



Corporate Social Responsibility Reporting and Financial Performance

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by

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DEDICATION

I dedicate this dissertation to my mother, because a mother's love for her child is like nothing else in this world. It is the fuel that enables a normal human being to do the impossible. There are no words that could ever fully describe her impact in all the work that I do.

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ABSTRACT

This study aims to investigate the relationship between corporate social responsibility (CSR) reporting and the financial performance of JSE-listed companies in South Africa. The study used annual cross-sectional data of 76 JSE-listed companies for the period 2012 to 2019, extracted from the Integrated Real-time Equity System (IRESS). CSR reporting data was obtained from companies' annual reports. The panel data model was estimated using the two-stage least squares instrumental variable technique to account for endogeneity.

From the analysis, approximately 80.3% of companies included in the study reported on CSR, with the majority (46.7%) of these companies are from the industrials sector. After controlling for endogeneity using random effects models, the relationship between CSR reporting and ROA and PM was statistically significant at $p=0.056$ and $p=0.109$ for ROA and PM respectively, suggesting CSR reporting firms are associated with improved financial performance. Stakeholder and legitimacy theories are supported by these findings. Therefore, a company must consider the interests of all its stakeholders – direct or indirect – given that a company's survival depends on the extent to which it operates within the boundaries and norms of society. The researcher recommended that JSE-listed companies consider reporting on CSR as an enabler for a firm's financial performance.

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ACRONYMS AND ABBREVIATIONS

2SLS: Two-Stage least squares

CFP: Corporate financial performance

CSP: Corporate social performance

CSR: Corporate social responsibility

CS: Corporate Sustainability

ESG: Environmental, social and governance

FEM: Fixed effects model

FMA: Financial Markets Act (No. 19 of 2012)

FP: Firm profitability

GRI: Global Reporting Initiative

GSC: Group Sustainability Committee

Iress: Integrated Real-time Equity System.

IVs: Instrumental variables

JSE: Johannesburg Stock Exchange

OLS: Ordinary least squares

PM: Profit margin

REM: Random effects model

ROA: Return on asset

ROE: Return on equity

SRI: Socially Responsible Investment

TCFD: Taskforce on Climate-related Financial Disclosures

Keywords: Corporate Social Responsibility, Sustainability Reporting, Profitability, Regression, index

CHAPTER 1: INTRODUCTION

1.1 Background to the Study

Corporations increasingly face criticism for the negative impact of business operations on the environment and society, as well as for employee mistreatment and, in some cases, accounting fraud (Whetman, 2017). Corporate mismanagement can result in environmental degradation, caused by companies cutting corners to achieve short-term gains, which threaten employee safety and the community at large, and alarm investors and stakeholders (Ibid.). An example of this is BP's Deepwater Horizon oil spill, which resulted in the death of 11 workers and negatively affected marine and aquatic life (Whetman, 2017; Ingersoll, Locke & Reavis, 2012; Hoffman, 2010). Whetman (2017) explains that these negative effects can lead to bankruptcy, loss of value, negative reputations and public distrust. It is therefore important for corporate management to be more socially responsible through the consideration of business practices that enable employee wellbeing and environmental protection.

Positive corporate values are associated with corporate social responsibility (CSR), which is the way a company's operations balance environmental, social and economic aspects to address stakeholder expectations and society at large beyond profit-making activities (Hoffman, 2010; Vitezić, Vuko & Mörec, 2012). This aligns with the idea that corporations have an obligation to society. Studies demonstrate that failure to consider environmental impact, social pressure and overlooking effective corporate governance of a company's operations can have negative financial repercussions (Whetman, 2017; Vitezić, Vuko & Mörec, 2012; Godfrey & Hatch, 2007; Kolk, 2008; García-Sánchez, Hussain, Martínez-Ferrero & Ruiz-Barbadillo, 2019; Laskar, Chakraborty & Maji, 2017; Marota, Mulyani, Sukmadilaga & Cahyandito, 2020; Hoffman, 2010). Companies are required to disclose their sustainability status through the publication of information on the impact of the company's operations regarding environment and social challenges, mitigation strategies and efforts to implement good governance (Whetman, 2017; Marota, et al., 2020).

Carroll, 1979, p499, classified the components of social responsibility as "economic, legal, ethical and discretionary" and, Aupperle et al, 1985, define these components as follows:

(1) Economic responsibilities of business reflect the belief that business has an obligation to be productive and profitable and meet the consumer needs of society. (2) Legal responsibilities of business indicate a concern that economic responsibilities are approached within the confines of written law. (3) Ethical responsibilities of business reflect unwritten codes, norms, and values implicitly derived from society; ethical responsibilities go beyond mere legal frameworks and can be both strenuously undertaken and nebulously and ambiguously stated. (4) Discretionary responsibilities of business are volitional or philanthropic in nature, and, as such, also difficult to ascertain and evaluate (Aupperle, Carroll & Hatfield, 1985, p455).

The current study assesses the relationship between corporate social responsibility reporting and firm profitability with an aim to contribute to the existing literature and to address a gap in the literature for South African JSE- listed companies.

1.2 Problem Definition

Several studies into the relationship between corporate social responsibility (CSR) and firm financial performance or firm profitability (FP) are inconclusive (Akben-Selcuk, 2019; McWilliams & Siegel, 2000; Hou, 2019; Rehman, Zahid, Rahman, Asif, Alharthi, Irfan & Glowacz, 2020; Soytaş, Denizel & Usar, 2019). These inconclusive findings limit researchers' ability to make scientific generalisations (Zahid, Rahman, Khan, Ali & Shad, 2020; Ullah, Zaefarian & Ullah, 2021; Zaefarian, Kadile, Henneberg & Leischnig, 2017). Several studies attempt to summarise theoretical and empirical research regarding the relationship between CSR and FP, but this too remains inconclusive (Haffar & Searcy, 2017; Rivera, Muñoz & Moneva, 2017; Platonova, Asutay, Dixon & Mohammad, 2018; Akben-Selcuk, 2019; McWilliams & Siegel, 2000; Zahid, Rahman, Khan, Ali & Shad, 2020). The studies make differing observations of this relationship, with some finding a positive relationship (Akben-Selcuk, 2019; Cho, Chung & Young, 2019; Platonova, et al., 2018; Zahid, Rahman, Khan, Ali & Shad, 2020). Others suggest that the relationship between CSR and profitability is negative (Rehman, Zahid, Rahman, Asif, Alharthi, Irfan, & Glowacz, 2020; Nguyen, Nguyen & Nguyen, 2022; Jan, Karn, Li & Liu, 2021). While others suggest there is no relationship (Sulaiman, Christensen & Hughes, 2004). The inconclusive results may discourage some of South African

companies from participating in CSR reporting due to lack of clear benefits for doing so, yet the inconclusive results are caused by methodological errors.

A ten-year review of corporate sustainability in South Africa found that only 24 South African companies were listed on the GRI website as of September 2004 and indicates their use of the Sustainability Reporting Guidelines (Visser, 2004). In addition, Visser (2004) finds that more than 40% of the top 200 companies surveyed indicate that they were utilising the GRI Guidelines (with approximately 15% indicating full use, 30% partial use and 50% promised future use). The paper highlights that South Africa lags behind global trends (Ibid.). A study by Abdo and Fisher (2007) develop corporate governance disclosure measures using King II principles, or the G-Score, for companies registered with different JSE sectors. Each sector's portfolio of shares is regarded as high if the sector's companies achieve a G-Score of 75% and low if the G-Score is less than 50%. The study found that a growth of 36% per year is experienced for an investment in high portfolio companies when compared to investment in low portfolio companies in the same sector (Abdo & Fisher, 2007). This shows that corporate governance disclosure is important for investment decision-making.

Du Toit and Lekoloane (2018) highlight that published research on the relationship between CSR reporting and financial performance for South African companies is scarce, although research investigating this relationship has been conducted using data as early as 1970. An analysis of survey data collected from 1970 to 1974 suggested a non-significant effect of social responsibility on stock market performance (Alexander and Buchholz ,1978).

The scarce literature for South African companies may be due to few companies participating in the GRI. Visser, 2004 highlighted that only 24 South African companies declared their use of Sustainability Reporting Guidelines and were listed on GRI website in September 2004 (Visser, 2004). To improve on participating sustainable reporting, South Africa as an emerging market launched its FTSE/JSE SRI Index in May 2004 which was aligned with the international standards (Viviers & Els, 2017), although inclusion in the SRI did not have a real relationship with financial performance Index (Du Toit & Lekoloane, 2018; Gladyssek & Chipeta, 2011). This may be because only big companies were likely to be included in the FTSE/JSE SRI Index (Du Toit & Lekoloane (2018). Furthermore, in 2010 a corporate governance code (King III) aimed at enhancing reporting on sustainability and corporate social reporting practices linked

to international standards of corporate governance with African values become effective (Gstraunthaler, 2010). However, in 2021 a positive relationship between voluntary social performance disclosure and long-term profitability was observed among South African listed firms by Sampong et al (Sampong, Song, Amoako & Boahene, 2021). Another study found that significant relationships between ESG with corporate financial performance among JSE listed firms were identified only when ESG disclosure score was disaggregated and when there is sector distinction (Johnson, Mans-Kemp & Erasmus, 2019). Sampong et al, (2018, concluded that that CSR disclosure may not necessarily influence firm value in their study conducted among South African firms. These contradicting results of the relationship between CSR disclosure and firm performance among JSE listed firms calls for further research. In addition, Viviers 2014, highlighted the need for research, training, and education on responsible investing in South Africa. There is, therefore, a need to narrow the literature gap and to contribute to the body of knowledge regarding the relationship between corporate social responsibility and financial performance focusing on South African listed firms.

The present study seeks to narrow this gap by investigating whether reporting on CSR has a relationship with the financial performance of South African companies registered on the Johannesburg Stock Exchange (JSE).

If a positive relationship is established, the findings of this study could encourage South African companies to register on the JSE and improve on their sustainable reporting. Studies cite that social and environmental information will be utilised by investors and stakeholders for future investment decision making (Muslichah, 2020; Van der Lugt, Van de Wijs & Petrovics, 2020). Therefore, the results of this study can assist investors and other stakeholders with a financial interest in a JSE-listed company to assess the profitability of investing in that company. In addition, the findings of this study add to the body of knowledge on the relationship between CSR and FP.

Wachira, Berndt & Martinez (2019), highlighted that, investors have realised that environmental, social and governance (ESG) issues assist in avoiding investments in unethical activities. This is referred to as responsible investment when screening investments in the decision-making process, especially for long-term investment (Lopez-de-Silanes, McCahery & Pudschedl, 2020; Wachira, Berndt & Martinez, 2019; United Nations Global Compact, 2021). The financial industry recognises that ESG factors can affect risk and return metrics.

Clients increasingly demand transparency into how their money is invested and regulators provide guidance on how to consider ESG as part of investors' responsibility to their clients. Ernest & Young (EY) conducted a survey that highlights an increase in investors conducting a structured formal review of ESG disclosure from 32% to 72% between 2018 and 2020 (EY, 2020). Therefore, South African companies must improve their sustainability reporting to attract investors.

To encourage South African companies to engage in sustainability reporting, this study aims to determine the relationship between CSR reporting and firms' profitability among JSE-listed companies. This study assumes that the relationship between CSR and a firm's financial performance could be endogenous, and thus endogeneity must be considered to appropriately estimate the relationship. The research question to be addressed is:

What is the relationship between corporate social responsibility reporting and the firm's profit, measured by return on equity, return on asset, and profit margin?

The hypothesis is that firms which engage in sustainability reporting in the current year will demonstrate improved financial performance in the following year, and that this can be properly estimated after controlling for endogeneity. If this positive relationship exists, companies could opt to report on sustainability during the year with a hope to experience an increase in return on equity (ROE), return on assets (ROA), and profit margin (PM) in the following year.

1.3 Research Objectives and Hypotheses

1.3.1 Study objective

The specific objective of this study is to examine the relationship between CSR reporting and FP.

1.3.2 Research hypothesis

H0: Corporate social responsibility does not determine Financial Performance

H1: Corporate social responsibility does determine Financial Performance

1.4 Justification for the Study

Special emphasis has been placed on ESG reporting and listed companies are provided with guidelines for voluntary integration of corporate social responsibility activities into investor relations (EY, 2020). A study by Dhaliwal, Li, Tsang and Yang (2011) highlights that firms with better social responsibility performance attract dedicated institutional investors and analyst coverage, which can result in minimum cost of equity capital. Visser (2004) cites that annual sustainability reporting surveys since 1997 provide corporate sustainability reporting trends in South Africa, with only 24 South African companies listed on the GRI website declaring their use of the GRI Sustainability Reporting Guidelines in 2004. Visser (2004) highlights that more than 40% of the top 200 companies indicate using the Guidelines, with 50% hoping to use these guidelines in future; however, the paper cites that South Africa lags behind global trends.

Several studies on the impact of sustainability reporting on a firm's profitability have been conducted in non-African countries (Whetman, 2017; Marota, et al., 2020; Taliento, Favino & Netti, 2019; Liu, Liu, Guo, Da, Guan & Chen, 2019). A few studies have also been conducted in the African continent (Nyereugwu & Ugonma, 2020; Asuquo, Temitayo & Raphael, 2018; Nnamani, Onyekwelu & Ugwu, 2017; Chetty, Naidoo & Seetharam, 2015; Wasara & Ganda, 2019). Furthermore, some studies have been conducted on Nigerian listed companies and in South Africa (Nyereugwu & Ugonma, 2020; Nnamani, Onyekwelu & Ugwu, 2017; Wasara & Ganda, 2019; Chetty, Naidoo & Seetharam, 2015). Babalola (2013) examines the effect of firm size, in terms of total assets and total sales, on FP in Nigeria and finds a positive correlation between firm size and the profitability of manufacturing companies in the country. A study by Wasara and Ganda (2019) was the only research that could be identified as attempting to establish the relationship between CSR and profitability in South Africa. While this study conducted on JSE-listed companies finds a negative relationship between environmental disclosure and return on investment, it unfortunately has a small sample size of only ten JSE-listed mining companies, and so cannot be generalised to different sectors of JSE-listed companies (Wasara & Ganda, 2019). Another study conducted by Visser (2004) features a ten-year review on corporate sustainability in South Africa. The study finds that South Africa must make significant progress in sustainability reporting, stakeholder capacity and regulatory enforcement (Ibid.).

Given that South African companies lag behind in sustainability reporting, it is important to assess the impact of this reporting on the profitability of JSE-listed companies. The current study findings could encourage CSR by South African companies, should a positive impact be observed. This study also intends to address a gap in the literature on corporate social responsibility and FP by examining the relationship between CSR and FP in South African JSE-listed companies. Noting, that the term CSR will be used interchangeably with ‘sustainability reporting’ and ‘non-financial reporting’, the study seeks to address how sustainability reporting influences FP in different sectors of South African JSE-listed companies.

1.5 Organisation of the Study

Chapter 1 highlights the background of the study and introduces the problem statement, research objectives, hypotheses and justification of the study.

Chapter 2 provides a summary and critical synthesis of the literature of relevant research associated with corporate social responsibility reporting and firms’ financial performance, including an overview of sustainability reporting on the JSE.

Chapter 3 presents the methodology and procedure used for data collection along with the data analysis methods.

Chapter 4 discusses analysis of the data and presents the results.

Chapter 5 provides the discussion of the study findings, conclusions and suggests recommendations and limitations.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review relevant to the study starting with an overview of the South African Johannesburg Stock Exchange followed by the overview of sustainability reporting on the Johannesburg stock exchange. The chapter goes on to elaborate on sustainability reporting Frameworks then sustainability report followed by theoretical framework. It then provides the non-financial reporting and profitability, corporate governance and profitability, corporate social responsibility and concludes with empirical literature.

Significant research has been conducted exploring the relationship between companies' sustainability performance, disclosure of sustainability reports and financial performance (Whetman, 2017; Marota, et al., 2020; Taliento, Favino & Netti, 2019; EY, 2020; Liu, et al., 2019). A study conducted on Nigerian manufacturing companies found that firm size, in terms of both total assets and total sales, has a positive impact on profitability (Babalola, 2013). Other studies found that participating in CSR is of benefit to a firm, and thus worth implementing (EY, 2020). Kang and Liu (2014) believe that the assessments of corporate performance should go beyond financial measures and include performance, regarding its impact on larger society. Due to the abovementioned variation of considerations, it is important to explore the impact of sustainability reporting on firm profitability.

2.1.1 An Overview of the South African Johannesburg Stock Exchange

The South African Johannesburg Stock Exchange (JSE) is a licensed exchange in terms of the provisions of the Financial Markets Act (No. 19 of 2012) (FMA). Its function is to provide facilities for the listing of securities issued by both domestic and foreign companies (Cooper, 2004). The JSE also provides users with a marketplace for trading in securities and regulates the market (Cooper, 2004). The JSE therefore has an obligation to make and enforce listings requirements. Figure 2.1 shows the governance framework for JSE listed companies.

Figure 2.1: The Governance Framework for Johannesburg Stock Exchange Listed Companies



Source: JSE (2021a).

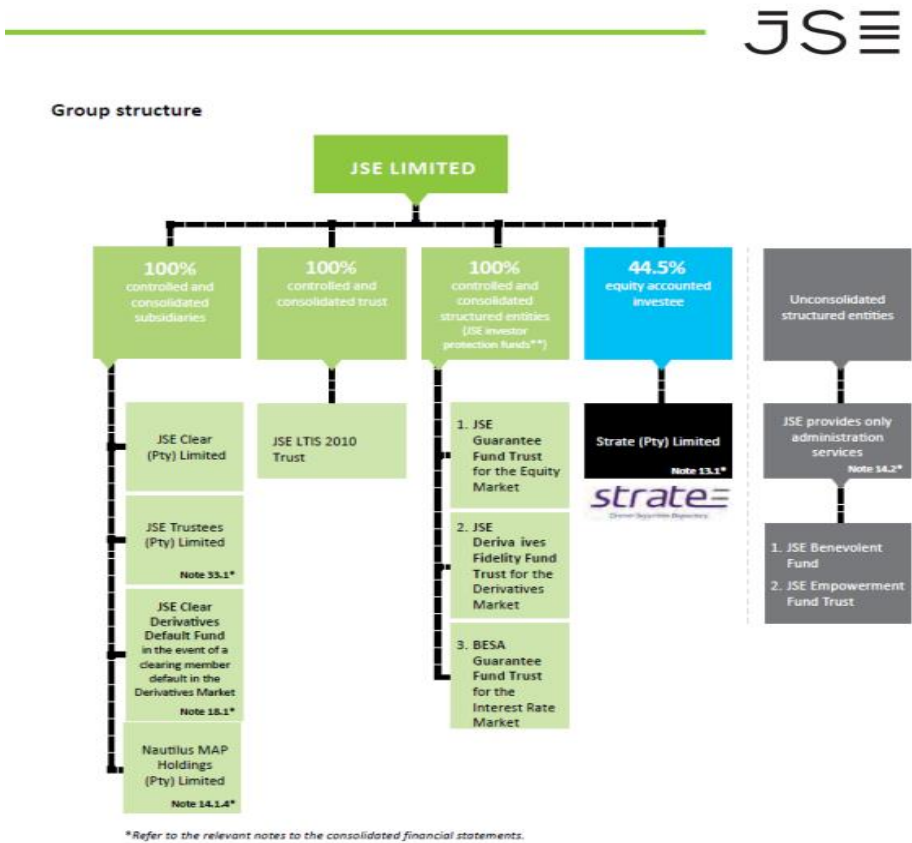
The JSE is the largest stock exchange in Africa and the 16th largest in the world, with a market cap greater than \$1 billion (JSE, 2021e). The JSE was formed in 1887 during the South African gold rush and it currently offers five financial markets, namely Equities, Bonds, and Financial, Commodity and Interest Rate Derivatives (JSE, 2022a; JSE, 2021d). The JSE is therefore an important part of the South African financial system. It offers secure electronic markets with proper regulation, trading and clearing systems, as well as settlement assurance and risk management (JSE, 2021e).

The JSE is privately owned and funded, and is governed by a board of directors (JSE, 2021b). Companies list on the JSE raise capital by selling shares via public offers or rights issues. These listed shares can then be bought and sold by personal investors or traders, professional investors or traders and companies. The role of the JSE as regulator, is to ensure the market operates in a transparent manner, thereby protecting the interests of investors. In addition, the “JSE is a member of the World Federation of Exchanges (WFE) since 1963, the Committee of SADC Stock Exchanges and the African Securities Exchanges Association and a founding member of the Sustainable Stock Exchanges Initiative (SSEI)” (JSE, 2022a).

The JSE prides itself on offering a client-centred service that leads to growth and profitability for companies and investors. It further conducts risk management, which is essential for stakeholders and shareholders in terms of reporting, monitoring, and mitigation. The JSE acts

as a settlement authority for traded equity market and exchange-traded derivatives (JSE, 2022a). Compared to bank deposits, investing in the South African Johannesburg Stock Exchange presents a greater risk and higher returns and JSE-listed companies are screened by their liquidity status. The JSE is regulated by acts of parliament to guide daily operations, including the Financial Markets Control Act (No. 55 of 1989) and the Stock Exchanges Control Act (No. 1 of 1985) (JSE, 2022a). These acts ensure that trading is free and fair, and protects investors. Opportunity is given to individuals and companies to grow their wealth, as relevant information is made accessible to investors (Ibid.). The JSE’s equity market provides access to shares in South African companies and foreign companies, and includes access to 800 listed securities and approximately 400 listed companies, as well as 60 equity market member firms (Thomas, 2017; JSE, 2022a). Figure 2.2 shows the JSE group structure and functions.

Figure 2.2: Group Structure



Source: JSE (2000).

2.1.2 Overview of Sustainability Reporting on the Johannesburg Stock Exchange

The issue of corporate social responsibility remains highly relevant globally, given the effect of waste and pollution on the environment, negative impact of climate change and depletion of natural resources. This relevance has prompted stakeholders' interest in whether the companies with which they interact conduct business in a socially and environmentally ethical manner (Du Toit & Lekoloane, 2018; Orlitzky, Siegel & Waldman, 2011). There is, therefore, a growing stakeholder and investor interest in sustainability performance and disclosure. This 'non-financial' issue contributes to financial value in many ways, including investment risk assessments by potential investors (Du Toit & Lekoloane, 2018).

The JSE group highlights that effective sustainability responses to social, environment and governance risk can protect value. In addition, responding to sustainability challenges can create value by stimulating innovation, resulting in profit-led environmental or social benefits to the market ecosystem. The JSE group concludes that the ability to communicate sustainability performance effectively assists investors in making informed decisions. These considerations led the JSE to become the leading organisation regarding global introduction of an exchange-sponsored sustainability index, measuring companies on indicators relating to ESG practices. The JSE was also the first stock exchange to incorporate a move towards integrated reporting, following the introduction of King III (JSE, 2021e; JSE, 2000; JSE, 2021c).

The JSE first implemented a Socially Responsible Investment (SRI) Index in May 2004, with the objective of distinguishing companies reporting on economic, social and governance issues as a benchmark to compare companies that are socially responsible and those that are non-socially responsible (Gladyssek & Chipeta, 2012; JSE, 2014). The SRI Index was used as a proxy for responsible investment by investors who wished to include non-financial risk (e.g. climate change and its associated risk to portfolios) in their investment decisions (Du Toit & Lekoloane, 2018). The SRI Index was terminated in 2015 and replaced with the FTSE/JSE Responsible Investment Index (J113) (FTSE., 2018; Usher H, masters report).

The JSE SRI Index Advisory Committee annually assesses firms based on several criteria for inclusion in the JSE SRI Index listing (Bhana, 2018; Chetty, Naidoo & Seetharam, 2015). A

JSE-listed company is only included in the JSE SRI Index if it satisfies the ESG indicator requirements. These JSE SRI requirements are utilised to promote sustainability reporting by top South African companies across different sectors (Chetty, Naidoo & Seetharam, 2015; Usher, masters report). A sample of all companies included in the Index between 2004 and 2019 is presented in Table 2.1. The table shows that some JSE-listed companies were reporting on the social responsibility index since 2004 and this was company dependent: if the company was not interested in being included on the JSE SRI Index listing, it would not report on the index listing requirements.

Table 2.1: Social Responsibility Sample¹

Year	No. of companies in the JSE SRI Index
2004	51
2005	49
2006	58
2007	57
2008	61
2009	67
2010	74
2011	74
2012	76
2013	72
2014	82
2015	61
2016	69
2017	76
2018	76
2019	67

Source: Adapted from Bhana (2018).

The concepts of corporate social responsibility, socially responsible investments (SRI) and corporate governance are directly linked and sometimes used interchangeably. For the purpose

¹ <https://m.polity.org.za/article/launch-of-the-new-ftsejse-responsible-investment-index-series-2015-10-15>

<https://www.jse.co.za/services/indices/ftsejse-responsible-investment-index>

of this paper, SRI is defined as an investment strategy that creates a balance between financial and social objectives (Herringer, Firer & Viviers, 2009; Statman, 2006). Bhana's (2018) investigation of the market reaction to corporate entry and exit from the JSE SRI Index between 2004 and 2014 finds significant positive returns for new companies added to the annual SRI Index listing in both initial and subsequent years of publication. This suggests that it is important for companies to be included on the JSE SRI Index listing; hence, the study supports socially responsible investing by investors and socially responsible behaviour by companies.

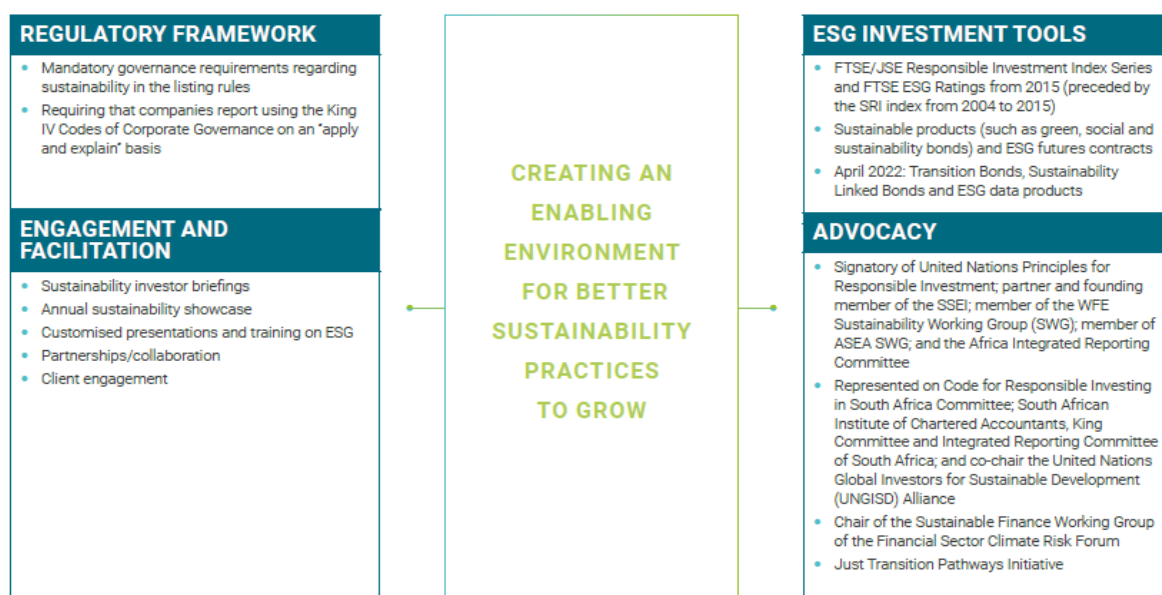
The JSE launched *Sustainability* and *Climate Disclosure Guidance* consultation papers to promote transparency and good governance and guide listed companies on best practice in ESG disclosure (JSE, 2021c). Disclosure guidance intends to help companies align with recent changes in global standards and international best practices regardless of their experience in ESG reporting (JSE, 2022c). To promote interest in innovation in sustainability challenges, global reporting standards have been developed to assist in the achievement of national and international sustainable development commitments and priorities, such as the United Nations Sustainable Development Goals (UN, 2021).

The JSE prides itself on commitment to the Corporate Social Responsibility (CSR) initiative. The organisation has invested time and money into these initiatives as it believes that the initiative has a positive, sustainable and meaningful impact on the wellbeing of South Africans (JSE, 2021e). The JSE undertakes to integrate sustainability across its value chain; provide guidance to its markets regarding the importance of sustainability disclosure, and including sustainability in investment considerations; as well as facilitates discussion and advocacy in relation to sustainability. The JSE further facilitates responsible investment by providing the tools, services and re-orientation for sustainable development (JSE, 2021e). Figure 2.3 shows how the JSE creates an enabling environment for sustainability reporting. Although these initiatives align with global sustainable initiatives, an investigation by Du Toit and Lekoloane (2018) into the relationship between being listed on the JSE SRI and financial performance indicates no relationship between the two. However, the same study did find a relationship between company size and being listed on the JSE SRI Index (Ibid.).

Figure 2.3: How to Create Enabling Environment for Sustainability Reporting

Driving and supporting a sustainable future

We have arranged our efforts to act on our sustainability goals, around four pillars of action as shown below. We believe that these are key levers most suited to our role in the capital market ecosystem.



Source: JSE (2021d).

In 2021, the JSE revised its sustainability strategy to align with its corporate strategy and strategic objectives. It now aims to partner to co-create inclusive and sustainable growth as part of the national agenda through the application of a sustainability lens to all its operations with clients and communities, with an aim to create an enabling environment for more sustainable business practices (JSE, 2021d). This growth can be achieved through encompassing appropriate regulations, sustainability engagement and trainings with listed companies and investors, and expanding sustainability-related products to local and international sustainability and governance bodies (JSE, 2021e). The JSE Group Sustainability Committee (GSC) oversees and reports on the extent to which the Group protects and enhances investments in an equitable South Africa. The JSE aims to issue the first set of climate change disclosures in March 2023, as recommended by the Taskforce on Climate-related Financial Disclosures (TCFD). The JSE aims to harmonise how listed companies report on impacts and assessments of sustainability matters that are material to their business (JSE, 2021e; JSE, 2022a). A study by Johnson, Mans-Kemp and Erasmus (2019) recommend that firm leaders must use the approach most suited to

their operating environments to address the most important risks, since ESG aspects are not homogeneous across sectors (JSE, 2021b).

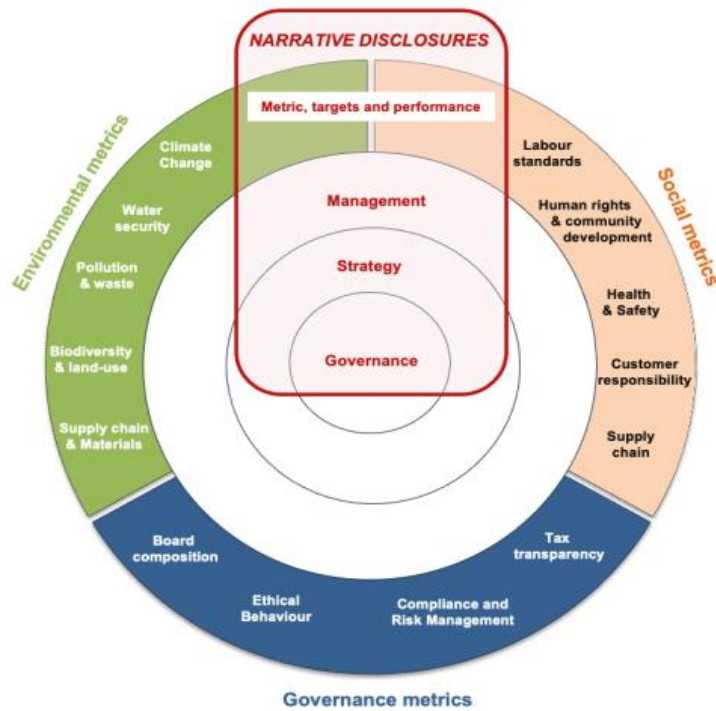
The JSE Sustainability Disclosure Guidance (Figure 2.4) and Climate Disclosure Guidance (Figure 2.5) align with the international initiatives on sustainability and climate change disclosure standards. Climate Disclosure Guidance was launched in 2021 (JSE, 2021c; JSE, 2022c). During the launch, the JSE Group CEO stated the following, which shows JSE's commitment to sustainability reporting in the long term.

In response to the rapidly evolving landscape of sustainability standards and frameworks, this guidance provides JSE-listed issuers with guidelines specifically tailored to the South African context, whilst being fully cognisant of global best practice. It is intended that this Disclosure Guidance will serve as an umbrella for sub-topic guidance as needed, with the first such guidance on Climate Disclosure, to be released at the same time.

(JSE, 2021c)

A study by Abdo and Fisher (2007, p. 45) concludes that equity risk is, in part, formed by corporate governance, “measured by board effectiveness, remuneration of directors, accounting and auditing, internal audit, risk management, sustainability, and ethics”. These authors found a positive relationship between the level of corporate governance disclosure and corporate performance among JSE-listed companies (Abdo & Fisher, 2007). To provide an additional dimension in the search for shareholder value, Abdo and Fisher (2007) note a need to include a corporate governance risk measure accompanied by profitability and valuation metrics for investors. The JSE Sustainability Narrative Disclosures and Sustainability Metrics (2022c) include the dimensions of corporate governance (Figure 2.4). Therefore, effective implementation of the JSE Disclosures add value for shareholders and it is important to encourage all listed companies to implement disclosure.

Figure 2.4: The Johannesburg Stock Exchange Sustainability Narrative Disclosures and Sustainability Metrics



Source: JSE (2022c).

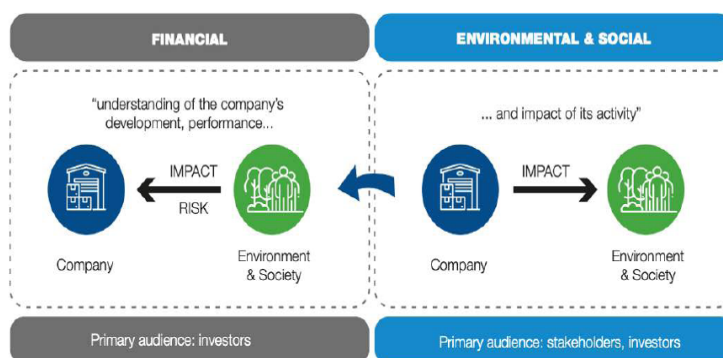
The climate disclosure guidance provides an understanding of impact activities for both stakeholders and investors. In addition, the Guidance assists investors in understanding environmental impact risk (see Figure 2.5).

Figure 2.5: Johannesburg Stock Exchange Sustainability and Climate Disclosure Guidance

JSE Sustainability and Climate Disclosure Guidance has adopted “double materiality”

All organisations impact the environment and society. In turn, the environment and society affect the business and its performance. These impacts may be positive or negative and will vary in time.

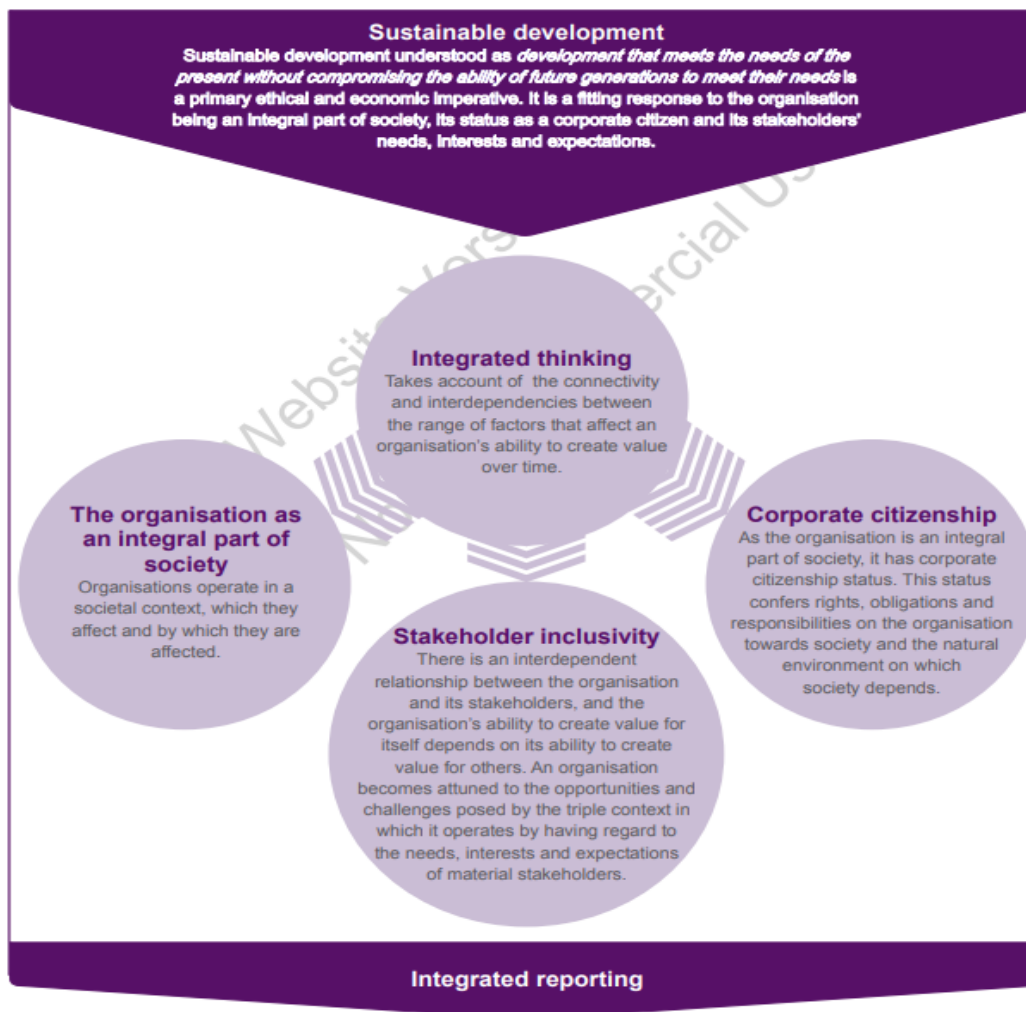
Organisations report these interactions differently depending on the intended report user. Three broad arenas of reporting have emerged, each of which has different global disclosure standards and initiatives aimed at addressing the different material interests of the report user.



Source: JSE (2021c:9).

Finally, the corporate and economic environments of South Africa have been shaped by the introduction of a corporate governance code of practice (King Reports I-IV) for sustainability reporting. Corporate social responsibility and sustainability are clearly outlined in the Corporate Governance Codes of South Africa (Gstraunthaler, 2010). Since their inception, the Codes encourage companies to include sustainability issues in their operations and to disclose using the GRI. For example, the King I and King II codes require companies listed on the JSE to report using GRI guidelines (Sampong, Song, Boahene & Wadie, 2018). Some studies highlight that GRI reporting is mainly limited to JSE SRI Index listed companies (Du Toit & Lekoloane, 2018; Bhana, 2018; JSE, 2014). The JSE Sustainability Disclosure Guidance (2022c) includes all sustainable development concepts suggested in the King IV (Institute of Directors, 2016) (see Figure 2.6).

Figure 2.6: King IV Sustainable Development Concepts



Source: Institute of Directors South Africa (2016).

2.2 Sustainability Reporting Frameworks

The significance of ESG information for investment decisions has made corporate sustainability a concern for both institutional investors and regulators (Lopez-de-Silanes, McCahery & Pudschedl, 2020). CSR is associated with positive corporate virtues as it reflects the way a company can balance environmental, social and economic aspects of its operations, including understanding of stakeholder expectations and society (Whetman, 2017; Marota, et al., 2020). Although CSR is essential, it supports the idea of corporations having obligations to society that go beyond profit-making activities (Vitezić, Vuko & Mörec, 2012, Kang & Liu, 2014). Furthermore, the UN Global Reporting Initiative (GRI) Standards framework (2016)

provides a set of reporting principles to improve transparency and accuracy of an organisation's sustainability reporting (Aifuwa, 2020; Sampong, et al., 2018; Whetman, 2017; González, Plaza & Olmeda, 2019; Hussain, Rigoni & Cavezzali, 2018). This framework is utilised worldwide as a benchmark for sustainability against global standards and voluntary initiatives (Van der Lugt, Van de Wijs & Petrovics, 2020).

Taliento, Favino and Netti (2019) cite that the best practices regarding sustainability disclosure are guided by a new corporate law known as Directive No. 2014/95/EU in Europe, which requires companies to include ESG dimensions in their reports as a way of evaluating the impact of sustainability indicators on the firm's economic performance. Taliento, Favino and Netti (2019) add that the London Stock Exchange Group approved ESG specific indicators, with the intention to more easily identify sustainable and socially responsible investments.

In South Africa, the King IV Report recommends the GRI as a guideline for sustainable reporting and adopting standards as a form of voluntary self-regulation on ethical, environmental and social issues (Sampong, Song, Amoako & Boahene, 2021; Visser 2004). South African companies follow these international trends to demonstrate corporate sustainability. However, the ISO 14001 (for environmental management), the King Code (for corporate governance) and the GRI (for sustainability reporting) are the codes which have had the most impact in South Africa (Visser, 2004; Sampong, et al., 2018; Dhaliwal, et al., 2011).

2.3 Sustainability Reporting

The Global Reporting Initiative (GRI, 1997) defines a sustainability report as, “a report published by a company or organization about the economic, environmental and social impacts caused by its everyday activities”. Despite having guidelines and some indicators, researchers still struggle to adequately measure CSR. Al-Malkawi and Javaid (2018) note the use of different proxies for measuring CSR in several studies. For the purposes of this study, sustainability reporting is used as a proxy for CSR. Sustainability reports enable companies to report non-financial operations, which allows them to improve on firm accountability, transparency, and corporate image (Visser, 2004; Sampong, et al., 2018; Wachira, Berndt, & Romero, 2019).

Through GRI guidelines, most companies worldwide have adopted sustainability reporting as part of their practice (Sampong, et al., 2018; Visser, 2004). Sustainability reporting encompasses a company's governance approach, values and ability to create a sustainable global economy, as well as to keep shareholders informed on a firm's activities (Whetman, 2017; Marota, et al., 2020). In some regions and countries compliance and disclosure of CSR reporting is mandatory (Taliento, Favino & Netti, 2019). It is, however, still a voluntary measure in the United States and South Africa and is only mandatory for JSE-listed companies in South Africa (Visser, 2004; Bhana, 2018; Whetman, 2017; Chetty, Naidoo & Seetharam, 2015) Whetman (2017) observes that GRI standards eliminate confusion on CSR reporting and 92% of the 250 largest corporations in the world report on sustainability performance, with 74% of these utilising GRI standards. Whetman (2017) therefore concludes that these standards have been widely recognised and accepted; however, there are differences between countries and sectors regarding sustainable reporting, with an increase in the industrial sector compared to the financial sector. This indicates that high risk sectors whose operations could result in environmental harm or human rights violation due to harmful daily activities report more than others (Ibid.). In addition, Whetman (2017) suggests that sustainability reports must be quality assured for accuracy on companies' daily activities and the quality assurance process requires external sources to verify and approve the reported firm's activities. Whetman (2017, p. 3) adds that in BP's (2010) sustainability report (Hoffman, 2010), Ernest and Young state a key limitation to the review as it "did not include physical inspections of any of BP's operating assets". Operating assets are those assets used for ongoing operations of a business and can include fixed long-term assets such as a company's plant and equipment (Ibid.).

2.4 Theoretical Framework

Business ethics pay increasing attention to the role played by socially responsible companies in the value creation process. The relationship between corporate social responsibility and financial performance research is based on a number of theoretical arguments. In summary, the three theories used in research on CSR are stakeholder, legitimacy and signalling theories, and the negative and positive relationship between CSR and FP is observed.

2.4.1 Negative and positive relationship theory

McGuire, Sundgren & Schneeweis, 1988, indicate that social responsibility can result in additional costs in terms of charitable contribution, promoting community development plans and establishing environmental protection procedures. Some studies have thus suggested a negative relation between social responsibility and financial performance (Nguyen, Nguyen & Nguyen, 2022; Wasara & Ganda, 2019). This means that a firm with a higher degree of social responsibility can be more economically disadvantaged than a firm with less social responsibility (Vance, 1975).

In contrast, firms perceived to have a high degree of social responsibility can experience fewer labour problems and customers may show preference for their products. This suggests a positive relationship between social responsibility and improved employee and customer perspectives as an important social responsibility activities outcome. These improved perspectives can improve a firm's relationships with important constituencies, such as bankers, investors, and government officials, which can result in economic benefit to the firm (McGuire, Sundgren & Schneeweis, 1988).

2.4.2 Stakeholder theory

Stakeholder theory emphasises that companies must consider the interests of all parties directly or indirectly connected to the business. This includes creating sustainable value over time. Disgruntled stakeholders can put the survival of a firm at risk due to their negative impact on financial results (Muslichah, 2020; McGuire, 1988 ; Donaldson et al 1995; Asuquo et al.,2018). Stakeholder theory features ESG elements which assess the long-term sustainability of an investment and the integration of economic-financial parameters (Muslichah, 2020). Environmental factors include climate change, greenhouse gas emissions, exploitation of resources, waste, pollution and deforestation (Pestle analysis, swot and business analysis tools, 2022). Social factors include working conditions, health and safety, employer-employee relationships and diversity. Finally, corporate governance practices entail managerial compensation, Board of Directors composition, audit procedures and compliance with the law, and ethical principles by Corporate Executives (Marota, et al., 2020; Wachira, Berndt & Romero, 2019).

2.4.3 Legitimacy theory

Legitimacy theory is based on the idea of voluntarily reporting on social and environmental activities by a company, because management believes that the community in which the company operates expects such action. Therefore, legitimacy theory focuses on the concept of social contracts, which stresses the need for a company to operate within the boundaries and norms of society for its survival (Muslichah, 2020; Hummel & Schlick, 2016; Asuquo et al. 2018)

2.4.4 Signalling theory

Signalling theory shows the difference in availability of information between the company's management and parties connected to the company. To reduce the information gap, the company's management must provide reliable information to the less-informed parties associated with the company (Muslichah, 2020).

Company managers can send signals to take specific actions. For example, decisions can be made by uninformed parties using company profitability. Signalling theory emphasises that different information must be provided to various parties associated with the company. The signal involves the use of financial statements to understand essential information related to what was done by management in achieving the owner's expectations. Signals provide hints that one company has better prospects than another. This is a positive signal that, when provided by the company, can influence the decisions of shareholders and in turn increase the share ownership (Muslichah, 2020).

Finally, disclosure in accordance with stakeholder expectations provides a positive signal regarding the company's good prospects to stakeholders. Considering the stakeholder theory framework and Shared Value Theory (Donaldson & Preston, 1995), it is therefore important for companies to consider Corporate Social Responsibility and Corporate Performance reporting.

2.5 Non-Financial Reporting and Profitability

The relationship between firm profitability and corporate social responsibility has produced inconsistent results and provides inconclusive evidence on whether the relationship is positive,

negative, or neutral (Taliento, Favino & Netti, 2019; Babalola, 2013; Anderson & Frankle, 1980). However, it was found that returns to portfolios consisting of securities of firms that disclosed information on social performance are preferred to firms that do not disclose, although social performance is a voluntary measure and social disclosure has information positively valued by the market (Anderson & Frankle, 1980)). A study by Eccles, Ioannou and Serafeim (2014) on the impact of pollution control expenditure disclosure on the stock market finds that this disclosure correlates with a substantial increase in stock market performance. These findings suggest that companies should allocate resources towards reporting mitigation strategies for the harmful impacts of business operations.

2.6 Corporate Governance and Profitability

Corporate governance is a significant part of a firm's overall wellbeing, and can affect a firm's profitability. Ferrell, Liang and Renneboog (2016) find that well-governed firms are more engaged in CSR and their results show a positive relationship between CSR and value. The authors further conclude that engaging in CSR can generate more returns to investors (Ibid.). Therefore, investors, employees and society need firms to engage in socially responsible behaviour, mainly to avoid corporate mismanagement (Whetman, 2017). Poorly managed firms might not comply with laws and regulations that guide a firm's actions, practices, corporate governance procedures and environmental impacts, which can result in negligent behaviour leading to environmental disasters and human rights violations (Eccles, Ioannou & Serafeim, 2014). As corporations attempt to increase profits there is a possibility that critical areas of operations may be neglected to cut costs and this can have negative internal and external consequences, causing reputational damage to the firm that may be difficult to recover (Lopez-de-Silanes, McCahery & Pudschedl, 2020; Hoffman & Jennings, 2011; Babcock, 2012).

Minor (2016) examines the relationship between managerial incentives and misconduct, and finds that remunerative incentives to executives contribute to poor managerial judgement and lapses in managerial decision-making. In addition, the study finds that executive compensation and incentives are likely to increase the chances of environmental laws being broken (Ibid.). Minor (20116) concludes that although incentives are meant to encourage positive outcomes, they can drive misconduct by organisations' leaders.

2.7 Corporate Social Responsibility

Socially responsible firms engage more in value maximisation and environmental protection, making them financially better off in the long run (Marota, et al., 2020; Minor, 2016). The practice of CSR is increasingly adopted by companies and is considered by many firms as a way of maintaining competitive advantage through the attainment of socially responsible investors and improved corporate image (Whetman, 2017; Minor, 2016; Wood, 1991). As the firm signals its ‘goodness’, customers and investors perceive it as making a difference, therefore investors are also pushing for strategies like non-financial reporting. Companies are realising that they are interdependent with each other and must redefine what ‘success’ means in business through serving society and shareholders (Whetman, 2017).

In other instances, managers perceive CSR as a waste of corporate resources and sustainability reporting as unnecessary, time consuming and expensive, or as a mere marketing technique (Whetman, 2017). This suggests that while managers are aware of the social and environmental impacts of the firm’s operations, they prefer to channel resources elsewhere than towards producing reports (Whetman, 2017). Therefore, the responsibility to encourage more participation in sustainability reporting lies with stakeholders, e.g. institutional investors.

2.8 Empirical Literature

Studies report a positive, negative or neutral impact of CSR on financial performance (Taliento, Favino & Netti, 2019; Akben-Selcuk, 2019; McWilliams & Siegel, 2000; Cho, Chung & Young, 2019; Platonova, et al., 2018; Zahid, et al., 2020; Rehman, et al., 2020; Sulaiman, Christensen & Hughes, 2004; Nguyen, Nguyen & Nguyen, 2022). The following analysis gives an overview of the outcomes identified of several studies. These studies investigate the empirical relationship between CSR and profitability, observing five disaggregated components: community, diversity, employees, the natural environment and product (Taliento, Favino & Netti, 2019; Aupperle, Carroll & Hatfield, 1985). Inoue and Lee (2011) examine the relationship of each component with short-term profitability and market evaluations of future profitability for industries in tourism. The authors concluded that the degree of financial benefit for each CSR component differs for different firms, and it is important for firms to engage in a

specific stakeholder issue (Inoue & Lee, 2011). Hongming et al, 2020, found a positive relationship between responsibility reporting and firm performance in a study conducted among non-financial firms in Pakistan (Hongming, Ahmed, Hussain, Rehman, Ullah & Khan, 2020).

A study by Brammer and Millington (2008) uses the context of corporate charitable giving to analyse the relationship between corporate social performance (CSP) and corporate financial performance (CFP). The study finds that companies with high or low CSP experience higher financial performance when compared to companies with normal CSP. Companies with poor social performances, perform best financially in the short term, and good socially performing companies perform best over the longer term. (Brammer & Millington, 2008)

Whetman's (2017) study explores the impact of sustainability reporting on firm profitability amongst firms with high and low institutional ownership. The study notes that institutional ownership is beneficial for enhancing firm profitability, and sustainability reporting has a significant impact on a firm's profitability in the short-term. Whetman (2017) provides managers with an important guide, which highlights that only companies with low institutional ownership should engage in CSR reporting to improve financial performance.

A study by Wasara and Ganda (2019) that assesses the relationship between corporate social disclosure and return on investment within ten JSE-listed companies found that environmental disclosure is negatively related to return on investment, whereas social disclosure is positively associated with return on investment. The authors conclude that "increasing corporate reporting of social issues result in heightened financial performance through an increase in return on investment" (Wasara & Ganda, 2019, p,1).

As mentioned previously, Inoue and Lee (2011) examined the relationships between each of the five disintegrated components of CSR (community, diversity, employees, the natural environment and product) on short-term profitability and market evaluations of future profitability in the tourism industry. The authors find that corporate voluntary activities for the community by the airline industry significantly decreased short term profitability, but for the hotel and restaurant industries it increased both short-term and future profitability (Inoue & Lee, 2011). The study further notes a positive effect on future profitability with regards to corporate involvement in diversity issues (corporate activities for employees) for the hotel industry, but no effect for the airline or restaurant industries (Inoue & Lee, 2011).

Kang and Liu (2014), in a study conducted in Taiwan, find that engagement in CSR activities has a significant positive relationship on firm performance, measurable by ROA, ROE, EPS, PTI and GP. Studies highlight that, although CSR activities may result in additional costs, these activities can bring financial returns that exceed these costs (Vance, 1975; McGuire, Sundgren & Schneeweis, 1988). This is consistent with Shen and Chang (2009), who support the social impact hypothesis which claims positive association between CSR and financial performance and conclude that engaging in CSR is beneficial for firms and worth implementing. A causal relationship between CSP and FP among Canadian firms was observed by Makni, Francoeur and Bellavance (2009). They find a non-significant relationship between the aggregated CSP score and FP, whereas statistically significant results are observed between the environment and employee dimensions of CSP on market returns (Ibid.). The authors further identify a robust unidirectional and negative Granger causal relationship between the environmental dimension of CSP and FP measures (Ibid.). Hongming, et al. (2020) assess the relationship between sustainability reporting and FP among firms in Pakistan using subindices extracted from the GRI framework for sustainability reporting. Their study finds a significant positive impact of social and environmental indicators on firm performance, and a weak impact of health and safety indicators on firm performance (Ibid.). Other studies report similar results, confirming the positive effect of the individual indicators of sustainability on FP (Ahmed, Hussain, Rehman, Ullah & Khan, 2020; Hussain, Rigoni & Cavezzali, 2018). Similarly, Ortas, Gallego-Álvarez and Etxeberria (2015) highlight a positive relationship between the sustainability reporting index and FP.

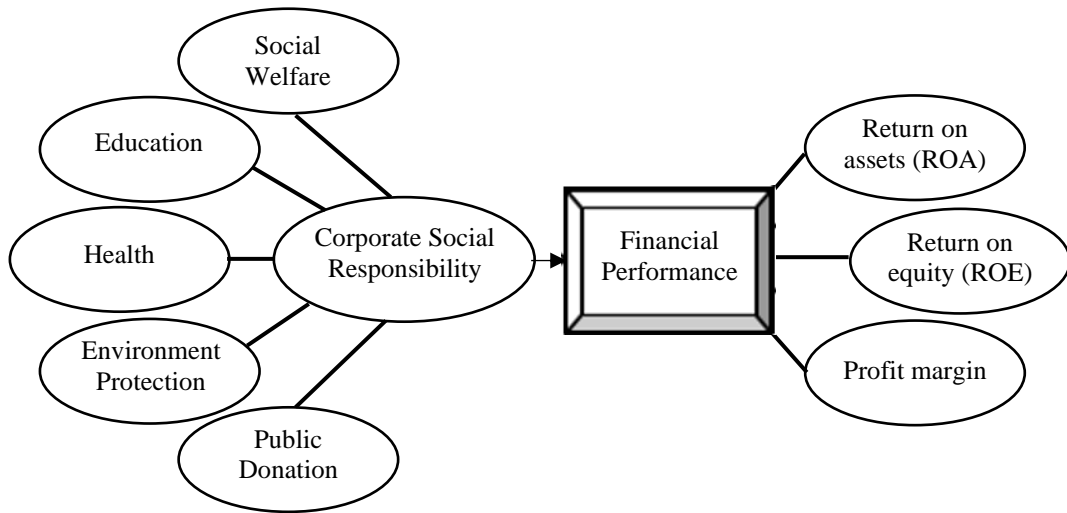
Hussain, Rigoni and Cavezzali (2018) assess the relationship between sustainability performance and financial performance in firms in the United States of America. The authors recommend that firms invest more in social and environmental activities, and include sustainability in the organisation's strategic planning to achieve performance objectives (Ibid.). The study concludes that firms which invest more in sustainability activities with outstanding visibility, perform better financially (Ibid.). In a Middle Eastern Nation, corporate sustainability disclosure and market valuation was assessed by Mohammadi, et al. (2018). The authors conclude that, "In relation to the market valuation, there was no statistically significant correlation between the overall sustainability disclosure index and share price for two different types of samples, all firms, and non-sensitive firms, while the influence of overall sustainability disclosure index was a significant positive on the share price of sensitive firms" (Ibid, p. 1505).

A study by González, Plaza and Olmeda (2020) finds that large companies are more transparent in terms of sustainability, which is not related to their financial behaviour but does affect credit ratings (Mohammadi, et al., 2018). Khattak, Ali and Burki (2020) note that information gaps amongst investors and managers are addressed through sustainability reporting, indicating that CSR reporting is a powerful communication channel in a company. Therefore, sustainability reporting benefits companies through risk reduction of investors' adverse selection and higher market valuations of corporations' shares (Khattak, Ali & Burki, 2020; Healy & Palepu, 2001; Reverte, 2016).

Khattak, Ali and Burki (2020) observe a significant association between sustainability reporting and stock prices for Iranian listed firms. This indicates that firms with a high extent of disclosure could have higher stock prices (Ibid.). However, Mohammadi, et al. (2018) find a non-significant correlation between overall sustainability disclosure index and share price. Soana (2011) finds a nonsignificant relationship between CSP and CFP in the Banking Sector in Italy, indicating that CSR investment does not lead to financial advantage in the banking sector.

Studies suggest different ways of measuring CSR, ranging from economic, environmental, social, health, education and cooperate governance variables (Johnson, Mans-Kemp & Erasmus, 2019; Sulaiman, Christensen & Hughes, 2004; Ashraf, Khan & Tariq, 2017; Alshehhi, Nobanee & Khare, 2018). However, the CSR components suggested by Ashraf, Khan and Tariq (2017), namely social welfare, education, health, environmental protection and public donation are more relevant to this study given the political history of South Africa. The same authors propose a graphical presentation of the relationship between CSR reporting and financial performance, which is adopted for the current study in Figure 2.7 (Ashraf, Khan & Tariq, 2017).

Figure 2.7: Framework for Relationship between Corporate Social Responsibility and Profitability



Source: Adopted from Ashraf, Khan and Tariq (2017).

CHAPTER 3: METHODOLOGY

3.1 Introduction

The preceding chapter reviewed literature relevant to this study. This chapter elaborates on the research approach and design and the research methodology used to address the research question of the study. In addition, data sources, empirical model used in this study including variables and measurements are discussed. This is followed by estimation approach, ethical consideration, and data analysis.

This descriptive study explores the relationship between corporate sustainability reporting and corporate financial performance in companies registered on the JSE in South Africa. The study draws lessons from previous studies, highlighting economic benefits associated with CSR amongst listed companies. It is important to ensure that the principle of validity is observed in research methods, else the study findings will be inaccurate.

3.2 Research Approach

The research follows a quantitative descriptive approach. According to Creswell and Creswell (2017), quantitative research is an approach for assessing objective theories as it examines the relationship among variables. Creswell and Creswell (2017) highlight that a quantitative approach assumes that theories are tested deductively, guards against bias, controls for other explanatory variables, and its findings can be generalised. Apuke (2017) highlights that the quantitative research approach deals with the collection and analysis of numerical data to describe, explain, predict or control phenomena of interest and involves the use of specific statistical numerical data analysis techniques. Grover (2015) adds that selecting an appropriate research approach enables the application of correct corresponding research methods that yield valid and reliable study results. Newman and Benz (1998) emphasise the importance of validity with regards to research methods, without, the study results will be inaccurate and non-beneficial.

Therefore, a quantitative research approach is used in this study to assess the relationship between sustainability reporting and firms' profitability. This research approach provides a reliable and valid research method which is important to address the research question of "What is the relationship between sustainability reporting and firms' profitability, measured by ROE, ROA and PM?".

3.3 Research Design

This study utilises annual cross-sectional data of 76 JSE-listed companies for the period 2012 to 2019; therefore, a cross-sectional survey design is used. The period was selected due to availability of complete data for the identified variables in the study, which could determine the relationship between CSR and a firm's financial performance. The key variables used in the panel data regression model to examine the relationship between CSR and firms' financial performance are ROE, ROA and PM (dependent variables). These are used as proxies for firm profitability. CSR reporting (independent variable) is measured as a dummy variable. The main source of information is Iress and companies' financial or integrated reports obtained from their websites. These sources are used to obtain historical secondary data for the companies for all variables in the research for the period of 2012 to 2019.

The period of 2012 to 2019 is selected with the assumption that the JSE will have completely institutionalised King I-IV principles in the JSE environment by this time. The JSE sustainability disclosure guidance includes all sustainable development concepts suggested in King IV (JSE, 2021c). The year 2019 is the final year for sourcing of secondary data due to the potential negative impact of COVID-19 on businesses worldwide, including in South Africa, from the year 2020.

An advantage of using secondary data for this research is that the financial factors and corporate sustainability reports are easily accessible. Consequently, the researcher did not have to spend needless time on data-gathering for the study, which reduced costs. Secondary financial data is often used in governments' and private companies' research; therefore, such data has been tested and used in different study settings. Extracting secondary data was more cost-effective than compiling primary data.

3.3.1 Data sources

The main historical secondary financial data source for this study is the Iress JSE trading platform, where listed companies report their financial indicators consisting of multiple indicators: general financial, cash flow, company financial growth and enterprise value. The secondary historical financial company data for required variables in this study are sources from

the 2012 to 2019. Revenue/sales data was sourced from the companies' yearly financial reports published on their websites for the same period. Corporate social sustainability data was sourced from companies' sustainability reports or financial integrated reports published on their websites. A company is considered to have reported on corporate social responsibility if it provides information in the yearly sustainability report or in the integrated report regarding the following elements: social welfare and/or public donation, health and safety, environment protection and education. If this information is not provided, the company is regarded as not having reported on corporate social responsibility. Sustainability or integrated report were also sourced for the 2012 to 2019 period.

3.3.2 Target population, sample data extraction and period

A target population is the entire group where the study sample is obtained that is observed by the research study and its outcomes. Therefore, the target population for this study is JSE-listed firms in each year from 2012 to 2019. A cross-sectional study using panel data was conducted of JSE registered companies. These companies include basic material, industrial and consumer good firms. A total of 76 JSE-listed companies are included in this study. These companies reported their complete financial data from 2012 to 2019 and have an online financial or integrated report available for each of the years. JSE-listed companies with incomplete financial information are excluded from the study.

The 2012 to 2019 period is selected to assist with identifying companies that have been consistently providing complete financial reports for the variables used in this study for at least eight consecutive years. The eight-year period suggests that the company is stable, and the reported information is a true reflection of the company's performance. This period is selected with the assumption that any JSE-listed company has completely institutionalised the JSE sustainability disclosure guidance if the company is aware of the benefits of corporate social responsibility reporting on profitability.

A data set was extracted from the Iress' selection of companies to include 76 JSE-listed companies from basic material, industrial and consumer industries. Convenience sampling was used to select companies for the study, as the researcher selected companies from different sectors with complete yearly financial data from 2012 to 2019. For each company, data was

extracted on each firm's profit margin, return on assets, return on equity, revenue and sector, debt to asset ratio, CSR, year and name of the company. The researcher accessed the data through the University of Cape Town. All yearly CSR data was gathered using sustainability reports or integrated reports of each firm from 2012 to 2019. All variables were taken from time $t = 2012$ to 2019 for all companies included in the study.

3.4 Empirical Model

The empirical research regression model used to investigate the relationship between CSR and firm profitability is specified in equations (1), (2), (3) and (4). Within these equations, csr = corporate social responsibility; $lrev$ = log revenue; $sect$ = sector, yr = year and doa = debt to asset ratio (leverage). The relationship between CSR and profitability is estimated in (1), the following regression model:

$$Profitability_{it} = \beta_0 + \beta_1 csr_{it} + \beta_2 lrev_{it} + \beta_3 sect_t + \beta_4 yr_t + \beta_5 doa_{it} + u_{it} \quad (1)$$

Where β_0 represents the constant of the regression equation and $\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are the respective coefficients for $csr, lrev, sect, yr$ and doa . $Profitability_{it}$ is the dependent variable for firm profitability ratios (with i representing firm and t representing year), measured by return on equity (ROE), return on assets (ROA), and profit margin (PM), and u is the error term (see Table 3.1 for variable descriptions). The three models estimated are:

$$roe_{it} = \beta_0 + \beta_1 csr_{it} + \beta_2 lrev_{it} + \beta_3 sect_t + \beta_4 yr_t + \beta_5 doa_{it} + u_{it} \quad (2)$$

$$roa_{it} = \beta_0 + \beta_1 csr_{it} + \beta_2 lrev_{it} + \beta_3 sect_t + \beta_4 yr_t + \beta_5 doa_{it} + u_{it} \quad (3)$$

$$pm_{it} = \beta_0 + \beta_1 csr_{it} + \beta_2 lrev_{it} + \beta_3 sect_t + \beta_4 yr_t + \beta_5 doa_{it} + u_{it} \quad (4)$$

3.5 Variables and Measurements

3.5.1 Dependent variable: corporate financial performance

To examine the impact of sustainability reporting (environment, social and governance) on firm's financial performance, previous studies used the key variables of ROA, ROE, PM and return on investment (ROI) (Whetman, 2017; Zahid, et al., 2020; Asuquo, Dada & Onyeogaziri, 2018). This study utilises the three proxies for financial performance indicators as dependent variables. These are ROE, ROA and PM reported from 2012 to 2019, and are described in more detail below.

Return on asset (ROA)

The financial return on total assets held by the companies. This profitability indicator assists in determining how the company generates earnings compared to its competitors. Alternatively, the ratio indicates whether a company uses its assets efficiently to generate a profit.

Return on equity (ROE)

Return on equity (ROE) is a financial ratio that shows how well the capital invested by shareholders is managed by the company. ROE is the financial return obtained by equity holders in the company.

Profit margin (PM)

The profit margin ratio compares profit to sales, and indicates how well the company is performing financially.

3.5.2 Independent variable: Corporate social responsibility

Theorists use different models to account for CSR's influence on CFP; with each model suggesting the effects of corporate social performance (Ibrahim & Bambale, 2016). Preston and O'Bannon (1997) distinguish between the direction of the relationship, namely positive, negative or neutral, and the sequence, i.e. whether one type of performance follows another or whether they are coactive. The authors further identify six possible hypothetical directional and causal relationships as managerial opportunism, harmony, social impact, available funding and

trade-off (Preston & O'Bannon, 1997). Stakeholder theory suggests that CSR is positively associated with CFP. In addition, theorists propose that managers generally increase the capability of a firm's adaptation by addressing multiple stakeholders' claims (Ibrahim & Bambale, 2016). Ibrahim and Bambale (2016) conclude that theoretically companies which report on corporate social responsibility are expected to experience better financial performance. Therefore, CSR reporting was measured as a dummy variable where a firm was assigned a value of one if it reported on sustainability for each year, and zero if not.

Control Variables: The focus of this study is the relationship between CSR reporting on firms' financial performance. However, there are other internal corporate and financial factors that influence a firm's financial performance and are important control variables for this analysis. These control variables, identified in prior research, include firm size, firm ownership and capital structure, sale growth, leverage and sector/industry (Soytas, Denizel & Usar, 2019; Whetman, 2017; Wasara & Ganda, 2019; Zahid, et al., 2020). These company characteristics can affect corporate sustainability disclosure and firm profitability.

The control variables to be included in this study are firm size, sector/industry and leverage (Whetman, 2017; Wasara & Ganda, 2019; Zahid, et al., 2020; van Beurden & Gössling, 2008; Soytaş, Denizel & Usar, 2019). These are discussed below.

Firm size: Firm size is considered an important determinant of firm profitability and is included as a performance measure in many studies (Laskar, Chakraborty & Maji, 2017; Soytaş, Denizel & Usar, 2019; Whetman, 2017). A study by Yadav, Pahi and Gangakhedkar (2022) suggests that an increase in company size is theoretically expected to improve that company's financial performance.

An increase in company size reduces average fixed and variable costs, therefore a positive relationship is expected. Economic theory posits that under competition, increased money capital will increase total profits of the firm (Hall & Weiss, 1967). This study uses revenue as a proxy control variable for firm size and the 'log of revenue' is considered for the analysis.

Leverage (debt to asset): The leverage of a firm is defined as the amount of debt used to finance the firm's assets and growth. Leverage is expected to have a contradictory relationship with financial performance. Theoretically, an increase in financing costs results in significant reduction on return on equity. The relationship is contradictory because leverage amplifies

gains and losses. However, a significant relationship between firm leverage and firm financial performance is observed by Ramli and Nartea (2017) in the secondary and tertiary sectors. Therefore, the current study uses debt-to-asset ratio as a proxy to measure leverage.

Sector/industry: A sector or industry is a group of companies operating in the same segment of the economy or which have the same business type. The expected results are both positive direct and indirect effects, as well as negative direct and indirect effects for different sectors (Ramli & Nartea, 2017). This means some sectors will exhibit a positive relationship, and others a negative relationship, with financial performance. This study utilises companies from three different sectors, depicted in Table 3.1.

Table 3.1: Variable Description

Measure	Variable	Symbol	Source	Description	Year
Dependent Variable					
Profitability	Profit Margin (%)	Pm	Integrated Real-time Equity System (Iress)	Net Income/Revenue	2012 to 2019
	Return on Assets (%)	Roa	Integrated Real-time Equity System (Iress)	Net Income/Total Assets	2012 to 2019
	Return on Equity (%)	Roe	Integrated Real-time Equity System (Iress)	Net Income/Shareholder Equity	2012 to 2019
Independent Variable					
Corporate Social Responsibility Reporting (Independent)	Sustainability Reporting (Dummy)	Csr	Global Reporting Initiative's Sustainability Disclosure Database or the respective company's website	Don't Report = 0 & Report = 1	2012 to 2019
Control Variable					
Firm Size (Control)	Revenue (in billions)	Rev	Integrated Real-time Equity System (Iress)	Income received during a specific period	2012 to 2019
	Log (Revenue)	Lrev	Integrated Real-time Equity System (Iress)	Log (revenue)	2012 to 2019
Sector/Industry	Companies that share a Business Type	Sect	Integrated Real-time Equity System (Iress)	Industrials = 1 Basic Materials /Mining = 2 & Consumer goods = 3	2012 to 2019
Leverage	Total Debt/Assets (Ratio)	Doa	Integrated Real-time Equity System (Iress)	Firm's total debt divided by its total assets	2012 to 2019

3.6 Estimation Approach

3.6.1 Instrumental variables analysis technique

A variable that correlates with the error term during regression analysis is known as an endogenous variable (Wooldridge, 2010). When an independent variable in a multiple regression model is correlated with the error term there is an endogeneity problem and this may cause a reverse causality problem (Zahid et al, 2020; Zahid, Martins, Rahman, Mata, Shah & Mata, 2021). If there is an explanatory variable in a multiple regression model that is correlated with the error term, the coefficient estimates will be biased due to an endogeneity problem caused by a measurement error, reverse causality or omitted variables in the regression model (Wooldridge, 2010). The problem of endogeneity caused by reverse causality can be addressed by the instrumental variable (IVs) technique (Wooldridge, 2010; Zahid, Martins, Rahman, Mata, Shah & Mata, 2021; Orlitzky, Siegel & Waldman, 2011; Sulaiman, Christensen & Hughes, 2004; Soytaş, Denizel & Usar, 2019). In general terms, an instrument is a variable that predicts exposure and has no independent association with the outcome.

Ullah, Zaefarian and Ullah (2021) define IVs as variables that do not represent explanatory variables in the regression model, but are correlated with the endogenous explanatory variable(s). Zahid, et al. (2021) highlight that the IV technique is used in economics to handle reverse causality when there is an unmeasured confounding variable. The authors further explain that when the endogenous variable correlates with the error or there is a reverse causality issue, ordinary linear regression generally produces biased and inconsistent results (Zahid, Martins, Rahman, Mata, Shah & Mata, 2021). Some studies conclude that inconclusive results generally occur when there is a problem of reverse causality known as endogeneity and several studies ignore the endogeneity problem (Ullah, Zaefarian & Ullah, 2021; Soytaş, Denizel & Usar, 2019; Gretz & Malshe, 2019; Wooldridge, 2010). Some studies highlight that endogeneity is caused when researchers ignore non-financial performance measures such as firm size, customer satisfaction, a firm's operational cash flow or sustainability training (Wooldridge, 2010; Zahid, Martins, Rahman, Mata, Shah & Mata, 2021). In addition, several authors recommend that any empirical study investigating the relationship between CSR and FP must address endogeneity (Zahid, et al., 2020; Ullah, Zaefarian & Ullah, 2021; Gretz & Malshe, 2019; Wooldridge, 2010; Garcia-Castro, Ariño & Canela, 2010).

Researchers can establish false correlations between explanatory variables and the dependent variable if endogeneity is not properly controlled and this can result in misleading recommendations (Ullah, Zaefarian & Ullah, 2021). Different IVs can be used to study the relationship between CSR and FP, such as industry type, industry mean score for CSR, leadership commitment, vision, mission, report type, corporate sustainability (CS) organisation structure, CS goals, CS strategy and CS training, lagged values of CSR, equity ownership, executive compensation, corporate governance practices, stakeholder groups, legitimacy and power, firms' age or firms' size (Akben-Selcuk, 2019; McWilliams & Siegel, 2000; Cho, Chung & Young, 2019; Zahid, et al., 2020; Gretz & Malshe, 2019; Garcia-Castro, Ariño & Canela, 2010; Alshehhi, Nobanee & Khare, 2018).

The regression-based estimation technique, also known as Two-Stage least squares (2SLS), separates observed variation into exogenous and endogenous components. To address the problem of endogeneity, Zahid, et al. (2021) propose the following econometric models applied in ordinary least squares (OLS) and 2SLS estimations.

$$\gamma_{it} = \alpha_1 + \beta_1 I_{it} + \gamma_1 X_{it} + \delta t + \eta_i + \varepsilon_{1it} \quad (1)$$

$$\beta_1 I_{it} = \alpha_2 + \theta Z_{it} + \gamma_2 X_{it} + \delta t + \eta_i + \varepsilon_{2it} \quad (2)$$

where: γ = dependent variable(s); $it = i$ represents firm and t represents year.

Other representations are as follows: α_1, α_2 = Constants of 1st and 2nd stage regression respectively; $\beta_1 I_{it}$ = Endogenous Independent Variable(s); $\gamma_1 X_{it}, \gamma_2 X_{it}$ = Control Variables in 1st and 2nd stage regression respectively; δt = Year Dummies; η_i = Industry Dummies; θZ_{it} = Instrumental Variable; $\varepsilon_{1it}, \varepsilon_{2it}$ = Error Terms of 1st and 2nd stage regression respectively (Zahid, Martins, Rahman, Mata, Shah & Mata, 2021, p.8). These techniques decompose the variations in the endogenous independent variable that are uncorrelated with the error term in the model and disregarding the variations that bias the estimation (Zaefarian, et al., 2017; Murray, 2006).

Despite inconclusive results, some studies argue that CSR expenditure may indirectly improve financial performance. This is alluded to by stakeholder theory, which suggests that engagement in a good relationship between companies and stakeholders can have indirect financial

performance benefits (Orlitzky, Siegel & Waldman, 2011). Resource-based theory suggests that investment in CSR can assist firms to develop a corporate culture that will result in external benefit through positive corporate reputation which culminates in a positive relationship between CSR and financial performance (Akben-Selcuk, 2019). Most prior literature investigating the relationship between CSR and FP ignores the potential problem of endogeneity during the parameter estimation process (Soytas, Denizel & Usar, 2019).

The known causes of endogeneity, namely omitted variable(s) and reverse causality, are possible reasons for the inconsistent relationship between CSR and FP (Asuquo, Temitayo & Raphael, 2018; Nnamani, Onyekwelu & Ugwu, 2017; Endrikat, Guenther & Hoppe, 2014). This inconsistent relationship can result in difficulty in generalising findings and biased coefficient estimates (Kim, Baum, Ganz, Subramanian & Kawachi, 2011). It is therefore important to identify any possible confounding variables and to test for endogeneity when assessing the relationship between CSR and FP. The instrumental variable technique is one analysis method which can be used to account for any possible temporal relationship between other variables and sustainable reporting (Zahid, et al., 2020; Garcia-Castro, Ariño & Canela, 2010). The present study uses a 2SLS (an extension of OLS) estimator for the models affected by endogeneity (Bollen, 1996).

The current study, therefore, investigates the relationship between CSR and FP considering endogeneity bias using the IVs technique or the 2SLS estimator to panel data (Wooldridge, 2010). This data is extracted from Iress, sustainability reports and the annual financial reports or integrated reports of the 76 JSE registered South African companies with complete financial data from 2012 to 2019. This IVs technique is utilised to validate the results of OLS regression provided in Section 3.5. Therefore, the study uses both the OLS and 2SLS panel data regression estimators to control for endogeneity (Bollen, 1996). Aligned with previous literature, the instruments used for this study is ‘firm size’, ‘sector/industry’, and ‘leverage’ (Zahid, et al., 2020; Haffar & Searcy, 2017).

3.7 Ethical Consideration

The proposal for this study was submitted to the Ethics Committee of the University of Cape Town for ethical considerations. No personal information was collected, therefore there was no need for consent form consideration. The extracted company data was stored in a password-protected computer to which only the researcher and supervisor had access.

3.8 Data Analysis

Data was analysed using descriptive statistics followed by random and fixed effects panel data regression models. The instrumental variable approach, using both random and fixed effects panel data regression, was conducted to confirm the results and log revenue was considered as the instrument. Before conducting regression analysis, the data was assessed for linear regression assumptions of normality, multicollinearity, autocorrelation and heteroscedasticity. A Jarque-Bera test was conducted to assess normality of the data. A Pearson correlation analysis was conducted to assess the possible multicollinearity. The Breusch-Pagan/Cook-Weisberg test was used to establish any heteroscedasticity and the Wooldridge test was conducted to check possible autocorrelation. The Hausman model specification was used to assist with model identification, although both random and fixed effects models were ultimately utilised. The study results are presented in table format and graphical representation and are discussed in the next chapter

CHAPTER 4: DISCUSSION OF STUDY FINDINGS

4.1 Introduction

This chapter presents and discusses the study findings. The chapter commences with descriptive statistics and correlation results which provide a broad view of the primary variables used in the current study. The second part presents the results of inferential statistical analysis, which was conducted using panel data regression through random and fixed effects models. The final section briefly discusses the study results in relation to the findings of other studies.

4.2 Descriptive Statistics

This section describes the variables used in the current study and determines the correlation between these variables. The frequency distribution of the major sectors of the selected companies and the corporate social responsibility reporting is presented in Table 4.1. Nearly 47% of the companies are from the industrial sector followed by basic materials/mining at approximately 37%. Almost 80% of the companies reported on CSR.

Table 4.1: The Distribution of Companies by Major Sector and Corporate Social Responsibility Reporting

Variable	Category	Frequency	Percent (%) n=76
Companies per major sector			
	Industrials	37	46.68
	Basic materials/mining	28	36.84
	Consumer goods	11	14.47
Companies reporting on CSR			
	Not reported	15	19.74
	Reported	61	80.26

Source: Researcher's own (2022).

Table 4.2 depicts the distribution of companies reporting on CSR across the major sectors. Of those companies who reported on CSR, nearly 46% belong to the industrial sector, 38% to basic material/mining, and only 15% to consumer goods. Table 4.3 shows that each of the companies included in this study was generating 6.8% returns on average per year from its assets with a maximum of 90.2% returns from assets per year. Furthermore, each company is making 11.0% returns on average per year from its equity (asset -liabilities). This, therefore, means that the average total assets and the average total equity of the company are positively contributing to the total returns (profit) made by the company. Each company is further making Profit margin (the difference between the total costs to run a business and the total revenue it brings in) of 1.3% on average per year, indicating that the companies are operating at a profit-making level. In addition, each company's debt to asset ratio (total debt divided by total assets) was 0.4 on average per year, this shows that companies are operating favourable since total assets can pay total debt.

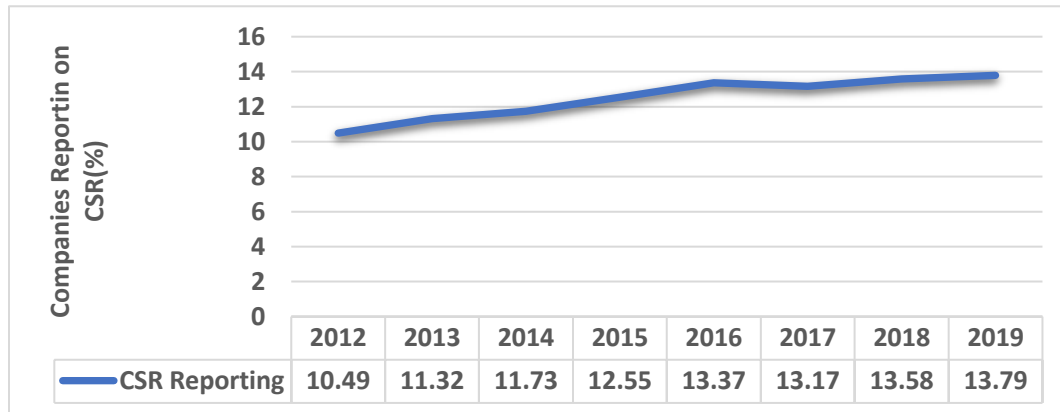
Table 4.2: Corporate Social Responsibility Reporting by Sector

Sector (n=76)	Not Reported n (%)	Reported n (%)	Total
Industrials	9 (58.2)	28 (46.3)	37
Basic materials/mining	5 (31.15)	23 (38.27)	28
Consumer goods	1 (10.66)	10 (15.43)	11
Total	15 (100.0)	61 (100.0)	76

Source: Researcher's own (2022).

Figure 4.1 depicts the trend of companies that reported on CSR over the years under study. There is a steady increase in the proportion of companies that report on CSR from 2012 to 2016. There is a slight decrease between 2016 and 2017, and thereafter an upward trend is observed.

Figure 4.1: Estimated Proportions of Companies Reporting on Corporate Social Responsibility (2012-2019)



Source: Researcher's own (2022).

Table 4.3 presents the descriptive statistics for all numeric variables used in this study. A total of 608 observations in the panel data were used for this analysis. The minimum value for log (revenue) is 3.699 with a maximum value of 12.5841 and 50% of the log revenue values are between 9.2922 and 10.5065. The average values for ROA, ROE, profit margin, debt to equity and debt to asset are 6.8291 (Std Dev. = 36.4989), 11.0103 (Std Dev. = 55.8184), 1.3837 (Std Dev. = 89.6381), 1.0813 (Std Dev. = 2.3348) and 0.4606 (Std Dev. = 0.2905). Fifty percent (50%) of observations have values between 2.8261 and 13.4208 for ROA, between 2.0366 and 17.0770 for ROE and between 17.0770 and 9.5021 for profit margin. The values of debt to equity range between -6.4766 and 47.8556 and those of debt to asset range between 0.0004 and 2.9086.

Table 4.3: Estimated Descriptive Statistics for the Numeric Variables used in this Study

Variable	ROA	ROE	Profit margin	log (Revenue)	Debt to asset
Mean	6.8291	11.0103	1.3837	9.8974	0.4606
Min.	-805.4348	-248.0406	-2071.9210	3.6990	0.0004
Std Dev.	36.4989	55.8184	89.6381	1.0101	0.2905
1st Q	2.8261	2.0366	0.9669	9.2922	0.2807
Median	8.6883	10.9575	4.2359	9.9605	0.4213
3rd Q	13.4208	17.0770	9.5021	10.5065	0.6057

Max.	90.2126	1115.0200	524.4936	12.5841	2.9086
N	608	608	608	608	608

Source: Researcher's own (2022).

4.3 Diagnostic Tests and Correlation Analysis

A series of diagnostic tests were conducted to determine whether the data violates the assumptions of regression analysis. The data was tested for normality using the Jarque-Bera test. The possible presence of multicollinearity was tested using correlation analysis, whereas serial autocorrelation was tested using the Wooldridge test. The Breusch-Pagan/Cook-Weisberg test was conducted to establish any possible heteroskedastic tendencies and the Hausman specification test was done to assist in the determination of the relevant model. All results of the diagnostic tests conducted in this study are presented in Table 4.4 below. The significance level considered for all the diagnostic tests was 5%. The results are presented for all the three models for each of the three dependent variables (outcomes, namely, ROA, ROE and PM) used in this study.

4.3.1 Non-Autocorrelation

Non-autocorrelation was assessed using the Wooldridge test. This non-autocorrelation assumption suggests the error terms are uncorrelated. The Wooldridge tests are significant for the ROA and ROE models (both p- values are less than 5%), therefore the null hypothesis that there is no serial autocorrelation in the model specifications for the two models is rejected. However, the null hypothesis is not rejected for the profit margin model, with a p-value greater than 5% (Table 4.4).

4.3.2 Normality test (Goodness-of-fit test)

To determine whether the sample data has skewness and kurtosis that match a normal distribution, the Jarque-Bera goodness-of-fit test was conducted. The test statistic of the Jarque-Bera test for each of the three models is far from zero, therefore the null hypothesis that the data are from a

normal distribution is rejected, and this indicates that the sample data does not follow a normal distribution (Table 4.4).

4.3.3 Homoscedasticity

The Breusch-Pagan/Cook-Weisberg test was conducted to examine the presence of homoscedasticity. This characteristic (homoscedasticity) is considered present when residuals show a variability that does not change regardless of predicted values. For all three models (return on asset, return on equity and profit margin), the null hypothesis of constant variance was rejected (all three p-values are less than 5%) (Table 4.4).

4.3.4 Model Specification

The Hausman test was performed to determine whether to use a fixed or random effects model. The null hypothesis that the random effects model is the better option was rejected for the ROA and ROE models (both p-values were less than 5%); however, the null hypothesis was not rejected for the profit margin model (p-value was greater than 5%). Consequently, both the fixed and random effects models were considered for this study.

Table 4.4: Diagnostic Tests Conducted

Type to Test	Test Name	Model	F	Prob>F
Non-Autocorrelation	Wooldridge			
		Return on Asset	6.206	0.0149
		Return on Equity	16.439	0.0001
		Profit Margin	0.091	0.7633
Normality	Jarque-Bera		χ^2	Prob> χ^2
		Return on Asset	1.3e+06	0.0000
		Return on Equity	1.2e+06	0.0000
		Profit Margin	5.4e+06	0.0000
Homoscedasticity	Breusch-Pagan			
		Return on Asset	40.99	0.0000

		Return on Equity	10.87	0.0005
		Profit Margin	10.30	0.0007
Model specification	Hausman			
		Return on Asset	126.20	0.0000
		Return on Equity	96.52	0.0000
		Profit Margin	5.10	0.2776

Source: Researcher's own (2022).

4.3.5 Correlation results

Table 4.5 presents the correlation results between the variables used in the study. There was a weak and negligible significant correlation between these variables since all the correlation coefficients were less than 0.3 (Akoglu, 2018; Schober, Boer & Schwarte, 2018). In contrast, based on the IV random effects regression models showed that a company that reported on CSR experiences a decrease of 10.43% in ROE compared with a company that does not report on CSR. The presence of multicollinearity occurs when two or more predictor variables are highly correlated, and this reduces the validity of the model results. To determine the presence of multicollinearity, correlation analysis was conducted and results are shown in Table 4.5 below. There was a very weak and statistically significant correlation between CSR index with log (revenue) (0.1175, $p=0.0037$). The correlation analysis results show a weak and statistically nonsignificant correlation between CSR index and ROA (-0.0251, $p=0.5372$), CSR index with ROE (-0.0672, $p=0.0979$) and CSR index and profit margin (-0.0389, $p=0.3381$). Furthermore, the correlation coefficients between the control variables are less than 0.3 which implies that the data set does not contain any multicollinearity problems.

Table 4.5: Correlation Matrix

	1	2	3	4	5	6	7
1. Sector Index	1.0000						
2. CSR index	0.0931	1.0000					
<i>p-value</i>	<i>0.0217</i>						
3. Log (revenue)	0.2548	0.1175	1.0000				

<i>p-value</i>	<i>0.0000</i>	<i>0.0037</i>					
4. ROA	0.0037	-0.0251	0.1808	1.0000			
<i>p-value</i>	<i>0.9275</i>	<i>0.5372</i>	<i>0.0000</i>				
5. ROE	-0.0231	-0.0672	-0.0599	0.1705	1.0000		
<i>p-value</i>	<i>0.5699</i>	<i>0.0979</i>	<i>0.1403</i>	<i>0.0000</i>			
6. Profit Margin	-0.0102	-0.0389	0.0994	0.0878	0.1490	1.0000	
<i>p-value</i>	<i>0.8019</i>	<i>0.3381</i>	<i>0.0142</i>	<i>0.0305</i>	<i>0.0002</i>		
7. Debt to asset	-0.1488	-0.0846	0.0906	-0.2576	0.1157	0.0676	1.0000
<i>p-value</i>	<i>0.0002</i>	<i>0.0370</i>	<i>0.0255</i>	<i>0.0000</i>	<i>0.0043</i>	<i>0.0960</i>	

Note: CSR = corporate social responsibility; ROA= return on asset; ROE = return on equity.

Source: Researcher's own (2022).

4.4 Regression Results

This section presents the results of both random and fixed effects panel data regression analysis. An IV approach was used to address the problem of endogeneity and log (revenue) variable was used as the instrument representing firm size. The section concludes with a discussion of results.

4.4.1 Panel Data Random and Fixed Effects Regression analysis

Table 4.6 presents the results of the panel data random and fixed regression models that were estimated in this study. Three panel data regression models were estimated for each of the dependent variables, namely ROA, ROE and PM. The final model for each dependent variable was estimated using both the random and fixed effects panel data analysis techniques to investigate the relationships between CSR and ROA, while adjusting for log revenue (firm size), debt to asset, sector and year. The model diagnostics indicate that the independent variables collectively provide greater explanation for ROA (36.77% and 37.77% for random effects model (REM) and fixed effects model (FEM) respectively), whereas less than 5% of the variation is explained in ROE and PM models.

As depicted in Table 4.6, each of the three random effects models show a negative relationship between CSR index, with each of the outcome variables (ROA, ROE and PM) adjusting for the

other variables in the model with significance only observed for ROA at a 10% level. This shows that a company that reported on CSR experienced a significant decrease of approximately 7.4% in ROA compared to a company that did not report on CSR. The fixed effects models also show a negative relationship between CSR index, and ROA and PM, and a positive relationship between CSR index and ROE. All three relationships were not statistically significant. These negative relationships between CSR reporting and each of the three dependent financial performance variables are consistent with Nguyen, Nguyen and Nguyen (2022), where they investigated the impact of CSR on the FP of Vietnamese listed companies. Their study found that CSR disclosure had a negative impact on firm performance (Ibid.). Thus, the null hypothesis that a negative relationship between sustainability reporting and firm's profitability was expected. However, these findings contradict the findings of Akben-Selcuk (2019), where a positive relationship between CSR engagement and firms' financial performance exists. The positive relationship between engagement in CSR activities and firm performance is also reported by Kang and Liu (2014) who found a significant positive relationship using the measures of ROA and ROE. This supports the stakeholder theory suggested by Muslichah (2020), which encourages long-term sustainability of an investment and the integration of economic-financial parameters reporting. The negative relationship observed regarding ROA and PM could be due to endogeneity and this was addressed using the IV variable approach, as discussed in several studies (Ullah, Zaefarian & Ullah, 2021; Al-Tuwaijria, Christensen & Hughes II, 2004; Zaefarian, et al., 2017; Zahid, et al., 2020; Soytaş, Denizel & Usar, 2019).

Table 4.6: Random and Fixed Effects Panel Data Regression

	RANDOM EFFECTS			FIXED EFFECTS		
	ROA	ROE	PM	ROA	ROE	PM
	<i>Coef.</i>	<i>Coef.</i>	<i>Coef.</i>	<i>Coef.</i>	<i>Coef.</i>	<i>Coef.</i>
Constant	-49.6356*** (18.4070)	44.6048 (30.2513)	-90.6091** (44.0666)	-116.9633*** (34.0883)	2.6132 (61.7508)	-272.0682** (104.5906)
CSR Index	-7.4273* (4.2102)	-2.4468 (6.9369)	-10.3048 (10.6122)	-5.00589 (5.2332)	6.3069 (9.4799)	-7.9395 (16.0567)
Log (Revenue)	10.8453*** (1.9153)	-2.3366 (3.1477)	11.1141** (4.5754)	18.6100*** (3.5021)	2.6118 (6.3441)	30.0260*** (10.7453)

Debt to Asset	-64.5801*** (5.6926)	9.5518 (4.7564)	10.1847 (14.4315)	-115.1297*** (6.7877)	-19.3497 (12.2958)	-15.3129 (20.8261)
Sector Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Hausman χ^2	156.98	10.19	14.48	31.68	1.160	1.51
Prob >χ^2	0.000	0.5130	0.2075	0.0000	0.3181	0.1327
R-Squared	0.3687	0.0100	0.0201	0.37777	0.0217	0.0281
Companies	76	76	76	76	76	76
Observations	608	608	608	608	608	608

Note: CSR = corporate social responsibility; ROA= return on asset; ROE = return on equity. ***, ** & * denote significance at 1%, 5% and 10% respectively.

Source: Researcher's own (2022),

4.4.2 Panel Data Random and Fixed Effects Regression: Instrumental variable Approach

To assess the possible presence of endogeneity and to confirm the negative relationship presented in Table 4.6 above, IV panel data analysis techniques were conducted, with results presented in Table 4.7. The control variable sector, firm size (represented by revenue) and debt-to-asset were included in the model. Firm size level heterogeneity in financial returns is a possible cause of endogeneity (Soytas, Denizel & Usar, 2019). The log (revenue) variable is used as an instrument representing the firm size.

Results in Table 4.7 show that two of the IV random effects models have a positive relationship between CSR index, with each of the outcome variables (ROA and PM) adjusting for the other variables in the model. The positive relationship between CSR index and ROA is statistically significant at 10%. Debt to asset shows a statistically significant negative relationship with ROA at 5% and a statistically significant positive relationship with PM at 10% when considering random effects models.

Using an IV approach and considering firm size as the instrument, the fixed effects model results further indicate that a company which reported on CSR experienced an increase in all three financial performance indicators (ROA, ROE, and PM) compared to a company that did not report on CSR. These increases also suggest inherent endogeneity due to the heterogeneity among the companies included in this study (Soytas, Denizel & Usar, 2019). Furthermore, the increases

support the positive relationship theory proposed by McGuire, Sundgren & Schneeweis (1988) which suggests a positive relationship could be due to improved employee and customer perspectives as an outcome of socially responsible activities.

A consistent and significant positive relationship was confirmed by Soytaş, Denizel and Usar (2019) who addressed the potential endogeneity problem in the relationship between CSP and CFP, and firm level heterogeneity in financial returns was identified as possible causes of endogeneity. The authors found that when they separated publications that controlled for endogeneity, the ratio of publications with positive relationship between corporate sustainability performance and corporate financial performance was 85.71% (Ibid.). It is therefore important to correct for potential endogeneity in the relationship between financial performance and CSR reporting using an IV approach. Soytaş, Denizel and Usar (2019) thus hypothesise that a positive and significant relationship is expected between sustainability reporting and a firm's profitability.

Debt to asset had a negative relationship with all the three financial performance indicators (ROA, ROE and PM) for instrumental variable fixed effects models. A statistically significant negative relationship is observed between debt to asset and ROA at 1% for the IV fixed effects model. A very small amount of variation is explained for each of the three dependent variables by each of the three models.

In contrast, the IV random effects regression models for this study show that a company that reports on CSR experiences a decrease in ROE compared with a company that does not report on CSR. The consistent negative relationship between CSR and ROE with and without controlling for endogeneity is consistent with other studies, where a negative relationship between CSR and firm financial performance is observed (Rehman, et al., 2020; Nguyen, Nguyen & Nguyen, 2022; Jan, Karn, Li & Liu, 2021). This confirms the null hypothesis that a negative relationship between sustainability reporting and firm's profitability is expected.

The negative and positive relationships between CSR and ROA and PM before and after controlling for possible endogeneity are consistent with Alshehhi, Nobanee and Khare (2018). In their study they examine 132 papers, finding that 78% of the publications report a positive relationship between corporate sustainability and financial performance (Alshehhi, Nobanee & Khare, 2018). The same authors find divergent views on the relationship between corporate

sustainability and financial performance due to variations in measurement of variables and research methodology (Ibid.).

This implies that the change of the negative effect of CSR on ROA and PM, to a positive relationship for both random and fixed effects models when using the IV approach could be attributed to reverse causality, and measurement error, which are the known causes of endogeneity. This inconsistent relationship between corporate social disclosure and firm financial performance is also discussed by Zahid, et al. (2020) who investigated the relationship using the 2SLS estimator to address the problem of endogeneity. Zahid, et al. (2020) find a significant positive relationship between CSD and FFP which aligns with this study’s findings post using the IV approach for both fixed and random effects models.

The significant positive relationship after controlling for endogeneity is further confirmed by the findings of Ashraf, Khan and Tariq (2017), which show a positive and significant impact of CSR on the financial performance of banks in Asian countries. Several other studies confirm a positive relationship considering endogeneity (Akben-Selcuk, 2019; Cho, Chung & Young, 2019; Platonova, et al., 2018; Zahid, et al., 2020; Rehman, et al., 2020). Hence, the null hypothesis that corporate social responsibility does not determine Financial Performance is confirmed

Considering the above observations, the final chapter of this study provides key conclusions from the study and makes recommendations on JSE-listed companies regarding CSR reporting to improve financial performance. The limitations of this study are also outlined.

Table 4.7: Instrumental Variable Random and Fixed Effects

	RANDOM EFFECTS			FIXED EFFECTS		
	ROA	ROE	PM	ROA	ROE	PM
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Constant Value	-124.61 (90.3728)	36.1542 (62.0938)	-160.559 (103.0097)	-178.26 (146.976)	-5.98963 (84.66534)	-370.967 (265.1653)
CSR Reported	273.7270* (143.2474)	-10.4320 (101.6486)	252.6193 (157.6856)	362.5471 (222.7412)	57.89154 (128.3098)	585.0828 (401.8564)
Debt to Asset	-46.4244**	-5.94573	43.57633*	-124.934***	-20.7257	-31.1308

	(18.3979)	(10.6130)	(25.1184)	(23.06685)	(13.28763)	(41.61584)
Sector Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Test	19.07	9.58	6.51	0.57	2.54	0.51
Prob	0.0394	0.4738	0.7704	0.9985	0.000	0.9998
R-Squared	0.0001	0.0137	0.0000	-	0.0518	-
Companies	76	76	76	76	76	76
Observations	608	608	608	608	608	608

Note: CSR = corporate social responsibility; ROA= return on asset; ROE = return on equity. *Std. error in brackets.* ***, ** & * denote significance at 1%, 5% and 10% respectively.

Source: Researcher's own (2022).

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the key findings obtained from this study. Conclusions and recommendations are also discussed, together with recommended future research and limitations of the study.

5.2 Conclusion

This study examined the relationship between CSR reporting and financial performance (ROA, ROE and PM) of JSE-listed companies in South Africa covering the 2012 to 2019 period. Based on a sample of JSE-listed firms, this relationship between CSR reporting and financial performance was observed considering stakeholder, legitimacy and signalling theories.

The findings indicate that the overall level of CSR reporting for the current study sample is 80.26%, which is higher than the 69% social performance disclosure found by Sampong, et al. (2021) who re-investigated the association between voluntary SPD and long-term profitability among South African JSE-listed firms during the 2010 to 2015 period. Compared to Sampong, et al. (2021), whose study shows the disclose average of JSE-listed companies in South Africa at around 61% of CSR in annual reports, the present study shows an increase in social responsibility reporting up to 2019.

The findings of the present study reveal a significant ($p=0.078$) negative relationship between CSR reporting and ROA amongst the JSE-listed companies in South Africa before controlling for endogeneity. CSR reporting has a non-significant negative relationship with PM and ROE for the same companies included in this study when utilising random effects models.

The negative significant results are in line with the alternative hypothesis that corporate social responsibility does determine Financial Performance. Negative findings are compatible with Vance (1975), who argues that CSR reporting can result in added costs and decreased profit, which can place a firm that has a higher degree of social responsibility at an economic disadvantage

compared to firms with less social responsibility. The CSR reporting showed a non-significant positive relationship with ROE when using the fixed effects models.

After controlling for endogeneity and effect magnitude the research results for the relationship between CSR reporting and ROA and PM changed direction, while the direction remained the same for ROE although effect magnitude increased. The research's positive relationship results show that a company that reports on CSR experienced an increase in the financial performance indicators used in this study. Similarly, after controlling for endogeneity, CSR reporting showed a strong significant positive relationship with ROA ($p=0.056$), while CSR reporting had a close to significant positive relationship with PM ($p=0.109$). These positive relationship results support the first hypothesis of this study, as well as stakeholder and legitimacy theory. These theories encourage companies to consider the interests of all parties directly or indirectly connected to the business. This includes creating sustainable value over time, and legitimacy theory suggests that a company must voluntarily report on social and environmental activities as this action is expected by the communities in which they operate.

The positive relationship between CSR and ROA is in line with signalling theory, which emphasises that various parties associated with the company must receive signals to take specific actions. This is a positive signal indicating that companies engaging in CSR have better prospects compared to other companies and this hint can support shareholder decisions and could result in increased ownership of the shares (Muslichah, 2020). Finally, if CSR reporting is in line with the expectations of stakeholders this indicates a positive signal, meaning that the company has good future prospects.

These significant and positive CSR reporting results on ROA and PM indicate that JSE-listed companies must seriously consider CSR reporting, keeping in mind the stakeholder theory framework and shared Value Theory. In conclusion, this study shows a significant positive relationship between CSR reporting and ROA, as well as with PM when controlling for endogeneity using random effects models. The study further shows a non-significant positive relationship on ROE using the fixed effects model.

5.3 Recommendations

Companies are noted as prioritising disclosing financial over non-financial information. The annual reports provided by different companies are not standardised for reporting CSR indicators: some companies produce a separate report on sustainability, while others report CSR indicators in the integrated report with required CSR information scattered throughout the report. This creates difficulty for potential customers when accessing the information. The corporate and economic environment of South Africa has introduced a corporate governance code of practice (the King Reports (I-IV)) towards sustainability reporting. In addition, the JSE Sustainability and Climate Disclosure Guidance (2021c) provides standards for CSR reporting. JSE-listed companies are expected to be socially, ethically and morally responsible, and to publish CSR information to justify their moral and socially positive nature. In order to regulate CSR reporting, JSE standards of the King I-IV require voluntary CSR reporting compliance. Likewise, the GRI reporting guidelines for CSR disclosure in other firms are also voluntary. It is therefore recommended that a CSR reporting standard template be developed to assist companies and customers to access CSR information. The submission of this standardised reporting template could be mandated to increase CSR reporting, as the voluntary nature of compliance with sustainability reporting could be a reason for low CSR.

In addition, to easily locate CSR-related information and to effectively communicate with customers and stakeholders, JSE-listed companies could be required to publish their annual reports in local languages to close the communication gap by helping the local people to understand CS activities of JSE listed companies, given the low literacy rate in South Africa. The JSE could also follow a comprehensive CSR reporting policy to increase its goodwill reporting given the current challenges of the industry and slow economic growth.

5.4 Limitations of the Study

This study has limitations. First, the researcher focused on only five dimensions to measure CSR, which the researcher also dichotomized. Future research should consider a comprehensive procedure, including the protection of employee and customer interests, reporting on the protection of shareholder interests, environment and other CSR practices for measuring CSR index. This study is also limited to financial performance proxy such as ROA, ROE and PM to measure the firms' financial performance. It could be useful to measure financial performance indicators using both market-based performance and financial performance – for example, stock return and price earnings ratio – to explore the relationship between financial performance and CSR reporting. Furthermore, the study period is small to appreciate how CSR reporting impacts financial performance fully, future study needs to consider longer study period.

While this study is limited to two independent variables, future study could consider others, such as capital ratio, share price and growth margin. The study results are also limited to the three major sectors, i.e., industrials, basic materials and consumer goods of South African economy, and future research could be expanded to others.

Finally, there is still much debate amongst statisticians, econometricians and other researchers on the most appropriate model to measure the relationship between CSR reporting and firm financial performance. Models used in this type of research vary. The limitation is in the identification of appropriate model that can be used to compare across different countries or markets.

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