UNIVERSITY OF GHANA

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SUSTAINABILITY REPORTING PRACTICES OF LISTED FIRMS ON THE GHANA STOCK EXCHANGE AND ITS DETERMINANTS.

BY

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DECLARATION

I hereby declare that this thesis is the result of my original research and that no part of it has been presented for another Degree in any University, However, all sources of borrowed material have been duly acknowledged.

19/05/2021

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CERTIFICATION

I hereby certify that this long essay was supervised and coordinated in conformity with the duly laid down procedures of the University of Ghana.

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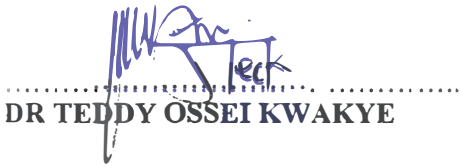
May 19, 2021
DATE



DR TEDDY OSSEI KWAKYE

19th May 2021
DATE

DEDICATION

I dedicate this work to my late daddy; Mr Kwaku Baah, for his vision to see me achieve higher heights. Even though he is no more, his enormous support has brought me this far to complete my two-year MPhil program. I am very grateful.

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LIST OF ABBREVIATIONS

ACRONYM	MEANING
CoSR	CORPORATE SUSTAINABILITY REPORTING
EcSR	ECONOMIC SUSTAINABILITY REPORTING
EnSR	ENVIRONMENTAL SUSTAINABILITY REPORTING
SoSR	SOCIAL SUSTAINABILITY REPORTING
GRI	GLOBAL REPORTING INITIATIVE
IIRC	INTERNATIONAL INTEGRATED REPORTING COUNCIL
CSR	CORPORATE SOCIAL RESPONSIBILITY
TBL	TIPLE-BOTTOM-LINE
CoSRI	CORPORATE SUSTAINABILITY REPORTING INDEX
EcSRI	ECONOMIC SUSTAINABILITY REPORTING INDEX
EnSRI	ENVIRONMENTAL SUSTAINABILITY REPORTING INDEX
SoSRI	SOCIAL SUSTAINABILITY REPORTING INDEX
ROA	RETURN ON ASSETS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SEC	SECURITIES AND EXCHANGE COMMISSION

ABSTRACT

The purpose of the study is to analyse the sustainability reporting practices of firms on the Ghana Stock Exchange as well as the factors that influence such practices. Using the Triple-Bottom-Line (TBL) approach, the study conducted a quantitative content analysis of various reports of firms that contains sustainability information to determine the trends and focus of reporting of the sampled firms. The study retrieved 129 firm-years reports from firms listed on the Ghana Stock Exchange (GSE) over 5 years (2015 to 2019). Regression analysis was conducted to examine the determinants of the sustainability reporting practices of these firms and the effect of these practices on financial performance. The study explains the relationships on the premise of the stakeholder-legitimacy-signalling framework. The findings of the study reveal that listed firms in Ghana report more on economic sustainability than environmental and social dimensions as espoused by the Global Reporting Initiative (GRI) standard and the level of overall sustainability reporting is low. Even though the extent of reporting by environmentally and socially exposed firms is higher than that of less exposed firms, surprisingly some environmentally-sensitive firms produce no information on their environmental and social impacts. Again, the study finds governance mechanisms, firm size, liquidity, and industry affiliation to be the most predictors of sustainability reporting practices. Lastly, Financial performance was found to have a significant negative relationship with sustainability reporting practices when the market- base metric (Tobin's Q) is used and insignificant when ROA is used. The study makes recommendations for policy and practice that policies should be designed to make the practice mandatory. Firms are also encouraged to subscribe to the GRI standard to ensure full advantage of sustainability.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Financial reporting is not the only thing that the present-day stakeholders of business require but they are also interested in the non-financial affairs of the business to judge how sustainable the firms' operations are. This non-financial disclosure such as economic, social, environmental information is commonly referred to as Sustainability Reporting.

Sustainability is defined by the World Commission on Environment and Development (WCED) in 1987, as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs (WCED, 1987). Thus, sustainability reporting is when firms provide information on their sustainability practices including economic, environmental, and social impacts to all interested parties.

Over the decades, the concept of sustainability reporting has received considerable attention from researchers. However, most of the studies in this area focused on the dimensions of sustainability in isolation from each other. These studies have also been criticized for dwelling more on a company's interaction with the natural environment (Gibson, 2006; Marshall & Brown, 2003) whiles stakeholders and other non-governmental organizations are increasing their demand for companies not to only report their environmental impacts but also to include more disclosures on issues relating to society, human rights, employees, governance among others (Heikkurinen, & Bonnedahl, 2013). This rising interest of stakeholders made some authors delve more into the reporting practices of firms on both their environmental and social impacts.

Hahn and Kuhnen (2013) criticize reports on either environmental or social or both as sustainability-related reporting and further argue that true sustainability reporting considers all the three dimensions of sustainability thus economic, environmental, and social. The demand for firms to report in a manner that will address the needs of their diverse stakeholders has been described in the literature by the concept known as "Triple-bottom-line reporting. Triple-Bottom-Line (TBL) is an accounting framework for reporting that incorporates the three dimensions of sustainability: social, environmental, and financial (economic). Slaper (2011) considers TBL to have the ability to address issues on people, planet, and profits which he terms " 3 ps". The TBL approach to sustainability is becoming more of a concern because firms that signal only environmental or social or both impacts may do so to the detriment of the needs of stakeholders on their economic impacts on the society. This can result in major legitimacy issues and a bad sign as some investors may be interested in these economic impacts.

As part of addressing the growing interest of stakeholders in the firm's sustainability reporting practices, various organizations including the Global Reporting Initiative (GRI) have been continually developing guidelines that have recently been upgraded into a standard (GRI, 2016) to assist firms to stay within the acceptable norms of the society. Numerous firms have joined hands with the GRI on the efforts to ensure sustainable business. The GRI Standard has been considered as a global standard to provide comprehensive guidelines on all the dimensions of sustainability. This ensures the comparability of sustainability reporting performance across industries and countries. The GRI has a focus on providing guidelines to ensure firms reporting on sustainability covers the TBL framework, therefore the standard provides indicators and guidelines for reporting on economic, environmental and social issues. Literature on sustainability that adopts the GRI framework using the TBL framework is scanty even though the subscription rate of firms on the GRI system keeps rising.

Moreover, investors are no longer satisfied with financial information and claim for enhanced transparency. They need to trust in a company's sustainable business conduct before investing in it (Jenkins & Yakovleva, 2006; Lock & Seele, 2015). In response to such expectations, several corporate managements have taken steps to signal their sustainability impacts and inactions in order to reassure stakeholders of their ability and readiness to protect the environment in which they exist in order to secure their social license. Therefore, firms around the globe have also started incorporating sustainability information into their reporting practices in response to the depends on more transparent business operations. Firms on the Ghana Stock Exchange (GSE) are equally expected to engage in these practices since the GSE has been judged as if not the best, one of the most well-performing stock exchanges which have not only gained recognition in Africa but the world at large as a result of increasing investor awareness and optimized operating results (Performance Review, GSE, 2013). The GRI standard is globally available which suggest that stakeholders are privy to sustainability standards. Again, surveys by KPMG on sustainability report between 1993 to 2020 confirms a significant rise in firms' engagement in sustainability from 12% in 1993 to 80% of firms worldwide dominantly using the GRI standard as guidelines. With the world now moving towards a sustainability era, firms that ignore these calls from stakeholders may end up terminating their social license to operate as they may be perceived as bad citizens. Moreover, sustainability disclosure or reporting has become a very popular terminology among academics, regulators, and businesses since global economic activities are widely perceived as unsustainable and therefore firms need to signal their contribution towards sustainability.

Although these efforts can have a direct financial cost to these organizations, the importance of integrating social, environmental and economic issues into their operations has been recognized as critical to the organization's very life and survival (Deegan et al. 2002). Organizational survival, according to Chelli et al.

(2014), is dependent on its ability to manage the demands of its society, since it is the society that holds the resources for its survival. According to a report by Deloitte and Touche and Business Council for Sustainable Development (BCSD) in 1992, increasing scientific research on sustainability has positive effects of aiding businesses in adopting operational strategies that do not only meet the goal of shareholder wealth maximization but also satisfy the interest of other stakeholder groups (like society, suppliers, regulators, etc.). Again, sustainability reporting urges firms to sustain and enhance social assets and natural resources for the future (Deloitte & Touche, BCSD, 1992) and therefore sustainability reporting would be of good value to both the firm and the society.

1.2 Research Problem

The GRI standard is geared towards providing guidelines and ensuring that companies and businesses around the globe provide information not only on their environmental and social impacts but also their economic impacts on society (GRI, 2016) by providing indicators to assist firms in reporting on all the dimensions of sustainability. This clearly indicates that the GRI framework follows the TBL approach to sustainability. Notwithstanding the efforts to ensure a firm's report on sustainability using the TBL approach, most studies on sustainability reporting of firms are skewed towards either one aspect (dimension) or two dimensions of sustainability. For instance, Gamerschlag, Moller, and Verbeeten (2011) examined the factors influencing voluntary CSR disclosure in Germany and found a marginal increase in the level of social and environmental disclosures from 2006 to 2009. They, however, failed to focus on all the three dimensions of Sustainability as they referred to the concept of CSR. They considered only the Environmental and Social pillars of the GRI framework in examining firms reporting practices. Similar to Gamerschlag et al. (2011), a recent study by Michelon, Pilonato and Ricceri (2015) and Hossain, Hecimovic, and Choudhury-Lema (2015) on CSR reporting practices of firms also focused on the social and environmental dimensions of sustainability as well

as a more recent study by Nyarku and Hinson (2017). Welbeck, Owusu, Bekoe, and Kusi (2017) and Trireksani and Djajadikerta (2016) on the other hand, examined sustainability reporting practices with a sole focus on the environmental dimension of the concept.

Hahn and Kuhnen (2013) refer to such studies with a focus on two pillars of sustainability as Double Bottom Line reporting and those with a focus on one dimension as one-dimensional reporting. They are also considered sustainability-related reporting (Hahn & Kuhnen, 2013) as they provide a fragmented view of the concept of sustainability. Few studies in the literature have examined all the dimensions of sustainability also known as the triple-bottom-line (TBL) (Hahn & Kuhnen, 2013). The study of Hahn and Kuhnen (2013) argues that the TBL focus on providing a holistic picture of true sustainability reporting by considering all the three dimensions of sustainability and their inter-linkages. Phillis, Kouikoglou, and Manousiouthakis (2010) indicate that consideration must be given to the social and environmental impacts of a firm's activities, yet this should not jeopardize its economic profitability. As firms take conscious steps to signal their environmental and/or social impacts and inactions to their stakeholders, their economic impacts are also much expected by various stakeholders. Fulfilment of all these contributes to the legitimacy of the firm because the performance of firms in contributing to sustainability is adjudged by all aspects of sustainability. There is therefore the need to examine sustainability reporting practices of firms using the TBL approach.

Moreover, in the literature on sustainability reporting practices, a number of studies have examined firms' sustainability performance and impacts, typically by assessing their sustainability disclosure practices (Kansal et al., 2014, Welbeck et al; 2017, Tilling & Tilt 2010). Others have established a linkage between sustainability reporting practices and organizational characteristics (Kansal et al., 2014, Welbeck et al., 2017).

Some of these characteristics are firm size (Welbeck et al., 2017; Kilic, 2016; Rouf, 2011; Gamerschlag et al., 2011), financial performance (Gamerschlag et al., 2011; Fortanier, Kolk, Pinkse, 2011), leverage (Kansal, Joshi & Batra, 2014; Kuzey & Uyar, 2017; Yasmin & Zuraida, 2017), liquidity (Kuzey & Uyar, 2017; Welbeck et al., 2017), industry affiliation (Kansal et al., 2014; Welbeck et al., 2017), foreign association (Nyarku & Hinson, 2017; Gallo & Christensen, 2011), governance mechanisms (Michelon & Parbonetti, 2012; Hu & Loh, 2018; Gerged, 2020) among other factors. While these studies suggest a considerable amount of work has been performed on the determinants of sustainability reporting, their findings are mixed. As some studies found positive or negative relationships, others found no relationship. The mixed findings suggest that further scientific inquiries are required in other to establish findings in the area of sustainability reporting. Again, literature highlight that studies the examine the relationship between CoSR practices and industry affiliation, foreign association, and governance mechanisms as a determinant is scanty (Kansal et al., 2014, Hahn & Kuhnen, 2013, Welbeck et al., 2017).

From a theoretical standpoint, sustainability faces the challenge of theoretical grounds in which it is explained. That is most existing studies conducted on sustainability reporting practices have resorted to the use of standalone theories to explain the practice whiles others do not make any theoretical reference point neglecting the use of integrated theoretical reference points. Meanwhile, Cormier, Magnan, Van Velthoven, (2005) argue that sustainability reporting practice is a complex phenomenon that cannot be explained from a single theoretical lens. Hahn and Kuhnen (2013) also add that the use of different theories in isolation and lack of theories in studies that explain sustainability reporting practices is partly the cause of mixed findings in the field, hence the need to integrate theoretical reference points to better explore sustainability reporting practices.

Moreover, most of the studies conducted on sustainability reporting were restricted to developed countries with few studies focusing on overall sustainability reporting practices within developing countries. In Ghana where few studies have been conducted on sustainability reporting (see, Hinson, Boateng & Madichie, 2010; Nyarku & Hinson, 2017; Welbeck et al., 2017), most of these focus on individual sectors of the economy**.** Ofori, Nyuur & S-Darko (2014) focused their study on Ghanaian banks likewise Hinson, Boateng & Madichie (2010). Welbeck et al. (2017) considered all industries on the Ghana Stock Exchange, however, their study was restricted to environmental reporting. Unlike other economies where the practice is mandatory, its voluntary nature makes it flexible for firms in reporting its nature and contents which might make the practice differ across industries (Welbeck et al., 2017). Moreover, the practice has not received the needed attention in the African region. It is, therefore, necessary for further studies to consider the overall sustainability reporting practices of firms across various sectors of the economy.

Therefore, this study seeks to contribute to the literature by addressing the above gaps by providing evidence on the level of sustainability reporting made by firms listed on the Ghana Stock Exchange. Unlike most existing studies that study sustainability reporting underpinned by single theories or no theory, the current study combines and triangulates stakeholder, legitimacy, and signalling theories to adequately examine sustainability reporting practices and the key determinants of a firm's sustainability disclosure practices. To achieve the study objectives, the Global Reporting Initiative (GRI) Index was employed as a benchmark. The use of GRI assists the researchers to examine the reporting practices of listed firms by global standards since the structure and content of sustainability reporting have no standard in Ghana. The GRI is an internationally recognized reporting framework aimed at improving the consistency, rigour, and utility of sustainability reporting (Global Reporting Initiative 2016).

1.3 Objectives of the Study

To achieve the purpose of the study, the following objectives are identified.

1. To examine the extent of sustainability reporting practices by firms listed on the Ghana Stock Exchange
2. To examine the factors that affect the extent to which firms report on overall sustainability information and its dimensions.

1.4 Research Questions

In the course of accomplishing the objectives for the study, the following questions are derived.

1. To what extent do firms listed on the Ghana Stock Exchange engage in Corporate Sustainability, Economic Sustainability, Environmental Sustainability, and Social Sustainability Reporting practices?
2. What factors influence the extent to which the firms on the GSE engage in these practices.

1.5 Scope of the Study

In terms of delimitation, the study focuses on listed firms on the Ghana Stock Exchange (GSE). Although there could be other non-listed firms that could be considered for the study. This thesis pays peculiar attention to listed firms and therefore firms that are not on the GSE were not considered. Moreover, listed firms on the exchange have much wider stakeholder groups either local or foreign or both, however, most studies in emerging economies focus on the mining industry or the banking. The study then focuses on the diverse behaviour of all listed firms to analyse their sustainability reporting practices.

1.6 Significance of the Study

This study contributes to the literature on sustainability reporting in many ways. First, it uses the TBL approach to give insights into sustainability reporting practices of firms considering all the dimensions. This has been highlighted as scarce if not neglected in the literature (Hahn & Kuhnen, 2013). The study also becomes one of the few to use the GRI standard after its release in 2016 to analyse sustainability reporting practices.

Moreover, the study uses the comprehensive indicator of governance developed by the GRI standard (2016) to measure the strength of a firm's governance mechanisms and examines how it influences the extent of sustainability by firms.

Again, the study extends the literature on sustainability reporting by integrating theories including stakeholder theory, legitimacy theory, and signalling theory to explain sustainability reporting. This addresses the deficiencies in the literature on the use of single or no theories in explaining the phenomenon which causes most studies to inefficiently explain their findings.

Also, the findings of the study have several implications for regulatory bodies, the academic community, and other firms in Ghana. Regulators will have more insight into the sustainability reporting practices of firms in terms of areas of neglect to develop policies or offer training programs to enhance the practice. Firms will also be more aware of the practices in other industries to increase their game.

1.7 Organization of the Study

The current study is organized into five chapters. The chapters are briefly explained below;

Chapter one: this chapter introduces the study by presenting the background of the study, the research problem to be solved, the objectives as well as the relevance of the study.

Chapter two: this chapter reviews relevant literature as far as sustainability reporting is concerned, on a worldwide view, with a focus on developing countries and listed firms. This is to present the present status of the concept and to also highlight gaps. It also discusses theories underpinning the study, and based on the review a conceptual framework is formed and hypotheses are also developed concerning the study objectives.

Chapter three: This chapter discusses the philosophical assumptions of the study. The research design, sampling, data collection techniques used, specification of models among others are discussed.

Chapter four: this chapter discusses the major findings of the study regarding the objectives that were set for the study.

Chapter Five: this is the final chapter. It summarizes the thesis, indicates major contributions of the study, and discusses the key limitations of the study gives suggestions for future studies.

research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of the empirical literature on CoSR practices. First, the chapter provides an overview of sustainability and its reporting practices. This chapter further discusses the trends in sustainability reporting research as well as the factors which influence firms to engage in the practice. This is proceeded by a discussion of theoretical frameworks, hypothesis formulations for the study. This chapter finally provides an overview of the GSE.

2.3 Trends in Corporate Sustainability Reporting Research

Literature on corporate sustainability reporting has evolved over time. The first publication on stainability reporting was a separate environmental report in 1989 (Kolk, 2004). After this several firms started to disclose information on their environment and/or social sustainability policies and impacts on society. Since 1993, in every three years, KPMG has repeatedly conducted assessments on the fraction of the largest 100 firms worldwide that publish sustainability (KPMG, 1993). Analysis of KPMG sustainability reports between 1993 to 2002 indicates that only 12% of the 100 largest firms reported on sustainability. This increased to 28% in 2002. With this majority of the reporting firms were found in developing countries with just 1% in South Africa. Current assessments by KPMG from 2018 to 2020 indicates massive improvement in firms acceptance of the practice. Their 2020 report indicates that 100% of the top 100 largest companies and 80% of firms worldwide now report on their sustainability policies and impacts on society (Tempero, 2020). This suggests that reporting on sustainability is now becoming a usual business practice as they place a higher value on communicating sustainability information.

The 2020 report also indicates that the Global Reporting Initiative (GRI) standard continues to remain the dominant global standard used by the majority of firms as a guide in preparing their sustainability reports. Apart from the GRI standard, other sources of guidelines exist for firms in reporting on their sustainability practices.

Various studies have used different frameworks in studying sustainability or CSR activities of firms. Some authors rely on frameworks developed by other researchers in prior literature. For instance, Branco and Rodrigues (2006) developed an online CSR reporting framework for measuring the Sustainability reporting practices of firms. This framework was adopted by Nyarku and Hinson (2018) to study CSR reporting practices of banks operating in Ghana.

Other researchers rely on frameworks developed by established institutions as guidelines in reporting on sustainability issues including the Prince IV reporting guidelines and the GRI standards. Even though various frameworks exist, the GRI model emerges to aid businesses to adopt the TBL approach to sustainability. Although it has been criticized for giving much priority to the social and environmental dimensions of sustainability (Hahn & Kuhnen, 2013), the framework is considered the original standard for firms to report on sustainability (KPMG, 2011, 2020).

2.3.1 The Global Reporting Initiative

The Global Reporting Initiative (GRI) was established in 1997 as a combined effort of the United States Non-Governmental Alliance for Environmentally Responsible Economies and the United Nations Environment Programme, to ensure that firms reporting on economic, environmental, and social issues is raised on the

same level as financial reporting (GRI, 2007). GRI standards were developed by performing an independent review as per international labour conditions and the environmental effects to help organizations report on their environmental, social, and economic performance and improve transparency. According to Garcia, Cintra, Rita de Cássia, and Lima (2016), the Global Reporting Initiative (GRI) has been the most commonly used guideline for sustainability reporting by firms. kolk (2010) also considers it as a very important tool for sustainability reporting as the GRI provides recommendations to assist firms in reporting on their social, environmental, and financial activities whiles most of these topics are not covered in generally accepted standards.

Like other guidelines for reporting sustainability practices, previous studies have identified the GRI as having some flaws such as focusing on environmental and social issues with less priority to the economic aspect as it leaves that to existing standards (e.g. IFRS) on financial disclosure (Hahn & Kuhnen, 2013). It has also been criticized for not necessarily improving the accountability procedures or the communication of information to stakeholders because organizations that embrace the guideline could appear to extensively disclose without improving the quality of reporting (Michelon et al., 2015). Moneva, Archel, & Correa (2006) further posit that some organizations that qualify as GRI reporters do not act responsibly on sustainability issues, such as greenhouse emissions, social inclusion, or individual rights.

2.3.2 Double and Single Dimensional Reporting

Even though the GRI standard which continues to dominate a global standard for reporting on sustainability has comprehensively outlined guidelines and indicators for assessing all the dimensions of sustainability: economic, environmental and social, various scholars refer to Sustainability in various ways when analyzing literature on firms reporting practices on sustainability aspects either individually and in entirety, and often

approach the concept from a different viewpoint. Most of the studies engaged in the literature focus on either one or two of the dimensions of sustainability. Hahn and Kuhnen (2013) refer to such studies as Sustainability-related disclosure. To those who researched reporting only one pillar, they refer to it as one-dimensional disclosure. For instance, in Ghana, Welbeck et al. (2017) examined the sustainability-related practices of mining and manufacturing firms in Ghana and observed a marginal increase in the reporting practices of both local and foreign firms. Their study focused on the environmental dimension of sustainability referred to as one-dimensional reporting. Another study by Trireksani and Djajadikerta (2016) on mining firms on the Indonesia Stock Exchange also gave much priority to only the environmental dimension.

Hahn and Kuhnen (2013) also use "Double Bottom Line (DBL)" to refer to studies on only two pillars of sustainability. An example of such studies is that of Gamerschlag et al. (2011) who conducted a study on determinants of voluntary CSR disclosure in Germany and reported a marginal increase in social and environmental disclosures between 2006 and 2009. They considered only the Environmental and Social pillars of the GRI framework and referred to the concept as CSR. Again, Michelon et al. (2015) studied CSR reporting practices and the quality of disclosure and also focused on only the social and environmental dimensions of sustainability. Similar in their study, Hossain et al. (2015) concentrated on environmental and social dimensions of sustainability or CSR in their analysis of the extent of sustainability reporting among Bangladesh firms. Kilic (2016) researched the banking industry's online sustainability reporting practices and discovered that banking institutions are disclosing more web-based product offering and customer support information. Nyarku and Hinson (2017) analysed banks' CSR practices and observed that both domestic and international banks in Ghana had increased their reporting practices on sustainability. They also focused on the social and environmental sustainability dimensions. Most of these studies ignored the economic

dimension outlined in the GRI standard in studying the sustainability practices of firms. However. Phillis et al. (2010) argued that companies should give much attention to the impact of social and environmental issues on their operations but should not jeopardize the concerns of economic profitability. Studies that analyse the practices of firms using the TBL approach of the GRI standard are few.

2.3.3 Triple Bottom Line (TBL) or Three-Dimensional Reporting

TBL has been used in most studies as a framework to describe all the three dimensions of sustainability and their inter-linkages. TBL became famous in the late 1990s (Elkington, Henriques, & Richardson, 2004). Lozano (2012) posits that the TBL might be the best known and most generally used framework for dealing with corporate sustainability that tends to focus on integrating environmental and social performance measures in corporate management, assessment, and reporting processes while complementing and balancing economic indicators.

There are some studies on Triple-Bottom-Line reporting. For example, Ho and Taylor (2007) analysed the Triple-Bottom-Line reporting practices of the US and Japanese firms and observe that TBL reporting is higher for Japanese firms. They considered all three dimensions of sustainability. Again, Hussain, Rigoni, Orij (2018) examined the influence of governance on sustainability performance. They focused on the triple bottom line approach giving all dimensions equal weights. Hahn and Kuhnen (2013) assert that the concept of TBL has received minimal attention in the literature. Schaltegger, Lüdeke-Freund, and Hansen (2012) advise that improving the non-financial aspects such as environmental and social issues can deteriorate the financial performance of the firm and its survival if much priority is not given to the economic dimension. This suggests that to ensure optimum performance of the organization, equal weight should be given to all the dimensions of sustainability. Seow, Hillary, and Jamali (2006) opine that TBL deals with how firms try

to reconcile the inter-relationships between all three dimensions and also manage to strike a balance for the demands of all three dimensions. Hahn and Kuhnen (2013) consider TBL as similar to Integrated Reporting in terms of the content of reports but different in terms of the form in which they are reported. Hahn and Kuhnen (2013) consider studies on sustainability reporting that consider the economic dimension to non-financial performance metrics as true sustainability reporting and hence TBL.

2.2 Overview of Sustainability

2.2.1 Definition of sustainability

Over two decades various researchers and authors have tried to define the concept of sustainability, however, no universal definition has been decided yet for the concept. Several authors have offered various definitions of sustainability. In 1987, the World Commission on Environment and Development (WCED) through a report r5called *Our Common Future* defined sustainability as a development that seeks to satisfy the demands of the current generation whiles ensuring the ability of future generations to meet their own needs (WCED, 1987). The concept gained much popularity after it was released in 1987 by the World Commission on Environment and Development (WCED, 1987) even though there were earlier mentions by some researchers.

2.2.2 Corporate Sustainability

In the business context, sustainable development has over time been used as "corporate sustainability" (Steurer, Langer, Konrad & Martinuzzi, 2005). Roca and Searcy (2012) posit that although sustainability has been criticized as a concept that is outside corporate boundaries, an increasing number of firms are working hard to incorporate the concept into their business operations.

Just as the mother concept "sustainability", corporate sustainability has not received a single accepted definition. The International Institute of Sustainable development (1992) define corporate sustainability as a system where businesses adopt business strategies and activities that seeks to satisfy the current needs of the firm and its stakeholders while protecting, sustaining, and enhancing the resources that will be needed in the future" (IISD, 1992). Another definition by Dyllick and Hockerts (2002) supports the earlier definition of IISD (1992) as they explain the concept as meeting the current needs of the firm's direct and indirect stakeholders without compromising its ability to meet the needs of the future stakeholder. Van Marrewijk (2003) simply defines corporate sustainability as incorporating environmental and social issues in a firm's business operations and their interactions with stakeholders.

Some researchers have interpreted corporate sustainability as compatible or directly tied to corporate social responsibility (Van Marrewijk, 2003). Steurer et al. (2005) suggest that SR and CSR have shared priorities to tackle the economic, social, and environmental aspects of organizational performance. Gray, Owen, Adam (1996) describe corporate social responsibility as attempts to supply supplementary accounts capturing some of the externalities and thus promoting actions to alleviate the impact of Western economic life. Another definition provided by European Commission explains CSR as the duty of organizations for their effect on society and incorporation of social, economic, legal, civil rights, and consumer issues into their fundamental business and strategy (European Commission, 2011: 6).

2.2.3 Corporate Sustainability Reporting (CoSR)

Studies on CoSR are vast and the phases of firms' sustainability reporting practices have evolved over the decades. The notion of Sustainability in the business context started on the grounds of social and

environmental accounting and reporting (SEAR) (Gray et al., 1996). In 1999, Elkington (1999) in a report *The Brundtland Report* added the term economic development to SEAR.

In 2002, World Business Council for Sustainable Development (WBCSD) defined CoSR as public reports produced by firms to inform their internal and external stakeholders a view of their corporate position and activities on economic, environmental, and social dimensions" (WBCSD, 2002). Daub (2007) further explains that the sustainability report is a report that provides stakeholders with qualitative and quantitative information on the extent to which the firm has managed to enhance its economic, environmental, and social effectiveness and efficiency in the period of reporting.

The present nature of reporting on sustainability-related topics is mainly voluntary in most countries including Ghana such that businesses are versatile in exploring with disclosing information (Chen & Bouvain, 2009). This voluntary nature has offered many reports the opportunity to use various labels including Corporate Citizenship Report, Corporate (Social) Responsibility Report, Sustainable Development Report, Sustainable Value Report, and Sustainability Report. This confirms earlier assertions of Steurer et al. (2005) that SR and CSR are in similitude as normative concepts. The study, therefore, considers CSR reports as sustainability report with a different label.

2.2.4 Dimensions of Corporate Sustainability Reporting

The literature on Sustainability has identified three pillars or dimensions of sustainability which are the economic dimension, the social dimension, and the environmental dimension (Daub, 2007). According to Pandian, Jawahar, and Nachiappan (2013) the economic dimension of Sustainability is the use of strategies

to ensure judicious use of existing resources in other to achieve a longer-term benefit in the future. In the business context, it focuses on the business being profitable over the long term through the efficient use of its available assets. (Pandian et al., 2013).

Social sustainability has been defined as ensuring community stability and preserving its capacity to work towards mutual goals and serving individual needs, including that of life quality and well-being, diet, accommodation, education, and cultural participation (Woodcraft, 2015). Torjman (2000) describes this aspect as making sure that a stable environment and a thriving economy sustain human well-being. As per Pandian et al. (2013) the social sustainability aspects are categorized under three fundamental parts of the ability to survive, information, and a decent improvement of living standards for human growth. The Global Reporting Initiative system (GRI, 2016) classifies the social aspect into Corporate Responsibility, Fair Relations, and Decent Employment, Human Rights, and Community subdivisions.

On environmental sustainability, Pandian et al. (2013) describe it as maintaining long-term environmental quality factors and practices. Environmental sustainability is the level of the utilization of renewable resources, the development of emissions, and the destruction of non-renewable resources that can be sustained forever. It was probably first invented by world bank scientists, and the word "environmentally responsible development" was initially used (World Bank, 1992). Serageldin and Streeter (1993) posit that “environmentally sustainable development” was thereafter used. Eventually, Goodland and Daly (1995) established the idea of environmental sustainability.

2.4 Forms of Corporate Sustainability Reporting

A review of the literature reveals that there are different ways of disclosing information on CSR or Sustainability. Gamerschlag et al. (2011) first classify these forms into three.

Firstly, companies can include Sustainability-related information into their yearly reports to improve these reports, companies can integrate CSR-related aspects into their biennial/financial statements (Gamerschlag et al., 2011). Hahn and Kuhnen (2013) classify this reporting form as TBL and is also known as integrated reporting. However, the TBL is more of a wider focus on the dimensions of sustainability whiles integrated reporting provides comprehensive reports mostly using limited page numbers to report the most material social, environmental, and economic issues these factors for the organization (IIRC, 2012).

Secondly, companies may provide special/separate CSR or sustainability reports in addition to their annual reports (Gamerschlag et al., 2011). Michelon et. al. (2015) refers to this form of reporting as Stand-alone CSR or Sustainability reports.

Companies may also provide information on sustainability-related issues through various corporate reports, for example, through separate financial, environmental, social, and human capital reports (Gamerschlag et al., 2011). This is what Hahn and Kuhnen (2013) consider as sustainability-related reporting (i.e. one-dimensional and double dimensional reporting). Michelon et. al. (2015) still classify such reports as stand-alone reports. Nyarku and Hinson (2018) support using stand-alone for CSR reporting that it must be unique and distinct from other reports posted in annual reports or on websites. Michelon et. al. (2015) found that providing stand-alone reports is not a usual practice of companies.

Various authors have argued for the use of stand-alone reports in reporting sustainability information. For instance, Michelon et. al. (2015) reveal that Stand-alone reports allow firms to provide more information. From the viewpoint of users, Beretta and Bozzolan (2004) also posit that adding few sustainability reports to the numerous pages of annual reports inhibits stakeholders from appreciating the firm's devotedness to

sustainability and its management. Users may find it difficult to obtain relevant information in integrated reports and therefore firms may use it as a technique to hide information (Michelon et. al., 2015). Firms employing stand-alone reports thus enjoy better advantages than those employing integrated reporting as a form of disclosure.

On the quality of the report, Michelon et. al. (2015) found that the quality of information disclosed in Stand-alone CSR reports is not different from the quality of CSR aspects integrated into annual reports. They did not find any strong relationship between both forms of reporting and quality reporting index. The current study will consider all forms in which firms disclose information on their sustainability activities.

2.5 The Need for Corporate Sustainability Reporting

Prior studies on sustainability reporting have identified numerous benefits and reasons for the need to engage in the practice. Earlier work by Donaldson and Preston (1995) indicate that the stakeholder interests has an intrinsic worth not indirectly linked to the company interests. A firm should not ignore the claims of stakeholders simply because honouring them does not serve its strategic interests. Maignan and Farrell (2004) also seek to advocate on the grounds of stakeholder theory, that firms consider other goals in addition to profit maximization, and irrespective of the nature, size, and type of business; companies that invest in CSR will achieve positive benefits. This suggests that CSR investments offer firms a strategic advantage over their competitors. For instance, the company mainly engages in reporting non-financial information to avoid external influence (Kolk, 2010). Furthermore, sustainability reporting is being increasingly recognized as an important factor contributing to corporate sustainability (Lozano & Huisingh, 2011). Poolthong and Mandhachitara (2009) also hinted that socially responsible programs are employed by financial institutions to enhance their reputation. In addition to enhancing reputation, firms improve superior employee satisfaction and retention and attract a lesser number of directives, etc (Moser & Martin, 2012). Another

important reason for firms to engage in sustainability is revealed in the study of Simpson and Kohers (2002) and Kitora and Okuda (2017) who argued that through investing in social responsibility companies can achieve competitive advantage by attracting easily resources and high-quality employees, differentiating its products and services, reducing its exposure to risk, etc. The investments in sustainability practices reduce information asymmetry between managers and investors to increase firm value and decrease the cost of capital (Dhaliwal, Radhakrishnan, Tsang & Yang, 2011) and are well capable of developing and maintaining a good and long-term relationship with key stakeholders (Kitora & Okuda, 2017). It is therefore not surprising that the topic receives ever-growing attention in business and academia (Hahn & Kuhnen, 2013).

2.6 Challenges of Corporate Sustainability Reporting

The common challenge of sustainability accounting and reporting is its complex nature. Munda (2006) conducted a social multi-criteria evaluation for urban sustainability policies and stated that the world as a system involving humans is complex, so is sustainability. Organizations have to identify the ever-evolving needs of diverse stakeholders to fulfil all three dimensions on the path of sustainability. Companies to bear the costs of sustainability reporting and/or to cope with the consequences of disclosing potentially damaging information on social and environmental performance and ownership structure (Kent & Monem, 2008). The increase in operating costs makes organizations less competitive as indicated by Moore (2001) and Jensen (2002).

Another challenge of sustainability reporting is associated with the communication and presentation of reports. Burritt and Schaltegger (2010) alert that “anybody pursuing sustainable development as a corporate goal will sooner or later face questions about the metrics used to operationalize sustainability, and how these are communicated”. some organizations that are practically well doing in terms of sustainability activities

have challenges in communicating their impact on stakeholders. Hinson et al. (2010) found that bank CSR awardees exhibit poor CSR communication content on their company websites than non-awardees do.

According to the GRI guidelines, the quality of sustainability reporting and the materiality of a certain aspect to be reported depend on a balanced reflection of both positive and negative aspects of a company's performance (GRI, 2016). Little is however known in the literature at hand on the disclosure of negative incidents (Criado-Jiménez, Fernández-Chulián, Larrinaga-González & Husillos-Carqués, 2008). Holder-Webb, Cohen, Nath, and Wood (2009) note that most of the information voluntarily disclosed in sustainability reports sheds only positive light on the respective company. Consequentially, many reports are criticized for their self-laudatory, selective, and strategic character (e.g., Archel, Fernández & Larrinaga, 2008; Criado-Jiménez et al., 2008).

Research on sustainability also indicates the possibility of manipulation of the communication of sustainability activities. Lawrence, Botes, Collins, and Roper (2013) hint that in their bid to advance the image of being socially responsible, many firms attempt to deceive and manipulate information. However, this attempt can be revoked by the stakeholders by ensuring that, for companies to secure their legitimacy, they must produce sustainability reports on their economic, environmental and social impacts (Deegan, 2007).

2.7 Determinants of Corporate Sustainability Reporting (CoSR) Practices

Studies in the literature have found different firm features as determinants of CoSR abound (Hahn and Kühnen, 2013). They relate the variables affecting the extent of reporting to the volume or amount of reporting. These firm characteristics include but are not restricted to governance mechanisms, financial performance, liquidity, leverage, size, age, foreign affiliation, industry type among others. Likewise, this study examines the effect of firm characteristics on CoSR with an emphasis on corporate governance, firm

financial performance, foreign affiliation, and industry affiliation. Other factors are controlled for including firm size, liquidity, and leverage as they influence the concept.

2.7.1 Governance mechanisms

Corporate governance refers to how firms are managed and management remain accountable to the firms' stakeholders (Dahya Lonie, & Power 1996). Governance can be seen as a framework for balancing the economic and social interests of firms, thus integrating the interests of shareholders with broader society (Giannarakis, Andronikidis, & Sariannidis, 2019). For example, the existence of a strong Board seems to increase accountability in a business, boost the credibility of the company and remove the asymmetrical knowledge gap (Lokuwaduge & Heenetigala, 2017). Various studies have tried to look at the relationship between the governance system of a firm and its sustainability reporting practices.

Some studies considered board capacity as a determinant of sustainability reporting (Hu & Loh, 2018; Janggu, Darus, Zain & Sawani, 2014). These studies measured board capacity using board size and the number of board meetings. In their study, Hu and Loh (2018) found that companies with larger board sizes and higher board meetings are more likely to improve their sustainability reporting practice. Similarly, Janggu, et al. (2014) also revealed a stronger positive relation between board size and CoSR (Bae, Masud & Kim, 2018).

Other studies also considered board composition and structures. For instance, Michelon and Parbonetti (2012) performed an analysis of how board composition and structures affect sustainability reporting. They found that CEO duality is inversely related to strategic reporting suggesting that merging the position of CEO and chairman weakens the desirable checks and balances structure and represents a conflict of interests, which reduces accountability. On the contrary, other studies (Gerged, 2020; Jizi et al., 2014; Prado-Lorenzo & Garcia-Sanchez, 2010) found a positive relationship between CEO duality and CoSR.

Some studies also consider corporate sustainability committees. In their study, Michelon and Parbonetti (2012) found that the presence of a CRS committee positively influences sustainability disclosure in annual reports. A CSR committee usually discusses practices and actions according to company values and commitments in matters of sustainability and participates in the reporting process.

Moreover, some researchers considered the relationship with a focus on measures such as board independence, incentives, and professionalism. For example, Hu and Loh (2018) and Gerged (2020) as well as Bae et al. (2018) found that the proportion of independent directors improve CoSR. In their view, independent board members often have a strong incentive for behaving as competent monitors effectively and not for colluding with management to expropriate shareholders' wealth because the independence of their strategic role in the business dictates their worth (Fama, 1980). Again, Independent directors are less closely connected to management and may be more likely to enable companies to provide stakeholders with more information, potentially distributing information to a wide variety of stakeholders. However, Janggu et al. (2014) found board independence not to have any significant influence on sustainability reporting. Hu and Loh (2018) again found board incentives and professionalism as positively influencing the extent of sustainability reporting practices.

The literature indicates that studies considering the relationship between governance mechanisms and CoSR have measured governance practices from different perspectives. Most of these studies considered traditional measures of corporate governance such as board composition and structures (Michelon & Parbonetti, 2012). Zahra and Pearce (1989) argued that the corporate governance scheme benefits from a variety of interrelating characteristics, all relevant for sound governance (Michelon & Parbonetti, 2012). Most of these studies ignore issues of training, evaluation, monitoring, review of board activities among others.

The GRI has, however, design a comprehensive model set of indicators for measurement of governance mechanisms in terms of training, stakeholder consultation, board composition, independence, ethics, monitoring, and evaluation, among others (GRI, 2016). GRI seeks to establish a global standard and to ensure comparative reporting and performance across companies on the globe. The current study, therefore, argues for the use of the GRI governance index in contributing to the literature on governance.

Notwithstanding the issues on measurement, Trireksani and Djajadikerta (2016) argue that despite the popularity of these two concepts in the literature, the examination of the relationship between them is mainly based in the western world. In the emerging environments, the effect of governance mechanisms on CoSR has not been explored extensively (Fernandes, Bornia, & Nakamura 2019). Therefore, more research is required to emphasize how important governance mechanisms are in moving businesses towards more CoSR practices in emerging market situations (Garcia et al., 2016).

2.7.2 Financial Performance

Prior studies on financial performance reveal mixed results on its relationship with sustainability reporting in recent years. Some argue for a positive association between sustainability reporting and firm performance while other authors support a negative association and/ or mixed results.

For instance, Sotorrio and Sanchez (2010) carried out a content analysis of Corporate Social reporting practices of multinational corporations in Spain and revealed that highly financial performing firms engage more in sustainability reporting. Some studies support the finds of Sotorrio and Sanchez (2010) (see; Vitezić, Vuko, and Mörec, 2012) but other studies found a negative effect of financial performance on sustainability reporting practices (Kuzey & Uyar, 2017; Welbeck et al., 2017; Fortanier et al., 2011) whiles others reported no relationship (Gamerschlag et al., 2011). These studies also argue that firms with a low level of financial

performance tend to justify such unimpressive corporate performance through reporting their environmental activities.

Gaspar (2013) accrue the mixed results in the literature to metrics used in measuring financial performance. He developed a matrix for the findings of 159 prior studies on sustainability reporting and firm performance metrics from 1972-2008. The results of Gaspar's (2013) analysis show that the majority of studies (68%) indicate a positive relation using accounting metrics whiles 51% used market-based measures. Again, for accounting-based measures, the negative relationship accounts for the second largest (23%) whiles that of market-based measures was neutral at 24%. 20% accounted for studies with neutral relationship using the accounting metrics whiles market metrics resulted in 21% for negative relationship.

The study uses both accounting-based metric (ROA) and market-based metric (Tobin's Q) to assess the relationship between performance and CoSR.

2.7.3 Foreign affiliation

CoSR is highlighted as a means of reducing the asymmetry of information between foreign investors and associates who may find it difficult to acquire relevant information from alternative sources (Hahn & Kuhnen, 2013).

Studies that have considered foreign ownership as a determinant of CoSR are scarce in the literature. Those that considered the relationship also indicate mixed findings. Some studies argued that foreign-owned firms are motivated to produce more reports on sustainability (Gallo & Christensen, 2011; Gamerschlag et al., 2011; Nyarku & Hinson, 2017). This is because management is more motivated to similar practices of the parents or foreign associates and as a result legitimizes their firm's existence (Welbeck et al., 2017). However, other studies reveal otherwise (Welbeck et al., 2017). Welbeck et al. (2017) found that the extent of reporting sustainability-related (environmental) information listed in Ghana is not related to their association with

foreign firms. This may be a result of the different regulatory environment governing firms in different jurisdictions.

In the context of emerging markets, further studies are called on to explore the relationship (Hahn & Kuhnen, 2013). Nyarku and Hinson (2018) stressed the need to explore Sustainability reporting practices of listed domestic and international firms operating in Ghana.

2.7.4 Industry Affiliations

The amount of information reported on corporate sustainability indicates the type of industry as firms in mining, oil, and chemical industries are found to stress more on environmental, health, and safety issues than firms in the financial and insurance industries (Kansal et al., 2014). Regarding environmental issues, Welbeck et al. (2017) classify firms into environmentally sensitive firms as those that impact the environment directly these and less sensitive firms. Environmentally sensitive firms are regulated by more strict environmental laws and therefore required to produce more information on their activities. Welbeck et al. (2017) revealed that the industry type of a firm has a significant effect on firms' environmental disclosure practices. Firms that are environmentally sensitive and socially exposed face more societal pressures as their environmental and social issues are visible such as issues of child labour, pollution, the likelihood of disasters (da Silva Monteiro & Aibar-Guzmán 2010).

Few studies have examined the effect of sector affiliation on the level of sustainability reporting of firms (Kansal et al., 2014). These studies also present mixed findings as some studies indicate that firms that are environmentally sensitive and socially exposed disclose more sustainability information than less exposed firms (Kansal et al., 2014; Welbeck et al., 2017).

2.7.5 Corporate size

As a control variable, corporate size has been established in literature to influence the extent of sustainability reporting. Most of these studies observed a positive influence (Hossain & Reaz, 2007; Siregar & Bachtiar, 2010; Gallo & Christensen, 2011; Gamerschlag et al., 2011; Kilic 2016; Welbeck et al., 2017). Other studies, however, found no effect of firm size on sustainability including studies by Rouf (2011). This relationship in prior studies is an indication that larger firms disclose more sustainability and its related information than smaller firms.

2.7.6 Leverage

Several studies have examined the relationship between the risk level of a firm and sustainability reporting practices (Kansal, et al., 2014). However, these studies reveal inconclusive results (Yasmin & Zuraida, 2017). Some studies argue for a negative association (Kuzey & Uyar 2016; Andrikopoulos & Kriklani, 2013) thus a highly leveraged company has less incentive to report on sustainability because it is costly to prepare voluntary disclosure (Andrikopoulos & Kriklani, 2013). Some studies report a positive relationship (De Beelde & Tuybens, 2015) meaning highly leveraged firms have the motivation to report more on sustainability activities, whiles others found no effect of risk on sustainability reporting (Kansal et al., 2014).

2.7.7 Liquidity

The literature on the relationship between Liquidity and sustainability reporting is scarce (Kuzey & Uyar, 2017). Ho and Taylor (2007) argued that highly liquid firms would report more sustainability information to satisfy current financial obligations. Their empirical results, however, showed otherwise. Kuzey and Uyar (2017) also found that liquidity has a negative significant influence on sustainability reporting practices. On

the other hand, Marwati (2015) and Widianto (2011) revealed that liquidity does not influence the level of sustainability reporting of a firm.

2.8 Theories used in Corporate Sustainability Reporting Research

In a review of the literature on CoSR, common theories that are used to explain Sustainability reporting practices include stakeholder theory, Legitimacy theory, Signalling theory, Institutional theory, political cost theory among others (Hahn & Kuhnen, 2013; Gamerschlag et al., 2011; Ching & Gerab, 2017).

2.8.1 Stakeholder Theory

Spence (2010) opined that the most prevailing and relevant theory in examining sustainability reporting practices of firms is the stakeholder theory. It is considered the roots of CSR reporting (Tuokuu & Amponsah-Tawiah, 2016). The stakeholder theory argues that the differing viewpoints and demands of the broad range of stakeholders with an interest in the business operations should be taken into consideration by companies (Laplume, Sonpar, & Litz, 2008) and to keep strong relations with them (Lourenço and Branco, 2013). This means firms have to go beyond their traditional role of offering financial data and creating value for their shareholders, to furnish other stakeholder groups with non - financial data on their operations to meet all stakeholder needs. Hahn and Kuhnen (2013) argue that most sustainability studies generally refer to stakeholders, without specific reference to the stakeholder theory. Hooghiemstra (2000) also posits that the absence of a comprehensive theoretical point of reference is the reason for conflicting results in sustainability research. Wang (2017) conducted a study on sustainability reporting using the stakeholder theory as a framework and found that the interests of stakeholders are related to the disclosure of sustainability reporting.

2.8.2 Legitimacy Theory

Legitimation is seen as the various ways by which a firm justifies its right to continue operation in society (Ching & Gerab, 2017). Kilic (2016) argues that legitimacy is often used to explain how entities divulge their CSR activities. Legitimacy also relates to the way by which stakeholder groups consider the activities of a firm to be suitable and useful (Suchman, 1995) therefore, Eugénio, Lourenco, and Morais (2013) posit that to be legitimate the performance of a firm should be socially desirable and considered fair and worth supporting.

Sustainability reporting is therefore used as a legitimacy tool to obtain a social "license to operate" and to access resources necessary to continue operation. Sustainability reporting again serves as proof that a business remains within the accepted limits of society. This is because firms lose their license to operate in society by breaching society's norms and expectations (Eugénio et al., 2013). Using the legitimacy theory as a framework, Welbeck et al. (2017) supported that firms operate in the society through a social contract and their ability to deliver some socially desirable goals determines their growth and future.

2.8.3 Signalling Theory

Signalling is considered as an extension of the voluntary theory of disclosure, as Dye (1985) and Verrecchia (1983) posit that companies reveal information voluntarily to minimize information asymmetry problems between management and stakeholder groups by showcasing better performance of the firm. Signalling theory argues that members within a firm such as management possess better knowledge regarding the firm than outside parties of the company including investors, customers, suppliers, among others. Connelly, Certo, Ireland, and Reutzel (2011a) explains that there are two entities involved in Signalling–the signaler (i.e. an individual or a company that conveys the information) and the recipient (i.e. an individual who observes and analyses the signal) and also the signals themselves (i.e. the message that is being sent).

Therefore, a company use a sustainability report to send a signal on how it performs economically, socially, and environmentally (Spence, 2002; Ruhnke & Gabriel, 2013). Moratis (2018) posits that stakeholders may not be able to track the CSR practices of firms, so companies have to make sure that their CSR practices are recognized and evaluated by these stakeholders and signalizing companies' sustainability practices significantly minimizes this problem of information asymmetry.

2.9 Theoretical Framework for the Study

Theoretical Framework is a framework that is premised on an established theory in a related field of inquiry and/or reflects a study's hypothesis. According to Adom, Hussein, and Agyem (2018) theoretical and conceptual frameworks set the roadmap and the foundation of a study to ensure credibility. Brondizio, Leemans, and Solecki (2015) agree that the theoretical model is the particular theory or theories of various elements of human behaviour that may be useful for the study of a phenomenon. It helps the researcher to situate his or her work in existing theories (Ravitch & Carl, 2016). Theoretical frameworks also help in choosing a design for the study and the plan for data analysis. According to Akintoye (2015) it increases the meaningfulness and generalizability of the research findings. Notwithstanding the importance of theoretical framework, most studies in the field of sustainability reporting fail to link the reporting behaviours of firms to a theory (Hahn & Kuhnen, 2013; Gamerschlag et al., 2011).

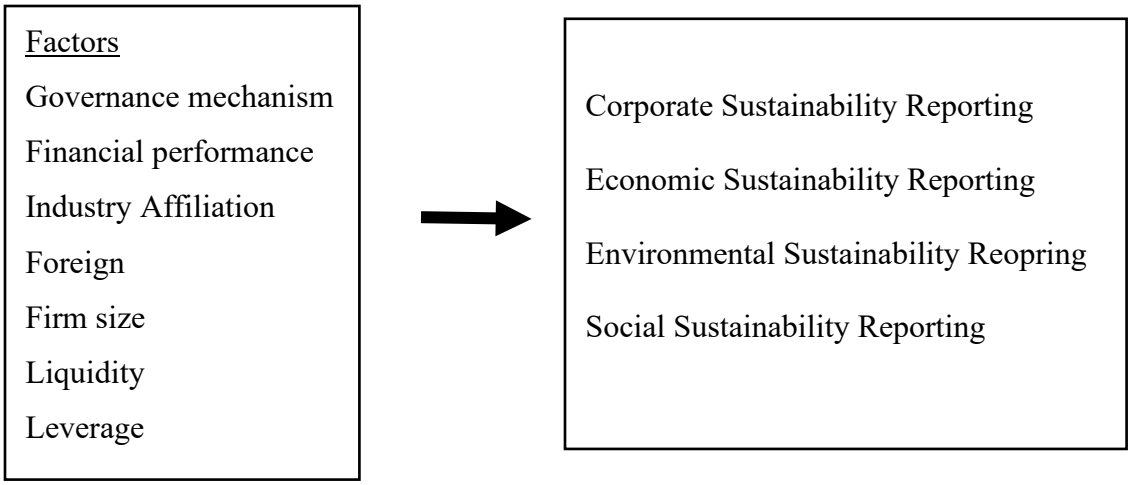
2.9.1 Stakeholder, Legitimacy and Signalling Theories

Cormier et al. (2005) argue that sustainability reporting practices are a complex phenomenon that cannot be explained with one single theory. Notwithstanding this complex nature of the concept, Hahn and Kuhnen (2013) posit that studies mostly refer to isolated theoretical reference points instead of embracing different theoretical explanations regarding sustainability reporting. Hahn and Kuhnen (2013) and Ching and Gerab

(2017) therefore argued for combining different theories to explain the sustainability reporting practices of firms.

The stakeholder theory shows that firms must take into account the different points of view and desires of the broad group of parties with an interest in business operations (Laplume et al., 2008). And therefore, companies should be able to determine who these stakeholders are as well as what their needs are to manage their legitimacy. Firms achieve legitimacy when they Identify the different needs of various stakeholders to fulfil them by Signalling to these stakeholders their sustainability reports. This helps to reduce information asymmetry and increase firms' acceptance by society. Thus, signalling sustainability reports to stakeholders serve as a means of shaping the perceived legitimacy of the company (Ching & Gerab, 2017).

Figure 1.1: Stakeholder-legitimacy-Signalling model



Source: Proposed model

2.10 Research Hypothesis

The hypothesis for the study is based on the proposal of Hahn and Kuhnen (2013) and Ching and Gerab (2017) who combined the three theories (stakeholder, legitimacy, and Signalling) to explain the complex nature of sustainability reporting.

2.10.1 Governance Mechanisms

Previous studies have explained the effect of governance mechanisms on sustainability and sustainability-related reporting underpinning theories of Signalling (Bae et al., 2018), legitimacy (Hu & Loh, 2018), stakeholder theory (Ong & Djajadikerta, 2018) whiles other studies do not refer to any theory (Trireksani & Djajadikerta, 2016). On the grounds of stakeholder theory, Ong and Djajadikerta (2018) argued that independent directors have better bonds and engage extensively with the wider stakeholder groups and are also likely to have greater exposure to the firms reporting practices. About Signalling theory, Bae et al. (2018) argued that firms use sustainability reports to signal their good corporate governance performance to their diverse stakeholders and the society. The literature on governance and corporate sustainability are mixed with some studies revealing positive relationship (Michelon & Parbonetti, 2012; Hu & Loh, 2018) whiles others showing negative results (Janggu et al., 2014). Again, Michelon and Parbonetti (2012) explain the level of legitimacy of a firm is increased by the adoption of a robust governance mechanism which results in a better accountability mechanism.

In response to calls by Hahn and Kuhnen (2013) and Ching and Gerab (2017), the current study argues that companies with improved corporate governance mechanism would want to signal their better performance to their wide range of stakeholders to secure their legitimacy.

H1: Corporate governance mechanism is positively related to CoSR and its dimensions.

2.10.2 Financial Performance

Welbeck et al. (2017) explain that companies with a weaker performance may face greater stakeholder pressure, therefore they may be more actively engaged in reporting to mitigate legitimacy threats. Ho and Taylor (2007) indicate that less profitable companies may want to demonstrate their contribution to mitigating legitimacy by Signalling more information regarding social and environmental activities.

This study, therefore, proposes that less financial performing firms face a lot of pressure from stakeholders, and to feel legitimate, they will signal more information about their sustainability activities to improve a positive impression from these stakeholders.

H2: There is a negative association between the financial performance of a firm and the level of CoSR and its dimensions.

2.10.3 Foreign-owned

Firms in Ghana may have foreign relations by way of shareholding. These firms may be branches of larger firms or an extension of their parent companies. These foreign associated firms or parent companies might have already been engaged in CoSR which makes these firms obligated to repeat such good practices (DiMaggio & Powell 1983 as cited in Welbeck et al., 2017). Cormier et al. (2005) explain this phenomenon as a tendency for firms that share similar structures to converge and adopt similar social structures. This is more applicable to firms that have foreign parents. Therefore, managerial behaviour is altered to adopt these practices through pressure from their foreign affiliations and in the process legitimize their company's existence. According to Nyarku and Hinson (2018) foreign banks with European and American backgrounds are expected to report adequately on CSR disclosures since CSR reporting appeared to be mandatory in their respective parent countries.

Therefore the study argues that firms that have foreign associations will disclose more sustainability reports to signal similar practices by their mother companies to legitimize their operations in the community and among stakeholders.

H3: There is a positive association between organizations with foreign association and their level of CoSR and its dimensions.

2.10.4 Industry Affiliations

studies conducted established that industry affiliation is significantly associated with the extent of sustainability disclosure (Liu and Anbumozhi, 2009; Kansal et al., 2014; Welbeck et al., 2017). This positive relationship may be a result of the social or environmental impact of the organizations in a particular industry. It may also be a result of consumer perceptions, government pressure, or resource supply issues in a particular industry (Kansal et al., 2014). Thus, firms whose activities influence the social and environmental setting disclose more sustainability information than less exposed firms (Liu and Anbumozhi, 2009; Kansal et al., 2014; Welbeck et al., 2017). Failure to disclose such social and environmental performance may be considered as defying the social contract (Welbeck et al., 2017). The study, therefore, argues that:

H4: There is a positive association between industry affiliations *and the level of CoSR and its dimensions.*

2.11 The Ghana Stock Exchange

The Ghana stock exchange is an emerging market that has seen tremendous improvement in its operations over the years A performance review in 2013 indicates that the Exchange experienced an increase in market capitalization of 6.80% from 2012 to 2013 and an increase in domestic market capitalization of 76.68% by the end of 2014. This significant improvement experienced by the Ghana Stock Exchange can be attributed to the increased investor, customer, among other stakeholder awareness, and the improvements in operations

and reporting practices by listed firms on the stock exchange. This can also be attributed to improved stakeholder confidence in the Ghanaian market and economy (Performance Review, GSE, 2013).

The year 2013 performance made the exchange to be considered as one of the outstanding stock markets in sub-Saharan Africa (Performance Review, GSE, 2013) and seen in West Africa as among the fastest emerging markets (Kwakye, Aboagye-Otchere & Bekoe, 2013).

2.12 Chapter Summary

The literature review chronologically reviews prior studies on sustainability reporting. The literature has shown that sustainability reporting studies that use the triple-bottom-line (TBL) approach are scarce. It also revealed that most studies either use single theories or no theory in examining sustainability reporting practices.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the process of data collection and analysis for achieving the research objectives outlined in chapter one of the study. The chapter discusses the philosophical foundations, research approach, and design adapted to achieve the study objectives. This chapter further discusses the population, sampling technique, and data collection procedures used in the study. This is followed by a discussion of the specification and diagnostics of the regression models.

3.2 Research Philosophy

Philosophy is the body of knowledge that informs the appropriate methodology and justifies the research methods used in the study. A research paradigm is defined by Lincoln and Guba (2000) and Creswell (2003) as "*the knowledge claims that a researcher establishes or the beliefs about how and what the researcher would learn during their study*". The paradigm influences the questions in research such as what and how a phenomenon should be studied and how the research interprets findings (Bryman, 2004). Prior studies classify paradigms in three dimensions, notably, objectivism and interpretivism, and transformative. Each dimension has assumptions the researchers should adhere to in embarking on a social phenomena investigation.

The interpretivist paradigm is of the assumption that reality socially constructed and determined objectively. They believe that society is about subjective values and interpretations and therefore facts and figures can not explain such phenomena. Interpretivist relies on the participant's of the phenomena under study and researchers are most likely to rely on qualitative methods for data collection and analysis. The transformative

paradigm sees knowledge as a social structure formed by the individual experiences, personal attributes and affiliations of the community. Therefore, several realities are socially shaped for transformativists, but it is essential to be specific about the values that define such realities. They believe that to learn realities, an interactive relationship must be established between the researcher and the study participants and the researcher may adopt either the qualitative or quantitative or mixed methods in data collection and analysis (Mertens, 2007). Positivist takes the stance of ontological realism and objective viewpoint of epistemology. The positivist paradigm believes phenomena in the social world and their meanings are of the independent existence of social actors, thus, truth and reality are independent of the viewer and observer (Aliyu, Bello, Kasim, & Martin, 2014); knowledge is discovered and verified through direct observations; whilst evidence is established through the examination of components of the phenomena (Kivunja & Kuyini, 2017). The positivist paradigm seeks to establish an accurate description of reality, without the subjective influence of the researcher, as well as analyzing and interpreting the outcomes to establish the relationships existing between the constructs. They adopt scientific methods in investigating a phenomenon to understand human behaviour (Kivunja & Kuyini, 2017). The paradigm, therefore, suggests the use of quantitative methods in the collection of data, analysis, and interpretation (Kivunja & Kuyini, 2017).

The current study draws on positivist philosophical assumptions. The positivist paradigm is chosen because the study seeks to examine the determinants of CoSR practices and the researcher believes that there are already an existing set of real determinants of sustainability reporting which are independent of the researcher. Although the real determinants of sustainability reporting are facts already in existence, the study seeks to identify what constitutes valid knowledge about those facts and how to achieve such knowledge (Kivunja & Kuyini, 2017).

3.2.1 Assumptions about Theoretical Reasoning: Deductive Reasoning

The deductive approach seeks to test already existing theories by developing a hypothesis. Prior studies have developed various theoretical frameworks to explain the sustainability reporting practices of organizations. Some scholars have proposed a combination of theories to explain such behaviour. There is the need to test or verify whether the explanations offered by such theories are valid, therefore, the study seeks to test a hypothesis based on the stakeholder-legitimacy-signalling framework to be able to deduce from analysis of the results as to whether the propositions held by a combination of these theories should be accepted or rejected. The study then builds on the deductive approach to reasoning (Popper, 2002) which starts with a general statement or hypothesis and examines the possibilities to a logical conclusion.

3.3 Research Approach

The philosophical assumptions underpinning a study and its objectives influences the choice of a research approach (Kivunja & Kuyini, 2017). The research approach connects the research philosophy to the methods considered for the study (Byme, 2001). Prior studies have identified three main research approaches- the quantitative; qualitative; and mixed-methods (Collis & Hussey, 2013). The study chooses the quantitative approach based on the positivist paradigm. The quantitative approach is employed to make statistical generalizations about the population.

3.4 Research Design

Research design serves as a road map connecting the collection of data to the results and the objectives posed in the study (Yin, 1994). The study employs a retrospective case study approach in the collection of relevant data to achieve the research objectives. A retrospective case study is a type of longitudinal or panel data study where there is repeated observation of the same variables of interest such as individuals' behaviour, annual

reports et cetera over a short or long period (Parent, 2000). A retrospective case study is used for collecting data after significant events have already occurred and it provides researchers with access to both first-person accounts and archival data (Durepos & Wiebe, 2021). The choice of retrospective panel data for the study is because it is known for providing more reliable information about the sample (Daub, 2017). Again, scholars in sustainability studies have noted that the quality of reporting can be reliably determined over a given period which makes panel study the appropriate approach to achieve the research objectives. The study also seeks to measure the reporting practices of firms over time and this can be best achieved using a retrospective case study.

3.5 Study Population, Sampling technique, and sample size

A study population comprises the total community of participants whose attributes need to be ascertained (Banerjee & Chaudhury, 2010), and this is always determined by the study objectives (Asiamah, Mensah & Oteng Abayie,2017). A study population typically has common features of interest relevant to achieve the research objectives (Creswell, 2014; Asiamah et al., 2017). The study focuses on listed firms in Ghana.

The study took a census of the listed firms on the GSE. Thus, the study considers all firms present on the GSE. It then considers all available annual and stand-alone sustainability reports within the 2015-2019 financial year, which are downloadable pdf formats. There are thirty-three (33) listed firms on the GSE. This suggests that over the study period one hundred and sixty-five (165) reports were expected. The exclusion criteria were used to exclude firms that do not have downloadable annual and stand-alone sustainability reports available within the period considered for the study. In all One hundred and twenty-nine (129) reports were retrieved over the 5 years representing 29 firms. Thus the sample of the study is 129 firm-year reports.

3.5.1 Source of Data

Secondary data was used for the study and the main source of this was annual reports and stand-alone sustainability reports, and/or sustainability-related reports of all listed firms within the 2015-2019 financial year-end. The study considered all downloadable documents in pdf or doc formats. The researcher browsed annual reports sourced from corporate websites, to record sustainability disclosures reported using indicators from the GRI sustainability reporting guidelines. Corporate websites were identified from the companies' profile on the website of the Ghana Stock Exchange and the hypertext links of these corporate websites were used to locate the original website of the firm (Kwakye, Aboagye-Otchere & Bekoe, 2013). For companies that did not have their websites on the stock exchange, a Google search was used. For companies that do not have an active website, their reports produced on the "annual reports ghana" website were used. Annual Reports Ghana (ARG) is a repository of financial information for firms listed on the Ghana Stock Exchange. It's licensed by Ghana's Securities and Exchange Commission (SEC). The organization has a database that stores annual reports of GSE-listed companies.

3.6 Data Collection

The study used content analysis in collecting data from the 129 firm-year reports identified. The use of content analysis will help examine the sustainability reporting practices of firms on GSE. Literature has identified two types of content analysis- quantitative and qualitative content analysis. The adoption of a quantitative approach necessitates the use of quantitative content analysis for data collection.

3.6.1 Quantitative Content Analysis

Content analysis is a data-gathering method where text in a form of written, oral or visual communication is codified into groups based on a determining criterion. It associates a certain level of priority with the number

of times a subject matter is indicated hence, the more an item is indicated, the more important it is (Krippendorff, 2004). The quantitative content analysis focus on quantifying the number of times certain words, phrases, subjects, or concepts are used in a message.

Content analysis has been highlighted in the literature to provide more validity to the results of CoSR research (Gray et al., 1995). It is a method used to measure the extent of disclosure into quantitative or numerical form to enable statistical analysis (Joseph & Taplin, 2011). The text can be annual reports having sustainability-related reports embedded, stand-alone sustainability reports, or one-dimensional reports in a pdf format.

Content Analysis also allows the researcher the opportunity to evaluate the extent to which various items are disclosed. It is also highly recognized for the unobtrusive nature of the data collection process where the research can analyse social phenomena without direct interaction with participants. The systematic procedures involved in the content analysis also makes it easily replicable by another researcher if it is well conducted. This makes the results of content analysis much reliable. It is also known for its low cost and flexibility since it can be conducted anytime, anywhere provided resources are available.

3.6.1.1 Process of data collection using content analysis

The process of effectively carrying out content analysis has been categorized into six stages by Krippendorff (1980). The first stage of content analysis is choosing an ideal sample. The sampling unit appropriate for achieving the research objectives is annual reports and documents containing sustainability information of listed firms. Companies use their annual reports as a key document for communicating with stakeholders (Gray et al., 1995) due to their known credibility. It contains both statutory and voluntary information ((Hackston & Milne, 1996) hence an important medium for assessing sustainability reporting practices of firms.

The second stage of content analysis is determining the unit of measurement. This is a vital part of content analysis as it looks at the units that will be used in coding the data. This includes the use of characters, paragraphs, themes et cetera. Some authors measured the amount of reporting by the number of pages which due to different page, column, or print sizes yield varying results from author to author. Others use a number of words that might also leave the author torn between whether a single word is SR or not. An individual word itself does not provide enough meaning. This study measures the extent of SR by the number of sentences. Sentences as the unit of analysis reduce the subjective judgment of the researcher and are also known for their replicability by other researchers to increase the reliability of results than words.

The third stage of content analysis is the categorization of the themes (Krippendorff, 1980). There is a need for an appropriate structure to avoid the researcher's bias and idiosyncrasies. Proper categorization also helps to reduce the researchers' subjectivity. To ensure objectivity, the researcher selected the categorization of themes from a framework based on the GRI standards 2016. The study will be among the first to adopt a framework developed from the GRI standards to study sustainability reporting practices of firms in a developing context.

Fourthly, a pre-test is needed to evaluate how well the categorization fits for the unit of analysis. This can be done by numerous trained coders to ensure reliability and validity. Measuring what is intended to be measured is considered as valid in content analysis (Saunders, Philip & Thornhill, 2012) whiles reliability is ensuring accuracy, reproducibility, and stability of results from the analysis, thus the research method produces the same results by other researchers. The GRI is regarded as the most recognized body in the context of sustainability reporting, even though it has been highlighted for some setbacks. Two other coders retested the categorization developed from the GRI standard using some sampled annual reports for the study.

The fifth stage is coding and recording of data by scanning through the annual reports to identify instances of sustainability disclosure according to the categorization by the GRI standard. A binary coding method was employed where a firm is scored 1 for reporting an item 0 for not reporting.

Finally, the data collected is then synthesized and cleaned for statistical analysis. The study employs various statistical tools in analyzing the data which will be discussed in subsequent sections.

3.6.1.2 Reliability of Content Analysis Results

A very important characteristic of content analysis is its reproducibility or reliability (Krippendorff, 1980). Krippendorff (1980) attributes reliability to accuracy, reproductivity, and stability. That means there should be the ability to judge the code data in similar ways over time. And again, similar results should be achieved by different coders (Krippendorff, 1980). Accuracy of content analysis is measured against the performance of previous work or a predetermined standard (Krippendorff, 1980). Reliability is also ensured using similar sub-categorization and classification, which means every researcher is supposed to achieve the same code irrespective of the period. In terms of reliability, GRI has already developed a framework of indicators that have been in use by most researchers. Again, it is considered a global standard, which means the results are comparable to other studies.

3.6.1.3 Validity of Content Analysis Results

The validity of content analysis is related to its ability to measure what it is intended to measure (Jones & Shoemaker, 1994) thus the results should reflect reality. This requires that a coding scheme should be developed as a lead to the coders in analyzing the content. In terms of validity, GRI has indicators that have been sub-classified into themes. The study relies on these indicators and themes for the content analysis process.

3.7 Measurement of variables

3.7.1 Dependent Variable

The study seeks to measure the extent of CoSR of listed firms in Ghana and this was achieved through item-wise disclosure and disclosure indices. The indices were considered from the Triple-Bottom-Line (TBL) approach and based on dimensions in the GRI Standard. The indices include (i) corporate sustainability reporting index (CoSRI) (ii) Economic sustainability reporting index (EcSRI) (iii) Environmental sustainability reporting index (EnRI) (iv) Social sustainability reporting index (SoSRI). The indices are calculated as the number of items reported divided by the total number of items on the scoring sheet.

$$\text{Reporting Index} = \frac{No.\ of\ items\ reported}{Total\ no.of\ items\ on\ the\ score\ sheet}$$

3.7.1.1 Economic Sustainability Reporting (EcSR)

Economic sustainability measures the economic outcomes of a firm's activities and the effects of the economic outcomes on the wider stakeholder groups (GRI, 2006). The performance of a firm in this dimension is fundamental to the survival of a firm and in understanding its basis for sustainability. This dimension of the TBL considered for the study contains nine (9) items from the GRI Standard classified in four themes; economic performance, market presence, indirect economic impacts, procurement practices (GRI, 2016), and two (2) additional themes; corporate investments and forward-looking economic information (Kwakye et al., 2013).

3.7.1.2 Environmental sustainability reporting (EnSR)

This dimension of sustainability reporting deals with how the firms' activities impact the natural systems, both living and non-living. It considers the performance of firms to the number of resources used up by these

firms as input and the output it releases into the environment. The environmental dimension contains thirty (30) items from the GRI standard classified into seven (7) themes; materials, energy, water and effluents, biodiversity, emissions, effluents and waste, environmental compliance (GRI, 2016).

3.7.1.3 Social sustainability reporting (SoSR)

SoSR considers the impact of the firms' activities on the social systems in which it operates. This dimension has four (4) main themes; product responsibility, labour practices, and decent work, human rights, society. Product responsibility concerns the consideration the firm gives customers issues in designing, making, and selling their products and services. It contains seven (7) items and is classified into five (5) groups; customer health and safety, marketing and labelling, customer privacy, socioeconomic compliance. Labour practices and decent work deals with the firms' relationship and management of employees and suppliers. It contains fifteen (15) items and is classified into five (5) groups; employment, labour/management relations, occupational health and safety, training and education, diversity and equal opportunity, and supplier social assessment.

The human rights aspect of the social dimension deals with the firms' consideration of the rights of employees and suppliers in their dealings with them. It contains fifteen (15) items and is classified into five (5) groups; human rights assessment, non-discrimination, freedom of association and collective bargaining, child labour, forced or compulsory labour, security practices, rights of indigenous peoples, and supplier social assessment. Society is concerned with the impact of the firms' activities on the community in which it is involved It includes sub-groups such as local communities, public policy, socioeconomic compliance, and supplier social assessment.

3.7.1.4 Corporate sustainability reporting

This is the overall measure of the extent of sustainability reporting of the organization using the triple-bottom-line framework thus putting together the economic, environmental, and social dimensions of sustainability. It's measured as an average of the three dimensions.

3.8.2 Independent variable

3.7.2.1 Governance

The governance practices of sampled firms are considered as one of the main regressors in the current study. The GRI standard provides a more comprehensive assessment of the governance practices of firms in terms of training, stakeholder consultation, board composition, ethics, monitoring, and evaluation among others (GRI, 2016). Governance practices, unlike previous studies that measure individual aspects of governance structures such as board size (Trireksani & Djajadikerta, 2016), CEO duality, female on board (Michelon & Parbonetti, 2012), board capacity, independence (Hu & Loh, 2018) among others, is measured as an index using a score sheet developed from the GRI standard. It contains items twenty-four (24) items to assess the governance mechanisms of firms.

3.7.2.2 Financial performance

Consistent with Fortanier et al. (2011), Welbeck et al. (2017), and Goel & Misra (2017), the current study uses both return on assets (ROA) and Tobin's q as a proxy to measure financial performance. Most studies on sustainability reporting practices used either accounting metric (return on assets (ROA), return on equity (ROE), etc), market metric (Tobin's q, etc) or both as proxies for measuring firm financial performance (see

Fortanier et al., 2011; Sotorrio & Sanchez, 2009; Kent & Monem, 2008; Clarkson et al., 2011; Gamerschlag et al., 2011; Vitezi´c et al., 2012; Xie, 2015; Goel & Misra, 2017). Tobin's Q represents the market's estimation of the total assets of a company by its substitute value (Tobin, 1969) and thus provides a more detailed picture. Tobin's Q is known for its strength in measuring firms' performance by incorporating market values and book values of a firm. Because Tobin's Q considers all the firm's assets, it can be easily compared across firms without adjusting for risk, leverage, or size (see, Stulz, 1995; Wernerfelt & Montgomery, 1988). Tobin's Q is, therefore, superior to other indicators of the capital market, such as the stock price.

ROA is computed as a ratio of net profit before interest expenses and income taxes to total assets.

$$ROA = \frac{\text{net profit before interest expenses and income taxes}}{Total\ Assets}$$

Tobin's Q is computed as the market value of equity plus the book value of total assets minus the book value of equity scaled by the book value of total assets.

Tobin's Q

$$= \frac{Market\ Value\ of\ Equity + Preference\ Stock + Long\ Term\ Debt + Current\ Assets - Current\ Liabilities}{Total\ Assets}$$

3.7.2.3 Foreign association

Similar to Welbeck et al. (2017) foreign association of a firm is measured as a dummy where one (1) is given when a firm is associated with a foreign parent or branch and zero (0) otherwise.

3.7.2.4 Industry Affiliation

The nature and extent of sustainability differ across different industries. The study considered all listed firms which imply that various sectors are considered for the study and therefore it seeks to examine the variations across industries and how industry affiliation influence the level of sustainability reporting. The firms are

grouped into eight industries (Food and Beverages (FOOD), Manufacturing (MAN), Agriculture (AGRI), Mining (MIN), Information Technology (INFOR), Insurance (INSUR), Distribution (DIST), Banking industry). As a dummy variable, the banking sector was used as a reference point.

3.7.2.3 Firm Size

The study controls for the effect of sizes of the sampled firms. It's prudent to control for firm size since the firms are of different sizes. Prior studies used different proxies such as revenue (Gallo & Christensen, 2011), number of branches (Kilic, 2016) for measuring firm size among others. Similar to other studies (see; Welbeck et al., 2017; Clarkson et al., 2011; Gamerschlag et al., 2011) the proxy used to measure firm size was a natural logarithm of total assets.

3.7.2.4 Leverage

As a control variable, leverage is measured as the ratio of long-term debt to total assets. Welbeck et al. (2017) as well as Kuzey and Uyar (2017) used similar proxies in earlier studies.

3.7.2.5 Liquidity

This is a measure of the efficiency of the short term resources of the firms. Liquidy is considered as a control variable for the study and it's proxied as a ratio of current assets to current liabilities (Welbeck et al., 2017; Kuzey & Uyar, 2017).

3.8 Model specification

The model specification refers to the determination of which independent variables should be included in or excluded from a regression equation (Allen, 1997). It helps to know which independent variables are relevant

or irrelevant to be included in the regression model. Based on the variables considered for the study, the regression model is specified below.

$$CSR = \beta_0 + \beta_1 GOV_{it} + \beta_2 PERF_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 LIQUI_{it} + \beta_6 FOR_{it} + \beta_7 IND_{it} + \varepsilon_{it}$$

From the model, the CSR denotes Corporate Sustainability Reporting Index (CoSRI), Economic Sustainability Reporting Index (EcSRI), Environmental Sustainability Reporting Index (EnSRI), Social Sustainability Reporting Index (SoSRI). PERF represents firms' performance that's market metric (Tobin's Q) and accounting metric (ROA). IND represents eight (8) industries (Food and Beverages (FOOD), Manufacturing (MAN), Agriculture (AGRI), Mining (MIN), Information Technology (INFOR), Insurance (INSUR), Distribution (DIST), Banking industry is the reference)

Table 3.1 Summary of variables

VARIABLE	SYMBOL	MEASUREMENT
Firm size	SIZE	Natural Logarithm of Total Assets
Financial performance	ROA	the ratio of net profit before interest expenses and income taxes to total assets
	Tobin's Q	the market value of equity plus the book value of total assets minus the book value of equity scaled by the book value of total assets
Leverage	LEV	the ratio of long term debt to total assets.
Liquidity	LIQUI	the ratio of current assets to current liabilities
Foreign-owned	FOR	as a dummy (1 if foreign-owned, 0 otherwise)
Industry	IND	as a dummy where the Banking industry is used as a reference point
Governance	GOV	as an average of the governance score in the GRI framework

Economic sustainability reporting index	EcRI	the number of economic indicators reported divided by total economic indicators
Environmental sustainability reporting index	EnRI	the number of environmental indicators reported divided by total environmental indicators
Social sustainability reporting index	SoSRI	the number of social indicators reported divided by total social indicators
Corporate sustainability reporting index	CoSRI	average of the scores for the economic, environmental, and social sustainability reporting indexes

3.9 Model Diagnostics

Model diagnostics are conducted to ensure the validity of the regression models and also to address potential problems that are possible to affect the regression models causing biasedness in the regression results. These diagnostic procedures include testing for multicollinearity, heteroscedasticity among other procedures.

3.9.1 Multicollinearity Assessment

Multicollinearity occurs when there is a high correlation between two independent variables in a regression model (Dohoo et al., 1997). A higher correlation between two regressors suggests that one variable must be dropped. This is because the presence of multicollinearity among predictor variables can complicate the interpretation of the results of a study (Nimon et al., 2010) and also poses a real problem for the researcher (Stevens, 2009). A correlation matrix and a Variance Inflation Factor (VIF) will be employed in testing for the presence of multicollinearity among the regressors in the estimated models of the study.

3.9.1.1 Correlation matrix

A correlation matrix shows the relationship between variables in a regression model. Dohoo et al. (1997) posit that there is a certainty of multicollinearity between two regressors when their correlation coefficient is at 0.9 level or higher (see also Chen & Rothschild, 2010). Correlation coefficients are discussed in chapter four.

3.9.1.2 Variance Inflation Factor

After a correlation test, a variance inflation factor test will also be conducted. VIF quantifies the severity of the presence of multicollinearity among regressors in a regression model. A VIF value greater than 10 suggests the existence of multicollinearity (O'brien, 2007; Lin, 2008; Alin, 2010). VIF results will be analysed in the next chapter.

3.9.2 Heteroscedasticity of errors

The heteroscedasticity of errors in the estimated regression models is tested using the Brusch-Pagan test (Brusch & Pagan, 1979). Heteroscedasticity occurs when the residuals of an estimated regression model have non-constant variance. The Brusch-Pagan (BP) test measures how residuals in a regression model increase across the regressors. A significant p-value indicates that there is the existence of heteroscedasticity, which could be corrected by performing robust standard errors (Welbeck et al., 2017).

3.9.3 Model Estimation Test

Hausman test specifies the best method between Random Effect (RE) and Fixed Effect (FE) for estimating the regression model (Hausman, 1978). Hausman (1978) posits that performing specification tests is considered one of the most important aspects of research. The test is specifically to determine which method

will produce the best results. The test also showcases how well the regression model is well specified thus the estimators will be close to one another if the model is well specified, but will be apart from each other if it is misspecified.

3.9.4 Coefficient of determination (R^2)

Assessment of the predictive power of the estimated regression model is performed using the Coefficient of determination also known as R^2. The coefficient of determination shows the degree to which the regressors in an estimated model explain the regressands. Chin (1998) and Moore (2013) posits that coefficient of determination values that range within 0-49% and 50-69% are interpreted as weak and moderate while ranges above 70% are interpreted as strong explanatory power. The R^2 value of the estimated model is discussed in chapter four of the study.

3.10 Data Analysis and Presentation

Saunders et al. (2012) explain that data analysis involves making a simple and clear presentation of data to ease understanding. The analysis was performed by the use of descriptive results, multiple regression, and other test statistics. Descriptive Statistics was used to analyse the various reporting practices of firms, the regression analysis was used to examine the determinants of sustainability reporting as well as the effect of sustainability reporting on firm financial performance.

3.11 Chapter Summary

The chapter discussed the methodology used to achieve the study objectives. The study adopts the objectivist philosophical assumption which leads to the use of quantitative research design and hypothetic-deductive

reasoning to generalize research findings. Qualitative content analysis was employed for data collection and was analysed using descriptive statistics and multiple regression.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.0 Introduction

This chapter focuses on the analysis and interpretation of secondary data obtained for the current study. To accomplish the objectives of the study, this chapter presents descriptive statistics of the sample, the analysis of the sustainability reporting practices of firms as well as the analysis of the variations between industry practices. This chapter then provides a discussion of the relationship between sustainability reporting and its determinants and the effect of sustainability reporting on financial performance.

4.1 Sample Distribution

The study considered all listed firms on the Ghana Stock Exchange which includes thirty-three (33) firms. Their annual reports were collected over five (5) years making a total of 129 observations. The study was

Table 4.1 Sample Distribution

Industry	No. Of Firms	No. Of Reports	Percentage
AGRICULTURE	1	5	3.88%
BANKS	8	39	30.23%
DISTRIBUTION	3	15	11.63%
FOOD AND BEVERAGES	5	16	12.40%
INFORMATION TECHNOLOGY	2	8	6.20%
INSURANCE	2	10	7.75%
MANUFACTURING	5	21	16.28%
MINING	3	15	11.63%
TOTAL	29	129	100.00%

Source: data of the study

supposed to consider 165 observations; however, exclusion criteria were used to exclude firms that do not have reports available for download within the study period. Table 4.1 shows the distribution of sample characteristics.

4.2 Summary Statistics of Variables

A descriptive statistic of the dependent and independent variables is provided in table Table 4.2. It can be observed that the minimum amount of corporate sustainability reporting (CoSR) by the sampled firms is 3% with a maximum of 97.8%. This shows wide variability in corporate sustainability reporting. This indicates that listed companies in Ghana are disclosing some amount of corporate sustainability information espoused by GRI but the practice is low as the average amount of reporting is 37.6%.

Table 4.2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
CoSRI	129	.376	.253	.03	.978
EcRI	129	.618	.205	.091	1
EnRI	129	.234	.343	0	1
SoRI	129	.277	.295	0	1
GOV	129	.497	.312	.042	1
TOBINQ	129	.664	.816	.049	7.049
SIZE	129	13.137	3.239	6.405	20.395
ROA	129	.069	.12	-.328	.88
LEV	129	.223	.22	0	.943
LIQUI	129	1.175	.875	.162	8.498
FOR	129	.527	.501	0	1

Source: data of the study

It can also be observed that the minimum amount of EcSR by the sampled firms is 9.1% with a maximum of 100%. The statistics show a much variation in the EcSR practice of listed firms in Ghana. Also, a mean of 61.8% shows that listed firms in Ghana report more economic-related information espoused by GRI. This may be due to the mandatory nature of financial reporting by firms on the Ghana Stock Exchange. Some of these financial disclosures are found within some of the economic sustainability information espoused by GRI and this may be the result of higher levels of EcSR across the sampled firms.

The statistics also show that the minimum amount of environmental sustainability reporting (EnSR) by the sampled firms is 0% with a maximum of 100%. This shows a wide variation in the environmental reporting and that some of the sampled firms reported no environmental-related information espoused by GRI at some point over the study period whiles others reported all. The average of 23.4% shows that listed firms in Ghana are reporting some amount of environmental-related information espoused by GRI but the level of reporting is low.

Again, the minimum amount of social sustainability by the sampled firms is 0% with a maximum of 100% indicating that there is much variability in the extent of SoSR. This suggests that listed firms on the GSE are reporting some amount of social-related information espoused by GRI, however, the average score of 27.7% indicates that the level of reporting is low.

Table 4.2 indicates that the governance score of the sampled firms had a mean of 0.497. This means most of the firms in the study had less performing governance mechanisms. The minimum governance score was 0.042 indicating that some firms had very low mechanisms in terms of governance practices. The maximum governance score of 1 also indicates that some organizations had a more comprehensive system of governance as they comply with all the indicators espoused in the GRI standard (2016).

From table 4.2 Tobin's Q had a mean of 0.664. This indicates that, on average, the listed firms are underperforming in the market. The maximum score of Tobin's Q was 7.049 whiles the minimum Tobin's Q score was 0.049 indicating that there was a wide variation in the market performance of listed firms.

The average ROA of the sampled firms was approximately 6.9%. This indicates that generally, the ability of firms to efficiently generate revenue with the assets provided by stakeholders was low. The maximum ROA of the sampled firms was 88% which indicates that some of the sampled firms were efficiently utilizing their assets for revenue generation. The minimum ROA of -32.8% also indicates that some firms were also making losses over the study period as found in the study of Fortanier et al. (2011). Kuzey and Uyar (2017) also obtained similar characteristics of their study sample.

From table 4.2, firm size had a mean of 13.137 indicating that most of the firms in the sample are relatively large (Clarkson et al., 2008) with an average total asset of approximately $507.37 million. The minimum asset base among the firms was $604.86 thousand whiles the maximum asset base was $720.17 billion.

The average leverage of the sample firms was 22% of total assets. This signifies that greater than average of the sampled firms were financing their organization's resources with equity than non-current debt over the study period. Kuzey and Uyar (2016) found a similar trend in their sample. The maximum leverage was 94.3% of total assets which indicates that some firms finance their assets with 94.3% of debt over the study period. The minimum leverage of the sampled firms was 0% which means those firms were purely using shareholder funds in asset's investments.

The average liquidity of the sampled firms over the study period was 1.175. This indicates that generally, the sampled firms were adequately liquid thus they could defray their short-term obligations within the study period Kuzey and Uyar (2017). The minimum and maximum liquidity were 0.162 and 8.498 respectively. This means some firms were struggling to pay off their current liabilities only 0.162 times whiles others could settle their liabilities 8.498 times.

Observation from table 4.2, shows that 52.7% of the sample observation was from foreign firms whiles 40% of the reports analysed were from local firms. By so doing, 68 of the reports analysed were from foreign firms whiles 61 of the total observation represented local firms.

From table 4.1, eight (8) different industries represent the observations for the study. The majority of the total observation was represented by the banking sector thus 30.2%. 16.3% of the total observation was represented by the manufacturing industry. Food and Beverages represented 12.4%, Mining firms and distribution firms represented 11.6% each whiles information technology and insurance represented 6.2% and 7.8% respectively. The agricultural sector took a minimum of 3.9% of the total observation.

4.3 Assessment of regression models

To test the relationships between the constructs in the current study regression models were employed. The models were tested for validity and reliability using various diagnostics. These models were tested for the presence of and treatment of multicollinearity, heteroskedasticity. Analysis of the best estimation model as well as its predictive power was performed. These diagnostics are analysed below.

4.3.1 Assessment of multicollinearity

Multicollinearity among the regressors was tested using a correlation matrix and variance inflation factor as discussed in chapter three.

4.3.1.1 Assessment of Variance Inflation Factor (VIF)

Again, the VIF criterion is applied in assessing the multicollinearity of the model. From table 4.3, the mean

VIF was 2.399.

Table 4.3 Variance inflation factor

	VIF	1/VIF
SIZE	5.5	.182
GOV	4.439	.225
MIN	3.627	.276
LEV	2.945	.34
FOR	2.463	.406
MAN	2.311	.433
FOOD	1.996	.501
TOBINQ	1.994	.502
LIQUI	1.611	.621
INSUR	1.488	.672
ROA	1.345	.743
DIST	1.34	.746
INFOR	1.327	.754
AGRI	1.2	.833
Mean VIF	**2.399**	.

In conformity with the recommendation of Lin (2008), none of the predictors exceeded the maximum threshold of 10 for the presence of multicollinearity. Firm size had the highest VIF of 5.5 whiles the Agricultural industry had the lowest VIF of 1.2. This indicates that variables considered for the study do not have the problem of multicollinearity among them as earlier studies of Welbeck et al. (2017) observe VIF values of 10.11.

4.3.1.2 Assessment of Correlation Coefficient

From table 4.6, it can be observed that there are no multicollinearity issues among the predictors of the estimated regression models. The highest correlation coefficient in the matrix was 0.83 and this was between firm size and governance mechanism. This was however below the multicollinearity threshold of 0.9 prescribed by Chen and Rothschild (2010). The lowest correlation coefficient in the matrix was 0.00 showing no correlation and this was found between the insurance industry and ROA.

4.3.2 Assessment of Heteroscedasticity

The test for the presence of heteroscedasticity was performed using the Brusch-Pagan test. The null hypothesis of Brusch and Pagan (1979) suggests that there are no heteroscedasticity issues in the regression models. From Table 4.4, the p-value (Prob > chi2) of 0.0004 is above the significance level of 0.05. This causes a rejection of the null hypothesis and therefore indicates the presence of heteroscedasticity thus the variance across the residuals in the models is non-constant.

Table 4.4 Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho:	Constant variance
Variables:	fitted values of CoSRI
chi2(13)	12.58
Prob > chi2	0.0004

4.3.3 Addressing the problem of heteroscedasticity

Heteroscedasticity in a model results in biased standard errors (Allison, 1999). Assumptions in Ordinary Least Squares (OLS) are that the error terms are independent as well as identically distributed. These assumptions are violated in the presence of heteroscedasticity. Various techniques have been employed by researchers to address the issue of heteroscedasticity including the use of Weighted Least Squares (WLS), robust standard errors, among others.

Robust standard errors are more trustworthy in the presence of heteroscedasticity (Pindyck & Rubinfeld, 1988). According to Allison (1999) robust standard errors do not cause a change in the estimated regression coefficients but will use test statistics to provide a reasonable accuracy of p values. Berry, Feldmen, and

Stanley Feldman (1985) further argue that robust standard errors address the issues of errors that are identified not to be distributed independently and identically. Robust standard errors change the standard errors and test of significance in an estimated model and not their coefficients. Even though Weighted Least Squares (WLS) and robust standard errors both correct the problem of biases in standard errors, WLS is highlighted to be more difficult to implement and also needs more assumptions to be made (Berry et al., 1985). Robust standard errors have also been identified to be a more common and popular technique for dealing with heteroscedasticity issues. Robust standard errors were therefore employed in estimating the regression models of the study.

4.3.4 Assessment of Model Estimation methods

The Hausman test was performed to identify which estimation method will be appropriate for testing the relationships between the study variables as discussed in chapter three. The null hypothesis assumes that the Random Effect (RE) is appropriate, Whiles the alternative suggests for Fixed Effect (FE).

From table 4.5, the p-value of 0.215 is greater than the significance level of 0.05. This means that the null hypothesis is rejected and therefore the Random Effect (RE) is the appropriate estimation method that was employed.

Table 4.5 Hausman (1978) specification test

	Coef.
Chi-square test value	8.322
P-value	.215

Table 4.6 Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) CoSRI	1.000													
(2) GOV	0.859	1.000												
(3) TOBINQ	-0.115	-0.186	1.000											
(4) SIZE	0.797	0.834	-0.242	1.000										
(5) LEV	0.418	0.345	0.142	0.311	1.000									
(6) LIQUI	-0.015	-0.083	0.508	-0.148	-0.060	1.000								
(7) FOR	0.646	0.646	0.064	0.631	0.347	-0.075	1.000							
(8) FOOD	-0.010	-0.122	0.506	-0.178	-0.085	0.465	-0.020	1.000						
(9) MAN	-0.028	-0.111	-0.113	-0.229	0.136	-0.234	-0.045	-0.166	1.000					
(10) AGRI	0.323	0.292	-0.110	0.274	-0.078	0.000	0.190	-0.076	-0.089	1.000				
(11) MIN	0.336	0.279	0.217	0.196	0.675	0.025	0.344	-0.136	-0.160	-0.073	1.000			
(12) INFOR	0.042	0.067	-0.092	-0.010	-0.017	-0.083	0.050	-0.097	-0.113	-0.052	-0.093	1.000		
(13) INSUR	-0.127	-0.107	-0.059	-0.119	0.038	-0.005	-0.306	-0.109	-0.128	-0.058	-0.105	-0.075	1.000	
(14) DIST	-0.160	-0.171	-0.055	-0.144	-0.237	-0.092	-0.141	-0.136	-0.160	-0.073	-0.132	-0.093	-0.105	1.000

4.3.5 Assessment of Coefficient of determination (R^2)

From table 4.7, the coefficient of determination was 85.81%, 55.47%, 80.79, and 80.26% for models 1,2,3 and 4 respectively. This means that on average 85.71% of the variation in the extent of CoSR practices among listed firms on the Ghana Stock Exchange is explained by the regressors in model 1 (Moore, 2013). R^2 values for Model 2,3 and 4 equally show that the variations in CoSR and its dimensions were all substantially explained by the explanatory variables in the research models. Again, the justifications provided signifies that all models in the study were of a good fit.

4.4 Analysis of the results of the Study

To achieve the objectives of the study, the results are analysed in the following lines;

- CoSR practices of firms
- Determinants of CoSR practices

4.4.1 Corporate sustainability reporting practices of firms

The study discusses the CoSR practices of firms along the following lines;

- The extent of CoSR over the study period
- Industry analysis of CoSR practices
- Yearly analysis of CoSR practices
- The concentration of reporting by firms

4.4.1.1 The extent of corporate sustainability reporting over the study period

According to table 4.2, the average amount of CoSR by listed firms over the study period was 37.9%. This shows that the reporting practice is low among listed firms in Ghana. Nyarku and Hinson (2017) also found low levels of CSR reporting among Banks in Ghana.

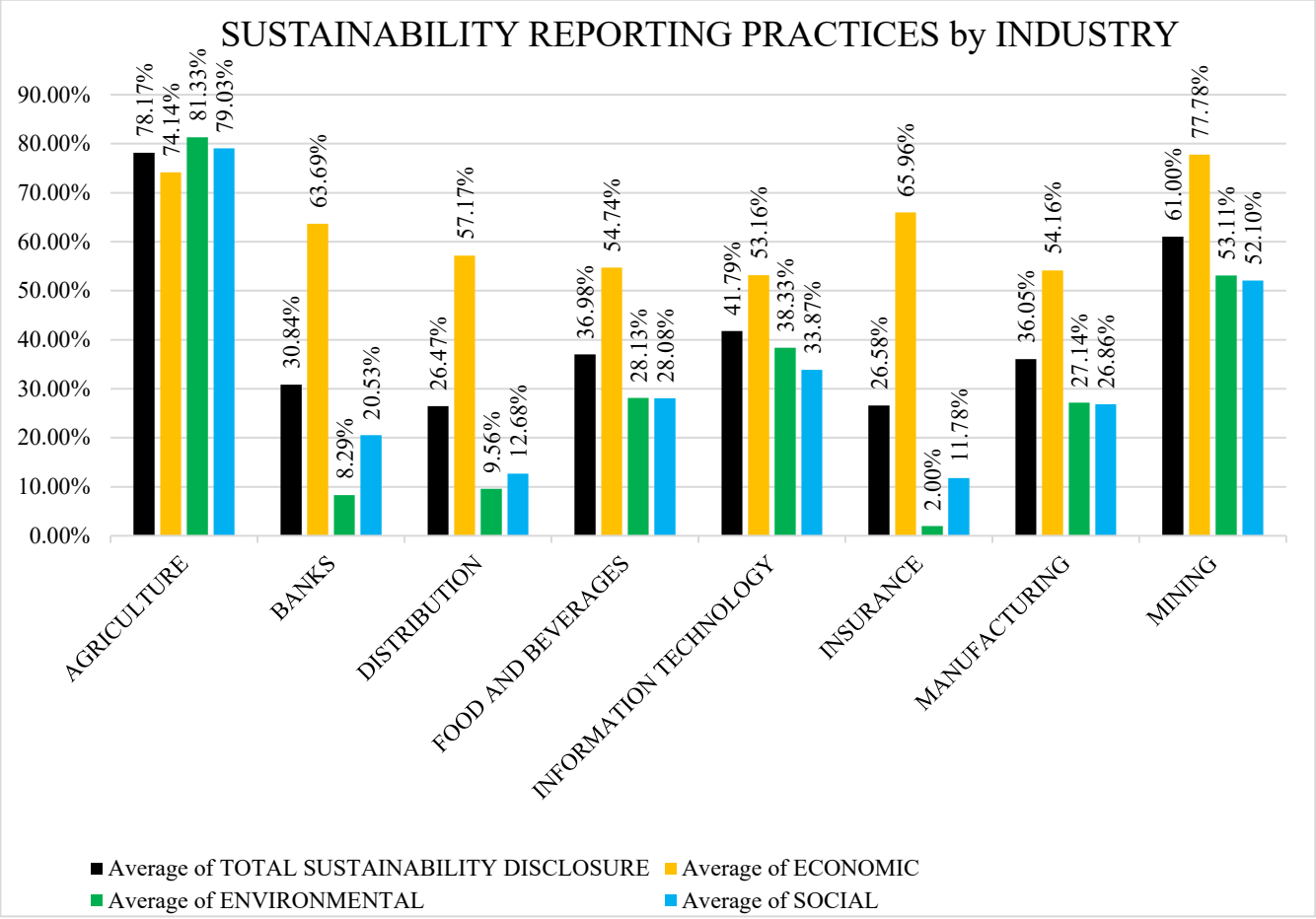
The average amount of reporting on the dimensions of CoSR thus economic, environmental, and social by listed firms in Ghana were 61.8%, 23.4%, and 27.7% respectively. This indicates that listed firms report more on economic sustainability information than the environmental and social dimensions. These results may be due to the mandatory nature of financial reporting among listed firms on the GSE as some of this mandatory financial information is espoused by GRI. The averages also indicate that environmental-related information is given less focus by listed firms. Welbeck et al. (2017) also found low reporting of environmental-related information by listed firms in Ghana. Another study by Trireksani and Djajadikerta (2016) on environmental reporting of listed firms on the Indonesia Stock Exchange (IDX) (2016) revealed that the level of environmental reporting is moderate among firms.

The 61.8% of economic sustainability information reported by listed firms over the study period indicates that firms are not reporting on economic-related information as expected. Most studies ignore this dimension for the reason that already established standards on financial reporting regulate the financial reporting practices of firms. Therefore, firms are expected to report more on economic sustainability. The GRI is also criticized for leaving issues on EcSR to existing standards on financial reporting.

4.4.1.2 Industry analysis of corporate sustainability reporting practices

The graphical representation in figure 4.1 shows the variations in the reporting practices across the industries. It can be observed that the Agricultural sector had a higher CoSR score of 78.16% over the period. This indicates that the Agric industry reports more on sustainability issues than other industries in the sample.

Figure 4.1 Sustainability reporting by industry



The Mining sector reports 60.9% of corporate sustainability issues contained in the GRI guidelines and the Information Technology sector reports 34.035%. Banking and the Manufacturing sector reports 30.641% and 30.649% respectively. This suggests that manufacturing firms and banks

report almost the same amount of corporate sustainability information. The insurance and distribution industry also report an average amount of 26.579% and 26.468% respectively in terms of CoSR. The Food and beverage industry reports the lowest amount of corporate sustainability information with an average of 24.47%.

On the individual dimensions of CoSR, the mining industry reports more economic sustainability activities than the remaining industries as it has an average score of 77.78% whiles the food and beverage industry reports the least on economic sustainability with an average of 24.472%. The Agricultural industry obtained a higher Social and Environmental sustainability index than the remaining industries with a score of 79.032% and 81.33% respectively. This indicates that agricultural firms on the Stock Exchange report more social and environmental related information.

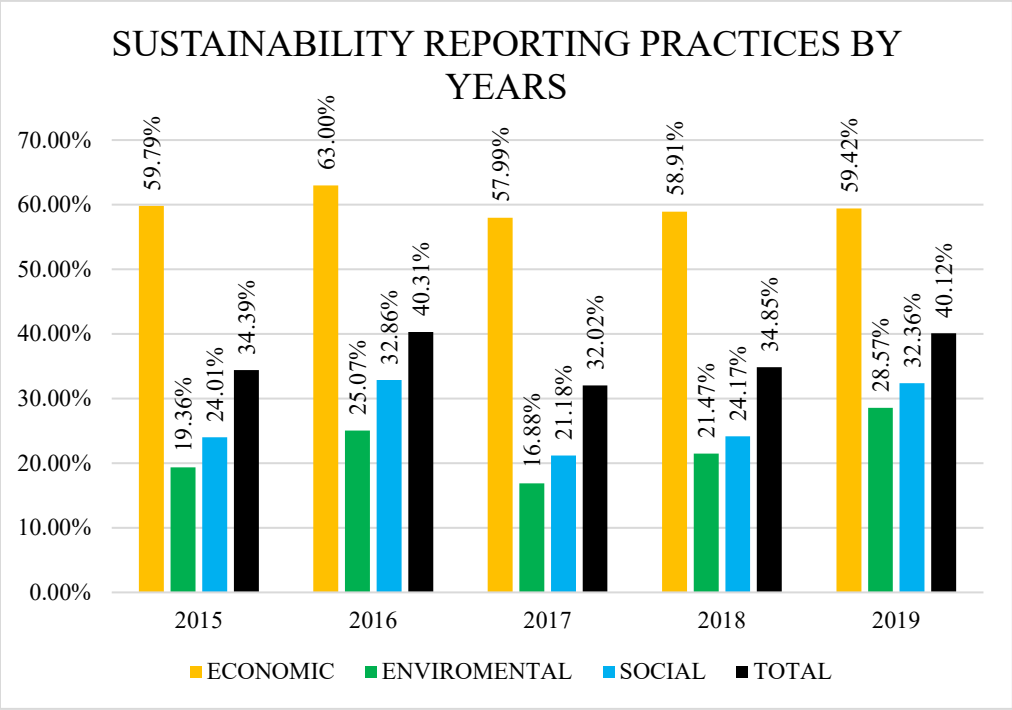
Also, the mining industries reported 52.097% and 53.111% of social and Environmental issues respectively enshrined in the GRI frameworks. The insurance industry reports the least amount in terms of both the social and environmental-related information having average scores of 11.78% and 2.00% respectively. As expected, firms considered as environmentally such as manufacturing, agriculture, mining, food and beverages, and information technology firms produced more environmental and social information.

It was expected that manufacturing, food and beverages, and distribution firms would report more environmental and social related information. These firms are considered environmentally and socially exposed and are expected to report more.

4.4.1.3 Distribution By Years

Figure 4.2 shows the variations in the reporting practices from 2015 to 2019. It can be observed that the overall level of CoSR by listed firms increased in the early period of the study from 2015 to 2016. However, the extent of CoSR reduced across firms from 2016 to 2017 and it took a rise again from 2017 to 2019. This suggests that, even though the reporting practice is low among listed firms in Ghana, there is an average improvement over the study period. A similar trend was observed in the reporting of social and environmental information by listed firms over the period. SoSR rose from 2015 to 2016 thus from 2.01% to 32.86% and declined from 2016 to 2017 with a subsequent upsurge in the remaining years.

Figure 4.2 Yearly Sustainability reporting



There is also an increase in the level of environmental reporting by firms from 2015 to 2016 thus from 19.36% to 25.07%, however, it reduces across firms in 2017 with an average of 16.88%.

From 2017 to 2019, the reporting behaviour on environmental-related information returned to an increase. Even though there is a low level of reporting across listed firms in Ghana, the practice is increasing over time. It is not worthy that the level of EcSR did not experience a significant change as compared to the other dimensions as it experiences a marginal increase in the amount of reporting of about 1% from 2017 to 2019.

The observed yearly reporting practice could be explained that firms on the Ghana Stock exchange consider their disclosing environmental and social impacts to be tied to ensuring social acceptance in the society than reporting on economic issues. These firms consider that signalling social and environmental impacts to stakeholders would make them be seen as socially desirable entities thereby securing their legitimacy. Their behaviour in reporting on economic impacts would suggest that firms do not consider signalling economic impacts to play a major role in the firm's acceptance.

4.4.1.4 The concentration of reporting by firms

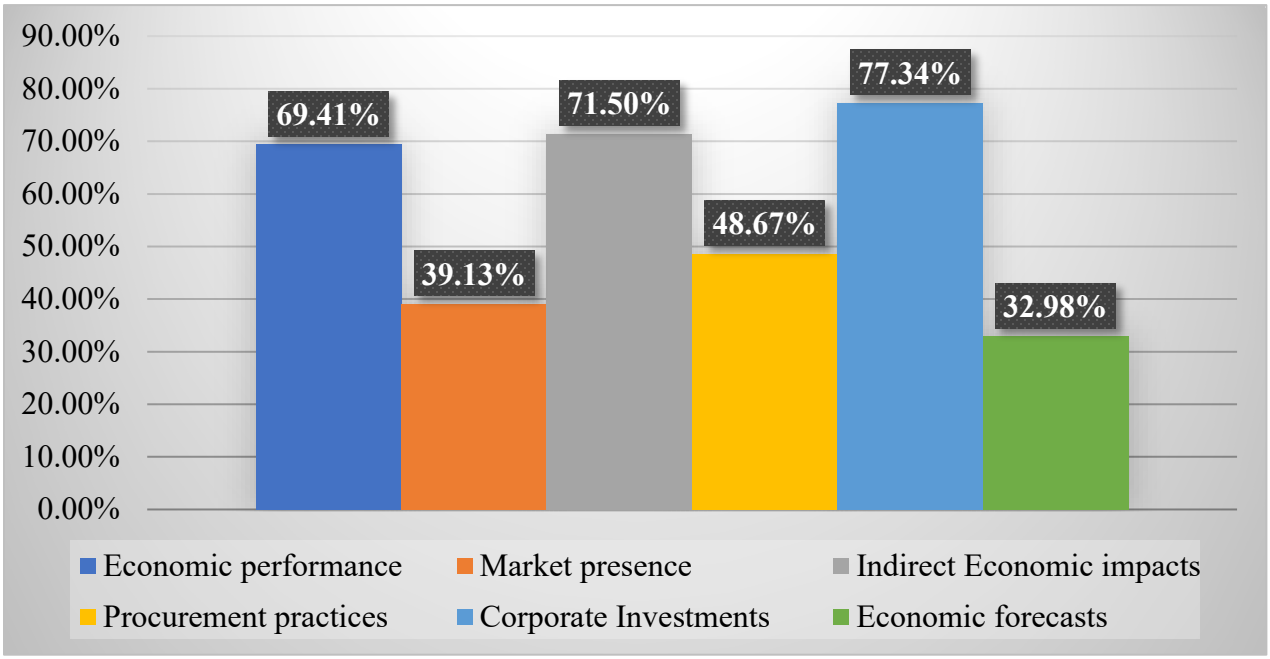
The study provides an analysis of which indicators firms report more on as espoused by the GRI standard. The analysis is performed along the lines of the dimensions of CoSR.

4.4.1.4.1 Economic Sustainability Information

From figure 4.3, it can be observed that among the economic items considered, reports on economic forecasts received the least attention by firms over the study period with a score of 32.98%. Firms reported more on their corporate investments with a score of 77.34%. This may be an indication that most of the firms may be more interested in signalling their investments in the

community such as projects, schools et cetera, and their indirect economic contributions for stakeholders to consider them as good citizens in the society to ensure their continuous survival. Signalling less information on procurement practices, market presence and economic forecasts may suggest that firms on the exchange may be underperforming in these aspects of the economic dimension. These firms do not signal more on their procurement practices, this could also mean that it's of less interest to stakeholders.

Figure 4.3 Economic Indicators

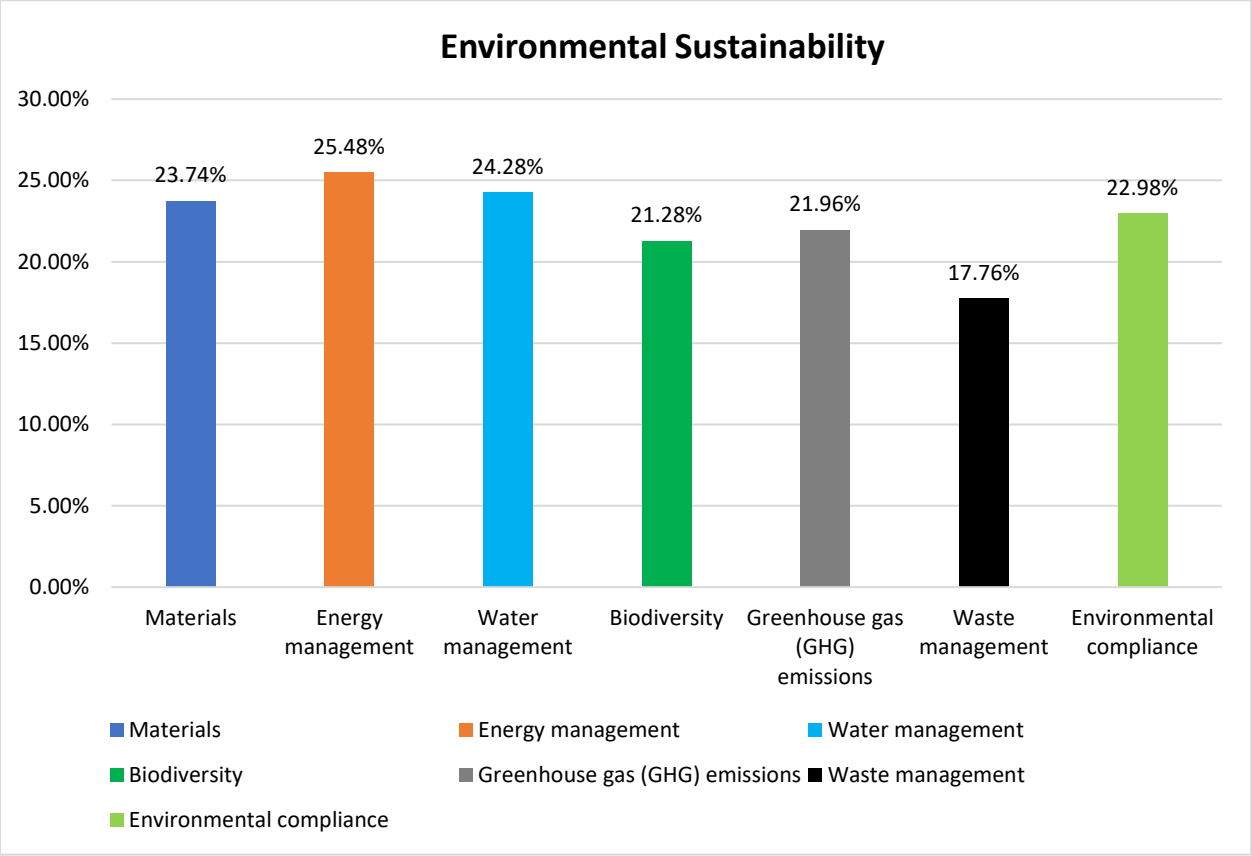


4.4.1.4.2 Environmental Sustainability Information

From figure 4.4, it can be observed that most of the indicators in the environmental dimension received a score below the average of 50%. Reporting on waste management by firms received the least score of 0.115. This means that only 11.5% of information was reported indicating that listed firms pay less attention to reporting how they manage waste in terms of methods of disposal used, spillage management among others. Reporting on energy management obtained the highest mean

of 0.285 which indicates that 28.5% of the energy management activities of firms were reported over the study period. Thus, firms on the GSE signal more on energy management systems such as the level of energy consumption and measures taken in reducing energy consumption levels among others to their stakeholders to secure their social license. Their behaviour towards signalling waste management impacts is the opposite, which may suggest that they perform poorly in waste management practices. It may also suggest that signalling more of how they address waste disposal, methods used, spillage among others may cause them to be seen as socially undesirable entities.

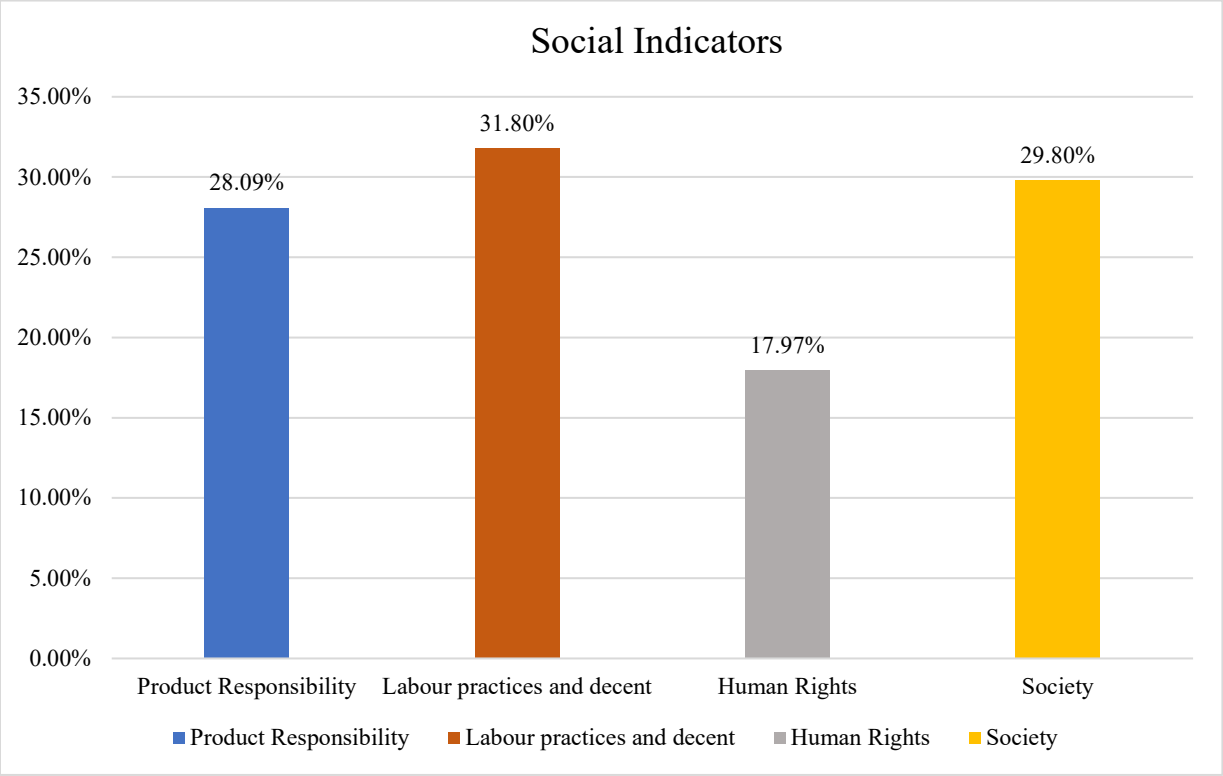
Figure 4.4 Environmental indicators



4.4.1.4.1 Social Sustainability Information

From figure 4.4, it can be observed that reporting on human rights issues received minimum attention by listed firms over the study period with a score of 17.97%. Reporting on Labour practices and decent work received the highest score of 31.80%. These indicate that most of these firms focus more attention on signalling their good labour practices and dealing with employees to be seen as firms that take labour issues at heart. This may influence their general acceptance by various stakeholders. These firms may be poorly addressing human rights, discrimination, consumer rights among others and that may be an indication of the low reporting on human rights. Signalling poor practices may hurt the firms' legitimacy and therefore they would report less to keep safe. These suggest that firms would only be motivated to signal practices that would improve their legitimacy.

Figure 4.5 Social Indicators



4.4.2 Determinants of corporate sustainability reporting

The determinants of CoSR practices are discussed using the multiple regression results from the random effect method of estimation with robust standard errors in table 4.7. A separate regression analysis was run for each of the dependent variables in table 4.7 thus Corporate Sustainability Reporting (CoSR), Economic Sustainability Reporting (EcSR), Environmental Sustainability Reporting (EnSR) and Social Sustainability Reporting (SoSR) thus models 1, 2, 3, and 4 respectively. Moreover, two separate analysis was made to examine the different metrics used in measuring financial performance. Regression models 1, 2, 3, and 4 contains market-based metric (Tobin's Q) as a regressor whiles models 1a, 2a, 3a, and 4a contain accounting-based metric (ROA) as a regressor. The results are based on a sample of 129 firm-year observations.

4.4.2.1 Governance Mechanism

Hypothesis (*H1*): *Corporate governance mechanism is positively related to CoSR and its dimensions.*

According to the results of model 1 in table 4.7, the corporate governance index established a stronger positive relationship with CoSR at a significance level of 1% thus one of the highest in the model with a coefficient of 0.245. We, therefore, fail to reject H1.

Per the results in model 1, we observe that all things being equal when the strength of the governance system is increased by 1 unit, the extent of CoSR significantly rises by 24.5%. The p-value less than 1% significance level signifies that the resulted positive association was not a result of chance, therefore, we fail to reject our first hypothesis (H1) and conclude that the stronger the governance mechanisms of a firm, the higher the extent of sustainability reporting, holding all other factors constant.

On EcSR, it is observed in model 2, a similar relationship was observed as the corporate governance index established a significant positive relationship with EcSRI at a 5% level of significance and a coefficient (β) value of 0.176.

We observe that all things being equal when there is a 1 unit increase in the strength of a firm's governance system, the extent of EcSR significantly increases by 17.6% which is however less than that of the overall sustainability reporting. This positive association between governance mechanism and the extent of EcSR is not a result of chance since its p-value is less than a 5% level of significance. We, therefore, accept that stronger governance mechanisms increase the extent of EcSR.

Also on EnSR, a positive association was established by the corporate governance index at a significance level of 5% based on the results of model 3. Their Beta value was 0.282. This means that all things being equal, a 1 unit improvement in the governance mechanism of firms causes the extent to which they report on environmental sustainability issues to increase by 28.2%. The p-value less than 1% indicates that the observed positive association between governance mechanism and EcSRI is not due to chance, therefore we argue that the stronger the governance mechanisms of a firm, the higher the extent of EnSR.

The results of model 4 also show that the corporate governance index demonstrated a positive relationship with the extent of SoSR and the relationship was significant at a 1% significance level and a beta (β) value of 0.277.

It is observed, all other things being equal, the extent of social reporting made by firms increases by 27.7% when there is an improvement in the governance mechanism of a firm by 1 unit. The

relationship observed is not due to a random chance since the p-value is less than a 1% significance level, thus we accept that stronger governance systems result in higher levels of SoSR.

Based on the theoretical framework, this shows that firms that engage in training, monitoring, evaluation of board of directors, having CSR committees among others, as espoused in the GRI governance framework, have more incentives to produce more corporate sustainability information. These firms would want to signal their good governance performance to their stakeholders and would therefore engage in reporting more on corporate sustainability activities. Likewise, firms that are doing well in corporate governance measures would signal more of their economic, environmental and social sustainability information to their stakeholders to secure their citizenship in the society They would also signal their sustainability activities to indicate effectiveness as management of firms operations to attract more investors, customers et cetera. Prior studies found similar results (Ong & Djajadikerta, 2018; Bae et al., 2018; Michelon & Parbonetti, 2012).

4.4.2.2 Firm Performance

H2: There is a negative association between the financial performance of a firm and the level of CoSR and its dimensions

An observation of the correlation coefficient of -0.12 between Tobin's Q and the extent of CoSR attest to the negative relationship proposed in H2. The results of model 1 show that this negative relationship observed is significant at a 5% significance level with a regression coefficient of -0.0203, therefore, we fail to reject H3.

The beta value obtained in model 1 means that, when the market performance of a firm reduces by 1 unit, the extent to which the firm reports corporate sustainability information increases by 2.03% all other factors held constant. This observation is however not due to random chance as the p-value falls within the 5% significance level. We, therefore, fail to reject H3 and accept that the lower the financial performance of a firm, the higher the extent of CoSR.

In model 1a, which uses the ROA metric for measuring firm performance, the financial performance obtained a negative regression coefficient thus confirming a negative relationship as hypothesized. However, this relationship was insignificant at a 10% level of significance. Therefore, we reject H3. Unlike Tobin q, the observed relationship of ROA may be due to random chance.

On EcSR, firm market performance (measured by Tobin's Q) established an inverse relationship with EcSR with a coefficient of -0.00211. The observed relationship is however insignificant at a 10% significance level.

The results from model 2 reveal that a 1 unit decrease in the financial performance of a firm, results in a 0.21% increase in the extent to which the firm reports on economic sustainability information, other factors held constant. The p-value outside the significance range implies that such observed association may be attributed to random chance thus either by coincidence or error as it does not meet the condition for a significant relationship. Even though the relationship is not significant, the correlation coefficient of -0.118 suggests that firm performance contributes to the research model (see table 4.7).

Similar to the market metric, ROA also established a negative relationship with a coefficient of -0.0371. This shows that ROA negatively influences the extent of EcSR. However, the p-value

shows such a relation is insignificant. Therefore, both Tobin's q and ROA have a negative but insignificant effect on EcSR. This means that a low financial performing firm has no incentive or motivation to report more on economic sustainability information.

The results of models 3 and 4 both indicate that firm performance (Tobin's Q) has a negative relationship with the extent of environmental and SoSR with beta values of -0.0293 and -0.0282 respectively. Moreover, the negative relationship of firm performance with environmental and social sustainability is significant at a 5% and 1% level of significance respectively.

These results in model 3 explain that all other things being equal when the financial performance of a firm reduces by 1 unit, the extent of EnSR increases by 2.93%, whiles model 4 indicates that a 1 unit reduction in a firm's financial performance triggers an increase in reporting on social-related information by 2.82%. The p-values at 5% and 1% significance levels obtained in models 3 and 4 respectively signify that the observed relationships are not due to random chance and therefore we accept that the lower the level of a firm's financial performance, the higher the level of EnSR and SoSR practices.

Results of model 3a and 4a in Table 4.8, also show that financial performance (ROA) has a negative relationship with EnSR and SoSR with coefficients -0.115 and -0.0202 respectively. However, these relationships are not statistically significant since the p-values obtained in each case do not meet a 10% significance level. Although the coefficients obtained by ROA signifies a negative relationship with EnSR and SoSR restively, these relationships may be attributed to random chance.

The significant results using Tobin's Q indicates that firms with lower financial performance

would want to divert the attention of stakeholders from their bad financial performance by Signalling their corporate sustainability activities through sustainability reports to secure their citizenship in the operation. Low financial performing firms may also engage in CoSR to signal investments made in corporate sustainability activities which may yield more returns to the firm in the future. The results also indicate that a low financial performing firm would signal more environmental and social sustainability information to stakeholders to secure their legitimacy in operations. Ho and Taylor (2007), Fortanier et al. (2011) and Welbeck et al. (2017) found similar negative relationships. However, Gamerschlag et al. (2011) as their study found no relationship.

Low financial performance, however, does not significantly influence firms to report more economic sustainability information. This may be confirmed by the results of the descriptive statistics which revealed that firms' EcSR practices change by marginal values. Thus attention has not been given by various stakeholders such as GRI, researchers among others to require more economic-related information from firms.

Table 4.7 Regression Results A

	Random Effect; Robust random errors			
Independent variables	Model 1 CoSRI	Model 2 EcSRI	Model 3 EnSRI	Model 4 SoSRI
GOV	0.245***	0.176**	0.282**	0.277**
	(0.0640)	(0.0770)	(0.115)	(0.111)
TOBINQ	-0.0203**	-0.00211	-0.0293**	-0.0282***
	(0.00987)	(0.0126)	(0.0124)	(0.0108)
SIZE	0.0421***	0.0243***	0.0597***	0.0467***
	(0.00746)	(0.00936)	(0.0120)	(0.0126)
LEV	-0.0266	-0.0642	0.0133	-0.0144
	(0.0693)	(0.0858)	(0.104)	(0.0777)
LIQUI	0.0211*	0.00206	0.0358**	0.0259*
	(0.0119)	(0.00864)	(0.0181)	(0.0141)
FOR	0.0330	0.0655	-0.0214	0.0339
	(0.0372)	(0.0449)	(0.0538)	(0.0465)
FOOD	0.194***	-0.00438	0.373***	0.227***
	(0.0547)	(0.0329)	(0.0745)	(0.0727)
MAN	0.211***	0.00268	0.402***	0.238***
	(0.0584)	(0.0508)	(0.0745)	(0.0822)
AGRI	0.206***	-0.0848**	0.414***	0.287***
	(0.0356)	(0.0415)	(0.0471)	(0.0403)
MIN	0.230***	0.0873	0.369***	0.233***
	(0.0520)	(0.0556)	(0.0980)	(0.0557)
INFOR	0.152***	-0.0992	0.383***	0.190**
	(0.0414)	(0.0889)	(0.102)	(0.0923)
INSUR	0.113***	0.146***	0.108***	0.0827**
	(0.0246)	(0.0297)	(0.0357)	(0.0351)
DIST	0.107***	0.0302	0.208**	0.0914***
	(0.0304)	(0.0449)	(0.0824)	(0.0306)
Constant	-0.446***	0.174	-0.932***	-0.635***
	(0.0883)	(0.114)	(0.130)	(0.141)
Observations	129	129	129	129
Wald chi2/*df*	38435.98/12	473.5/12	38422.14/12	12399.52/12
Prob > chi2	0.000	0.000	0.00	0.000
R^2	0.8581	0.5547	0.8079	0.8206

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4.8 Regression Results B

Independent variables	Random Effect; Robust random errors Model 1a CoSRI	Model 2a EcSRI	Model 3a EnSRI	Model 4a SoSRI
GOV	0.239***	0.172**	0.264**	0.278**
	(0.0639)	(0.0820)	(0.117)	(0.114)
ROA	-0.0527	-0.0371	-0.115	-0.0202
	(0.0799)	(0.105)	(0.147)	(0.0803)
SIZE	0.0439***	0.0249***	0.0628***	0.0492***
	(0.00741)	(0.00927)	(0.0117)	(0.0125)
LEV	-0.0272	-0.0587	0.0276	-0.0293
	(0.0889)	(0.0837)	(0.148)	(0.0910)
LIQUI	0.0166	0.00193	0.0289*	0.0196
	(0.0104)	(0.00890)	(0.0155)	(0.0133)
FOR	0.0291	0.0666	-0.0246	0.0219
	(0.0357)	(0.0437)	(0.0550)	(0.0468)
FOOD	0.175***	-0.00540	0.346***	0.202***
	(0.0553)	(0.0375)	(0.0736)	(0.0711)
MAN	0.215***	0.00525	0.410***	0.244***
	(0.0587)	(0.0488)	(0.0775)	(0.0815)
AGRI	0.207***	-0.0860**	0.415***	0.288***
	(0.0360)	(0.0420)	(0.0470)	(0.0408)
MIN	0.211***	0.0790	0.332***	0.221***
	(0.0642)	(0.0565)	(0.114)	(0.0651)
INFOR	0.154***	-0.0984	0.386***	0.194**
	(0.0433)	(0.0880)	(0.107)	(0.0954)
INSUR	0.112***	0.146***	0.106**	0.0812**
	(0.0274)	(0.0304)	(0.0423)	(0.0356)
DIST	0.105***	0.0307	0.206**	0.0886***
	(0.0324)	(0.0454)	(0.0854)	(0.0329)
Constant	-0.464***	0.169	-0.962***	-0.665***
	(0.0900)	(0.110)	(0.131)	(0.141)
Observations	129	129	129	129
Wald chi2/*df*	9326.02/12	471.65/12	6906.34/12	9791.31/12
Prob > chi2	0.0000	0.0000	0.0000	0.0000
R^2	0.8532	0.5555	0.7983	0.8159

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4.9 Joint effect of industries

	Model 1 CoSRI Coeff	Model 2 EcSRI Coeff	Model 3 EnSRI Coeff	Model 4 SoSRI Coeff
F stats	9.00	2.11	13.83	7.65
Prob > F	0.0000	0.0479	0.000	0.000

4.4.2.3 Foreign association

H6: There is a positive association between foreign-owned organizations and the level of CoSR and its dimensions.

With a regression coefficient of 0.0330 and a p-value greater than a 10% significance level, foreign association obtained an insignificant positive relationship with the extent of CoSR. This relationship is, however, insignificant at a 5% significant level and, therefore, we reject H6.

The results mean that having the governance system of a firm, its financial performance, and its industry affiliation, the level of sustainability reporting of a firm will be 3.30% more if the firm is associated with a foreign parent or is a branch of a foreign firm than if it is local. This observation may however be due to random chance since the p-value is higher than the significance level, we, therefore, reject H6. Foreign association, even though insignificant, is relevant in the model since the beta value is non-zero.

A similar positive relationship was found between foreign association and the extent of EcSR with a regression coefficient of 0.0655. The relationship is not significant since the p-value is outside the significance range.

The regression coefficient in model 2 means that given the size, liquidity, leverage, governance system of a firm, its financial performance, and its industry affiliation, the level of EcSR is 6.55% higher if a firm has a foreign association than if it is locally owned. The p-value shows that this observation may be due to random chance.

Foreign association, however, established a negative relationship with EnSR with a coefficient of -0.0214. This relationship is insignificant at a 10% level of significance. The beta value of -0.0214 in model 2 means that given the size, liquidity, leverage, governance system of a firm, its financial performance, and its industry affiliation, firms that are subsidiaries or branches of a foreign firm would report 2.14% less of environmental-related information than locally owned firms. The p-value shows that this observation may be due to a random chance. The coefficient shows that even though the p-value is insignificant, foreign association contributes to the model.

Similar to the results in models 1 and 2, model 4 shows that foreign association established a positive relationship with SoSR with a regression coefficient of 0.0339. This relationship is also insignificant since the p-value is not within the significance range. The coefficient means that given the size, liquidity, leverage, governance system of a firm, its financial performance, and its industry affiliation, firms that are subsidiaries or branches of a foreign firm would report 3.39% more social-related information than locally owned firms. The p-value shows that this observation may be due to a random chance, however, the coefficient shows that foreign association contributes

to the model.

The findings from the study of firms with foreign associations are motivated to produce more economic and social sustainability information as well as overall corporate sustainability information. That's these firms would signal their sustainability reports to stakeholders to exhibit similar practices that are emulated by their parent firms or foreign associates to secure their legitimacy. However, the results show an inverse insignificant relationship between the foreign association and EnSR, and this is not supported by the theoretical grounds of the study. The inverse relationship may be a result of several factors. For example, Lack of enforcement of already existing environmental laws in emerging markets. It may also be a lack of activist stakeholders such as non-profit organizations and the community demanding for these firms to report on their environmental activities. These firms may also disregard social contracts with stakeholders and therefore they may feel reluctant to report on their environmental impacts or even report less. It may also be that firms on the GSE with a foreign association are environmentally exposed as compared to local firms.

Although the coefficients in the results indicate that there is some sort of influence of foreign association, the extent of economic, social, and environmental sustainability, as well as overall sustainability, is not so dependent on this factor thus as to whether the firm is associated with a foreign firm or not. By implication, the sustainability reporting engagements by foreign firms which are expected to have some impacts on their subsidiaries or branches in emerging markets such as in the area of reporting, do not really influence their sustainability reporting practices. Similarly, research by Welbeck et al. (2017) found no support for the perceived relationship between the foreign association and sustainability reporting practices of firms. One of the reasons

that cause the observed outcome of the study could be the voluntary nature of the practice in Ghana. Ghana unlike other foreign countries do not have regulations on sustainability reporting and so the practice is voluntarily made by firms. The parent companies of these subsidiaries may be mandated to report on sustainability within their jurisdictions, therefore they report more. Subsidiaries and branches of foreign firms in Ghana may be reluctant in reporting on their sustainability practices because of their voluntary nature.

4.4.2.4 Industry Affiliation

H4: There is a positive association between industry affiliation and the level of CoSR and its dimensions.

Estimates from model 1 confirmed the hypothesis that industry affiliation positively and significantly affects the level of CoSR. The p-value obtained in model 1 of Table 4.8 indicates that the industry affiliations of the sampled firms had a joint significant positive impact on the extent of CoSR. This means that the industry a firm belongs to causes it to either produce more CoSR.

The positive regression coefficient of 0.194 and p-value less than 1% level of significance obtained by the Food and Beverage industry in model 1 of Table 4.7 signifies that firms in the food and beverage industry have more incentive to produce 19.4% of CoSR more than the firms in the banking industry.

Manufacturing firms also obtained a regression coefficient of 0.211 and a p-value at a 1% significance level. This means that manufacturing firms produce a CoSR of 21.1% higher than banking firms. The agricultural industry, as well as the mining industry, obtained regression coefficients of 0.206 and 0.230 respectively and both obtained p-values at a 1% significance level.

This explains that agricultural firms and mining firms report more corporate sustainability information than banking by 20.6% and 23.0% respectively.

The Information technology, insurance, and distribution industry all had regression coefficients of 0.152, 0.113, and 0.107 respectively as well as p-values at a 1% significance level. The results indicate that information technology, insurance, and distribution firms have higher incentives to reports more on corporate sustainability than banks by 15.2%, 11.3%, and 10.7% respectively.

Even though the estimates in model 1 indicates firms in other industries report more corporate sustainability information than banks, the regression coefficients show that mining firms report the highest of 32.0% whiles distribution firms report the lowest of 10.7%. The p-values obtained in both model 1 of table 4.7 and model 1 of Table 4.8 signifies that the observed relationships can not be attributed to chance, we, therefore, fail to reject H4. We accept that industry affiliations of firms significantly influence the extent of CoSR.

On economic sustainability, estimates in model 2 of Table 4.7, food and beverage, agricultural and information technology industries had negative regression coefficients of -0.00438, -0.0848, and -0.0992 respectively. These results mean that firms in the food and beverage, information technology, agricultural industries provide less economic sustainability information by 0.44%, 8.48%, and 9.92% respectively than firms in the banking industry. The p-value of the agricultural industry in model 2 at a 5% significance level shows that the observation may not be due to chance and therefore accept that banking firms produce more economic sustainability reports than agricultural firms. The p-values of the food and beverage industry as well as the information technology industry indicates that observed their observed relationship with the banking industry on the extent of EcSR may be attributed to chance.

The positive coefficients of mining, insurance, and distribution industry of 0.0873, 0.146, and 0.0302 in model 1 of Table 4.7 also explain that mining firms, insurance firms, and distribution firms report more economic sustainability information than banking firms. However, among them, only the insurance industry secures a significant relationship with a p-value at a 1% significance level.

On environmental sustainability, Models 3 shows that all the industries considered obtained positive regression coefficients with the agricultural industry accounting for the highest of 0.414 whiles the insurance industry obtained the minimum. These results mean that all the industries considered (food and beverage, manufacturing, agricultural, mining, information and technology, insurance and distribution) provide environmental sustainability information more than firms in the banking industry with the highest of them been agricultural firms reporting 41.4% more and insurance firms reporting 10.8% more than banks. The p-values in model 3 indicate that the observed relationships may not be due to random chance, therefore, we accept that industry affiliations of firms have a positive significant influence on the extent of environmental reporting.

Similar estimates were obtained in Models 4, all the industries considered obtained positive regression coefficients. Again, the agricultural industry accounted for the highest coefficient of 0.287 whiles the insurance industry obtained a minimum of 0.0827. These results indicate that all the industries considered (food and beverage, manufacturing, agricultural, mining, information and technology, insurance and distribution) provide more social sustainability information than firms in the banking industry with the highest of them been agricultural firms reporting 28.7% more and insurance firms reporting 8.27% more than banks. Their p-values also signify that the observed

relationships may not be due to random chance, therefore, we fail to reject H7c and accept that industry affiliations of firms have a positive significant influence on the extent of social reporting.

As predicted in the study hypotheses, a positive and highly significant relationship (at a 5% significant level) was found between the industry affiliation variable and sustainability reporting practices. The results from the estimates indicate that the industry a firm belongs to has a significant effect on the extent to which they report on economic, environmental, and social sustainability, as well as corporate sustainability information. The results also show that firms that are considered environmentally and socially espoused such as manufacturing, mining, agriculture, and food and beverages report more environmental and social sustainability information than less exposed firms such as financial firms. This may result from a number of legislations in most countries that regulate sensitive industries to communicate information about the impact of their activities on the environment and society. In Ghana, the Environmental Protection Agency (EPA) for instance, requires manufacturing and mining firms to report on their environmental impact periodically. Therefore, these firms are expected to report more environmental and social information to secure their legitimacy among stakeholders. The findings of the study are consistent with earlier studies (see; Liu & Anbumozhi, 2009; Kansal et al., 2014; Kansal et al., 2014; Welbeck et al., 2017).

4.4.2.3 Control variables

- **Firm size**

The positive correlation coefficient 0.80 obtained by firm size endorses the first part that it has a positive association with CoSR. The p-value obtained in the results of model 1proves further that the relationship is significant at a 1% significance level with a coefficient of 0.0421. The beta value indicates that when the total asset base of a company is increased by 1 unit, the extent of corporate sustainability also rises by 4.21%, all things being equal. The p-value found at a 1% level of significance indicates that the observed association cannot be attributed to random chance. Again, per the criteria of Cohen (1988), the correlation coefficient 0.80 obtained in Table 4.7 describes the impact of firm size on CoSR as very substantial.

From the results of models 2, 3, and 4, firm size demonstrated a positive association with the extent of EcSR, EnSR, and SoSR at a 1% level of significance with coefficients of 0.0243, 0.0597, 0.0467 in models 2, 3, and 4 respectively. The observed coefficients in models 2, 3, and 4 explain that, when there is a 1 unit increase in the total asset base of a firm, the extent of EcSR, EnSR, and SoSR increases by 2.43%, 5.97%, and 4.467% respectively. The observed relationships cannot be attributed to random chance the p-values in models 2, 3, and 4 were all found at a 1% significance level. Therefore, we accept that the higher the firm size, the higher the levels of EcSR, EnSR, and SoSR respectively.

The results show that firm size has a highly significant effect on the extent to which firms report on economic, environmental, and social sustainability information. This indicates that larger firms engage more in CoSR practices. The results also suggest that firm size is an important determinant

of sustainability reporting practices by listed firms in Ghana. On the theoretical grounds, larger firms are more exposed and subject to stakeholder pressures. They, therefore, engage more in sustainability reporting to indicate that they are responsible for social entities. The results are consistent with the findings of Welbeck et al. (2017), Gamerschlag, et al. (2011), Kilic (2016), Gallo and Christensen (2011), Siregar and Bachtiar (2010), Kuzey and Uyar (2017). Kuzey and Uyar (2017) observed a positive impact of size on CoSR, and Welbeck et al. (2017) found a positive influence of firm size on the environmental dimension. The results in however not in line with Rouf (2011) who observe no relationship between firm size and sustainability reporting.

- **Leverage**

Leverage has an insignificant, negative association with the extent of CoSR at a 5% significance level with regression coefficients of -0.0266. The regression coefficient suggests that when the leverage level of a firm decreases by 1 unit, the extent of CoSR rises by 2.66%, other factors held constant. The non-zero beta value of leverage suggests that leverage contributes to the research model.

The negative regression coefficient (β) of -0.0642 and -0.0144 in models 2 and 4 also indicates that a negative relationship exists between leverage the leverage of a firm and the extent of EcSR and SoSR. However, the p-values fall outside the level of significance of 5% to indicate that the observed relationships in models 2 and 4 are considered insignificant at the 5% significance level. The coefficients (β) of estimates in models 2 and 4 indicates that all other things being equal, a 1 unit decrease in the leverage level of a firm causes a 6.42% and 1.44% increase in the extent of EcSR and SoSR respectively. The p-values suggest that the observed relationships may be

attributable to chance do not meet the criteria to establish a significant relationship. However, the regression coefficients of leverage in both models indicate its relevance to the models.

Unlike models 1, 2, and 4, the estimates of model 3 indicate a positive regression coefficient of 0.0133 which means that leverage positively influences the level of environmental reporting. This relationship is, however, insignificant at a 5% significance level. The positive intercept of 0.0133 observed in model 3 explains that all other factors held constant when the leverage of a firm increases by 1 unit, the extent of EnSR also increases by 1.33%. The p-value, however, signifies that this observation may be due to random chance.

The results indicate that the leverage level of firms does not really influence their sustainability reporting practice. The findings of the study are consistent with earlier studies (see, Kansal et al., 2014).

- **Liquidity**

In model 1, Liquidity established a significant, positive association with the extent of CoSR at a 10% significance level obtaining a regression coefficient of 0.0211. This result means that when the liquidity level of a firm increases by 1 unit, the extent of CoSR equally rises by 2.11%, other factors held constant. The p-value obtained is at a 10% level of significance and the observed relationship cannot be attributed to random chance. We, therefore, accept that when the liquidity level of a firm is high, the extent of corporate sustainability increases.

Similar estimated results were found in models 2, 3, and 4. In models 2, 3, and 4, liquidity established a positive relationship with the level of EcSR, EnSR, and SoSR respectively. It

obtained regression coefficients of 0.00206, 0.0358, and 0.0259 in models 2, 3, and 4 respectively. The positive relationship liquidity with the environmental and social dimensions are significant at 5% and 10% respectively based on the results on models 3 and 4. Results of model 2 however indicate that the observed relationship between liquidity and EcSR is insignificant at a 5% level of significance. The results in models 2, 3, and 4 mean that, when the level of a firm's liquidity increases by 1 unit, the extent of EcSR, EnSR, and SoSR increases by 0.21%, 3.58%, and 2.59% respectively. The relationships in models 3 and 4 are not due to random chance based on their p-values. We accept that the higher the level of a firm's liquidity, the higher the extent of EnSR. Again, the higher the level of a firm's liquidity, the higher the level of SoSR. The observed association between liquidity and economic sustainability may be due to chance.

The results indicate that firms with high liquidity would want to signal their good performance in working capital efficiency to their stakeholder by reporting more on environmental, social sustainability information. This means using the Triple-Bottom-Line approach, firms with high liquidy would report more on overall corporate sustainability information. The findings of the study are inconsistent with Ho and Taylor (2007) and Kuzey and Uyar (2017).

4.5 Chapter Summary

The chapter by presenting the descriptive statistics of firms' sustainability reporting practices. It presented how firms report on the individual dimensions of sustainability with a focus on yearly distribution, industry distribution, and indicator distribution. The specified regression models were then assessed for multicollinearity and heteroscedasticity issues. The analysis and choice of the

appropriate model were performed as well as its explanatory power. The chapter proceeded to analyse the hypothesized relationships, drawing inferences from the literature. The results showed that governance mechanisms, financial performance (Tobin's Q), industry affiliations, size, and liquidity are significant predictors of sustainability reporting practices.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.0 Introduction

This chapter concludes the current study. It presents the summary, findings, conclusions, and recommendations of the research.

5.1 Summary of the Research

The study examined the sustainability reporting practices of listed firms on the Ghana Stock Exchange (GSE) as well as the determinants of these practices. The study used 129 firm-year annual and stand-alone sustainability reports of Twenty-nine (29) firms on the Ghana stock exchange over a five (5) year period from 2015 to 2019. These firms were grouped into eight (8) industries. The quantitative content analysis was employed using the Global Reporting Initiative (GRI) standard as a framework to develop indicators for extracting information from these reports to analyse firms' reporting practices. The Random Effect method of estimation was employed to analyse the hypothesized relationships in the study. Four main variables were examined whiles three additional variables were used as controls in the specified models.

The regression models were assessed using, correlation matrix, variance inflation factor (VIF), Hausman specification test, Brusch-Pagan test, and coefficient of determination (R^2). Two groups of models were run and analysed to achieve the objectives of the study. Models 1, 2, 3, and 4 were specified to include the market-based metric of measuring financial performance, while models 1a, 2a, 3a, and 4a were also used to include the accounting-based metric for financial performance.

Among these models, the least coefficient of determination (R^2) was 55.47% in model 2, whiles models 1, 3, and 4 obtained 85.81%, 80.79% and 80.26% respectively. This means the models were of a good fit. The VIFs of the regressors were also less than 10, which indicates that the study results are valid and not biased by multicollinearity issues (Alin, 2010). Hausman specification test recommended for the use of Random Effect (RE) method of estimation and Brusch-Pagan test showed the presence of heteroscedasticity. The study, therefore, used RE with robust standard errors (Allison, 1999) to address the issues of heteroscedasticity.

The content analysis results reveal that the level of corporate sustainability reporting (Triple-Bottom-Line) is still young among listed firms in Ghana. This low performance is highly attributable to low reporting practices on environmental and social issues. However, the results show that the practice is increasing over the study period, except for the year 2017. Governance mechanism, firm performance (Tobin q), industry affiliation, firm size, and liquidity have a significant association with overall sustainability reporting. Only governance mechanisms and firm size established a significant relationship with EcSR. Governance mechanism, firm performance (Tobin q), industry affiliation, firm size, and liquidity have a significant association with overall sustainability reporting. environmental and SoSR respectively. This indicates that using the TBL approach, the environmental and social dimensions contribute more effectively to the factors examined in corporate sustainability reporting.

5.2 Summary of Findings

The findings of the study are summarized within the theoretical framework of stakeholder, legitimacy, and Signalling theories. It is noteworthy that the objectives were premised on the interlinkages of the three theories. The study findings are summarized as follows:

i. Findings on the sustainability reporting practices of listed firms,
ii. Findings on the determinants of sustainability reporting practices.

5.2.1 Corporate Sustainability Reporting Practices of Listed Firms in Ghana

In all, 129 firm-year reports were analysed along indicators provided in the GRI standard (2016) and the findings on the reporting practices are discussed along the dimensions of sustainability and the overall CoSR of firms.

5.2.1.1 Economic Sustainability Reporting (EcSR)

The study found that over the period, EcSR received the highest attention from firms as it accounted for a score of 61.8%. This may be attributed to various reporting regulations on financial reporting such as International Financial Reporting Standards (IFRS) (Hahn & Kuhnen, 2013). There was only a marginal difference in the extent of firms reporting over the period. This suggests that activist stakeholders such as NGOs, customers, regulators among others do not put demand more information from these firms. The study also found that listed firms report more on corporate investments such as community projects, economic contributions et cetera whiles they give minimum attention to economic forecasts. Industry analysis surprisingly showed that mining and agricultural firms reported the most economic-related information espoused in the GRI standard,

succeeded by banks and insurance firms whiles information technology firms reported the minimum.

5.2.1.2 Environmental Sustainability Reporting (EnSR)

The study found that firms report the least on environmental sustainability activities with an average of 23.4% over the period. The practice of EnSR is very low among listed firms in Ghana. Among the environmental items espoused by GRI, firms report more on energy management issues whiles less attention is given to waste management. On an industry basis, mining and agricultural firms reported the most environmental issues whiles insurance and banking firms reported the least of the indicators. This confirms earlier studies that environmentally exposed firms report more environmental information than less exposed firms. The higher levels of environmental reporting by mining and agricultural firms by largely be accounted for by the intense regulation of these firms in the engagement with the environment. However, environmental reporting practice is still young among listed firms on the GSE as compared to the global performance of firms. The low levels of environmental reporting may be an indication of a lack of enforcement of already existing environmental regulations.

5.2.1.3 Social Sustainability Reporting (SoSR)

The social dimension received the second-highest score over the period with 27.7%. This finding indicates that listed firms report more on social sustainability than environmental activities. The yearly reporting shows that even though the practice is young among list firms, it is increasing over time. The study also reveals that firms reported more on labour practices and decent work whiles they give minimal attention to human rights issues. On industry, agricultural and mining

firms again reported the most social issues, while insurance and distribution firms reported the least.

5.2.1.4 Corporate Sustainability Reporting

This accounts for the overall sustainability reporting of firms linking all the individual dimensions using the Triple-Bottom-Line approach. The CoSR of firms over the period was low at 37.6%. This low score was much contributed by the low levels of reporting on environmental and social issues. The study found the practice to be increasing over the period. It also found that agricultural and mining firms produce more information on corporate sustainability while distribution and insurance firms report the lowest.

5.2.2 Determinants of sustainability reporting

The findings on the determinants of sustainability reporting practices relate to the second objective of the study. The findings are discussed along the dimensions of sustainability reporting.

5.2.2.1 Economic sustainability reporting.

The study found governance mechanisms, industry affiliation, and firm size to be good predictors of the extent of EcSR. Whiles financial performance (Tobin's Q and ROA), foreign affiliation, liquidity, and leverage were not significant.

The results of the study indicate that governance mechanisms have a positive significant effect on the extent of EcSR. Thus, improved governance systems such as board training, monitoring, and evaluation, committees for sustainability among others cause an improvement in the extent of EcSR. Such firms would want to prove their efficiency in managing resources entrusted to them

by signalling more economic sustainability information to their stakeholders such as their shareholders, tax authorities, securities and exchange commission and the general society. This will make these stakeholders the firm as a desirable entity in the society, therefore the firm will secure its social license to operate.

The findings also indicate that industry affiliations of firms have a significant influence on the extent of EcSR. The findings show that food and beverage, agricultural, and information technology firms report less economic sustainability information than banks while manufacturing, mining, insurance, and distribution firms reported more. All these observations were insignificant except for agricultural and insurance firms. The higher level of reporting by banks and insurance firms may be explained by the existence of regulations in the financial sector by the SEC and the Bank of Ghana which focuses more on the financial viability of financial firms. This may influence banks and insurance firms to produce more economic sustainability information. This may also be as a result of their business stakeholders expect more on their economic impacts. Therefore industry affiliation of firms influences the extent to which they report on economic sustainability. Moreover, firm size was found to have a significant positive impact on the extent of EcSR. It is the most significant among the variables to influence the economic dimension. This positive relationship is explained that larger firms are more exposed to diverse stakeholders and are expected to account for their impact on society. Therefore, larger firms would want to prove that their actions economic actions are socially desirable to their diverse stakeholders by signalling more economic sustainability reports.

5.2.2.2 Determinants of environmental sustainability reporting

The study found governance mechanisms, financial performance (Tobin's Q), industry affiliation, firm size, and liquidity as good predictors of the extent of EnSR. However, foreign association, ROA, and leverage were found to be insignificant predictors of the extent of EnSR.

The findings show that governance mechanisms have a positive significant effect on the extent of EnSR. This means a firm with improved governance mechanisms significantly improves firms reporting on environmental-related activities. The firm would want to prove that management of the firm has environmental issues at the heart of their operations, therefore they would signal more environmental sustainability information to their stakeholders such as the EPA, SEC, and other stakeholders.

Again, financial performance (measured by Tobin's q) also has a negative significant association with the extent of EnSR. Premised on the study's theoretical framework, a low financial performing firm would want to reduce pressures from various stakeholders by securing its citizenship through the use of more environmental sustainability reports. They also signal more EnSR to divert stakeholders' attention from their bad financial performance.

The study found industry affiliation to have a significant association with the extent of EnSR. All the industries considered were significant and reported more environmental sustainability than the banking industry. This is in line with empirical studies that firms that are environmentally exposed produce more environmental sustainability information than less exposed firms.

The study also found firm size and liquidity to have a highly significant positive effect on the extent of environmental reporting. This means larger firms report more environmental

sustainability, as well as highly liquid firms, have more incentive to report on environmental issues.

5.2.2.3 Determinants of social sustainability reporting

Similar to the environmental dimension, the study found governance mechanisms, financial performance (Tobin's Q), industry affiliation, firm size, and liquidity as good predictors of the extent of SoSR. Foreign association, ROA, and leverage do not have a significant influence on the extent of SoSR practice.

The findings show governance mechanism positively influences the extent of SoSR. This means a firm with improved governance mechanisms reports more on their social activities.

Financial performance (measured by Tobin's q) also has a negative significant relationship with the extent of SoSR. Premised on the studies' theoretical framework, a low financial performing firm would want to divert various stakeholders by signalling more social-related information to these stakeholders to secure their license to operate.

The study found industry affiliation to have a significant association with the extent of SoSR. All the industries considered were significant and reported more social-related information than the banking industry. This is in line with empirical studies that firms that are environmentally and socially exposed produce more environmental sustainability information than less exposed firms.

Firm size and liquidity also have a significant positive effect on the extent of SoSR. This means larger firms report more social sustainability, as well as highly liquid firms, have more incentive to report on social activities.

5.2.2.4 Determinants of corporate sustainability reporting

Following the TBL approach, the study found governance mechanisms, financial performance (Tobin's Q), industry affiliation, firm size, and liquidity as good predictors of the extent of corporate sustainability reporting. However, foreign association, ROA, and leverage were found to be insignificant predictors of the extent of corporate sustainability reporting. It is observed that factors influencing corporate sustainability heavily due to their influence on the environmental and social dimensions.

The results show that governance mechanisms have a positive significant relationship with the extent of corporate sustainability reporting. This means a firm with improved governance mechanisms significantly improves its reporting on all the issues of sustainability thus the economic, environmental, and social. Firms with good governance would want to indicate their efficiency in managing the firms' activities, both financial and non-financial, to their diverse stakeholders by signalling to these stakeholders their performance in overall sustainability practices. This would make the stakeholders of firms consider such firms as socially desirable firms. Therefore, such firms would secure their social license to continue operation.

The results also found financial performance (Tobin's Q) to have a significant negative effect on the extent of corporate sustainability reporting. Premised on the studies' theoretical framework, a low financial performing firm would want to reduce pressures from various stakeholders by securing its citizenship through the use of more on their overall sustainability issues. These firms would signal more sustainability information to divert stakeholders' attention from their bad financial performance.

The study found industry affiliation to have a significant association with the extent of corporate sustainability reporting. All the industries considered were significant and reported more corporate sustainability than the banking industry.

The study also found firm size and liquidity to have a significant positive association with the extent of corporate sustainability reporting. By indication, larger firms are highly exposed and prone to stakeholder pressures, they would, therefore, report more economic, environmental, and social sustainability issues to prove to the stakeholders that they are responsible entities to secure their social license to continue operations. Also, highly liquid firms have more incentive to report on corporate sustainability.

5.3 Conclusions Of The Study

5.3.1 Reporting Practices of Firms

First of all, the study concludes that the sustainability reporting practices of the firm on the Ghana Stock Exchange are low even though the practice is gradually improving.

Secondly, the environmental aspects of sustainability reporting are the least reported by listed firms on the Ghana Stock Exchange (GSE), whiles the economic information is the most reported. The low reporting on environmental issues may as a result of a lack of enforcement of environmental guidelines in the country. Also, firms on the GSE devote less attention to reporting on waste management and human rights issues in their reporting practices. The findings suggest that firms are more encouraged to signal their good performance in sustainability management to their stakeholders to yield a response of likeness and acceptance, by these stakeholders, of their services and to secure their legitimacy. Therefore, the less attention given to waste management

and human rights may suggest that these firms are performing poorly in such areas and would not want to signal their bad practices.

5.3.2 Determinants of Corporate Sustainability Reporting Practices

Firstly, governance mechanisms, firm size, and industry affiliation have a significant positive influence on EcSR.

Secondly, governance mechanisms, firm size, liquidity, and industry affiliation are significant positive predictors of EnSR. Also, firm performance (Tobin's q) has a negative significant effect on EnSR.

Thirdly, Governance mechanisms, firm size, liquidity, and industry affiliation have a strong positive association with SoSR, while firm performance (Tobin's q) negatively affects social sustainability.

Fourthly, corporate sustainability thus using the triple-bottom-line (TBL) approach established similar relationships as the environmental and social dimensions.

5.4 Recommendations of the Study.

The study makes recommendations in respect of Policy, Academia, and Practice. The following recommendations are made based on the findings and recommendations from the study.

5.4.1 Recommendations to Policy

Firstly, this study informs regulations of various industries such as the Securities and Exchange Commission (SEC), Environmental Protection Agencies (EPA) among other organizations about

the reporting practices of firms. This will enable them to streamline their policies to ensure that firms are operating as irresponsible entities in their areas of involvement are put in check. For instance, the SEC may increase their requirements on banks to show more transparency on their social and environmental activities. Human rights agencies may delve further into the reasons for low reporting on human rights by listed firms. This will inform them of their policy structuring intentions.

Secondly, regulators need to embark on more education of firms about sustainability reporting practices through seminars, conferences among others to educate and encourage firms to engage more in sustainability activities and report on these practices to their diverse stakeholders. They may also encourage firms to streamline their reporting practices along with the GRI standard to ensure maximum reporting.

Thirdly, the voluntary nature of sustainability reporting among listed firms in Ghana may contribute to the low levels of reporting. Regulators may therefore consider restructuring their policies to make the practice mandatory as it is practised in other countries. This will ensure increased participation by firms.

5.4.2 Recommendations to Practitioners

Firstly, based on the findings that governance mechanisms significantly influence sustainability reporting, it is recommended that firms boost their governance practices such as setting up a sustainability committee, motoring, and evaluation of board activities among others. This will ensure a significant increase in the activities and reporting of firms concerning sustainability.

Secondly, as revealed by the study that most firms did not report the GRI indicators with some reporting nil in some years, it is recommended that firms subscribe to the GRI standard as it is

considered as a global standard for reporting sustainability (KPMG, 2011). They should streamline their reporting on sustainability impacts to the guidelines in the GRI standard. This would increase the comparability of sustainability practices among firms. It will also increase their competitiveness on a global stance as firms around the world are making conscious efforts to signal to their stakeholders that they uphold sustainability standards.

On the global view, the reporting practice has increased massively to about 90% of firms reporting on their sustainability. Investors, shareholders should also demand from these firms to increase their disclosure on their sustainability impacts and policies. As posited by the theory and observed elsewhere in the world, stakeholders grant firms their social license to operate so firms that give less priority to human rights, waste management as well as general social and environmental issues should be awoken to the reality of their legitimacy.

5.5 Limitations and Future Research Directions

The first focused listed firms on the GSE. Future research can consider the inclusion of non-listed firms to increase the understanding of sustainability reporting practices.

Secondly, the study employed quantitative methods for data gathering. Such a technique could not explain the reasons why such reporting practices were observed. Future studies may consider using qualitative methods to understand the reason for the observed reporting practices.

Lastly, it is recommended that future studies devote attention to integrating different but consistent theoretical reference points in studying sustainability reporting practices, frameworks such as the

stakeholder-legitimacy-signal model have proven to effectively explain the determinants of sustainability reporting practices.

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