon/Mann-Whitney (tie-adj.)		0.756022	0.4496
Med. Chi-square	1	0.769231	0.3805
Adj. Med. Chi-square	1	0.492308	0.4829
Kruskal-Wallis	1	0.572519	0.4493
Kruskal-Wallis (tie-adj.)	1	0.575103	0.4482
van der Waerden	1	0.106744	0.7439

Category Statistics

SSID	Count	Median	> Overall Median	Mean Rank	Mean Score
0	65	27.00000	35	68.00000	0.026661
1	65	21.00000	30	63.00000	-0.028122
All	130	22.00000	65	65.50000	-0.000731