



Corporate Social Responsibility & Profitability in South Africa

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TABLE OF CONTENTS

Acknowledgements	i
Abstract	ii
List of Tables	iii
List of Abbreviations	iv
Chapter 1: Introduction	1
1.1 Introduction and Background of the Study	1
1.2 Research Problem and Questions	2
1.3 Research Objectives and Hypothesis.....	3
1.4 Scope and Justification of the Study.....	4
1.5 Organisation of the Study	4
Chapter 2: Literature Review	5
2.1 Introduction.....	5
2.2 Definition of Terms and Concepts	5
2.2.1 Corporate Social Responsibility.....	5
2.2.2 Environmental, Social and Governance	5
2.2.3 Financial Performance.....	6
2.2.4 Overview of the Johannesburg Stock Exchange.....	6
2.2.5 Corporate Social Responsibility in South Africa	7
2.3 Theoretical Framework	8
2.3.1 Stakeholder Theory	9
2.4 Review of Empirical Literature	10
2.4.1 Corporate Social Responsibility Expanded.....	10
Chapter 3: Methodology	14
3.1 Introduction	14
3.2 Research Approach and Design	14
3.2.1 Sample, data period and sources	14
3.2.2 Model Specification.....	14
3.2.3 Description of Variables	16
3.3 Estimation Approach	20
3.3.1 Fixed Effect, Random Effect and Generalized Model of Moments.....	20
3.4 Summary.....	22
Chapter 4: Discussion of Findings	23
4.1 Introduction	23

4.2 Descriptive Statistics	23
4.3 Correlation Results.....	24
4.4 Regression Results: Random Effects	27
4.4.1 Regression Results: System GMM Results	30
Chapter 5: Conclusion	33
5.1 Introduction	33
5.2 Summary and Conclusion of the Study	33
5.3 Recommendations	34
5.4 Limitations and Avenues for Future Studies	35
References	37

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Abstract

Corporate Social Responsibility (CSR) has been widely studied for numerous decades. In particular, researchers have been keenly interested in its relationship to firm financial performance. However, only recently have measurable and standardised tools been established to quantify CSR, through the creation of Environmental, Social and Governance (ESG) ratings methodologies and scorecards. Investors globally are using ESG integration to help inform investment decisions, thus CSR is no longer a nice-to-have, but a must-have for those companies that wish to participate in the global investment and capital markets space. South African companies are no exception. As South Africa is one of the largest economies in Africa, South African listed equities provide an avenue for international investment into the continent. As such, CSR and the measurement thereof is important for South African companies to not only attract, but to retain, global investments. This study examines the impact of CSR on profitability of listed firms on the Johannesburg Stock Exchange (JSE). The study analyses panel data from 2016 to 2019 using the multiple regression panel data model, applying fixed, random and GMM estimation approaches.

From the analysis, the study finds a positive relationship between Return on Assets (ROA), Market-to-Book (MKTBK) and aggregate CSR. However, upon assessment of the individual CSR variables and their relationship with financial performance, results are either positive or negative, supporting the existing body of research, which, on balance, yields inconclusive results. In conclusion, it is recommended that the government creates an environment that is conducive for the achievement of CSR ambitions for firms. The adoption of CSR practices is beneficial for all stakeholders and it is incumbent upon the government to facilitate companies' endeavours. As the proliferation of ESG continues, South African companies will no longer have the luxury of choice with respect to adopting CSR policies.

List of Tables

Table 1: Stylized Facts on the JSE from 2016-2019.....	17
Table 2: Variable Description.....	30
Table 3: Descriptive Statistics.....	33
Table 4: Correlation Matrix.....	37
Table 5: Random Effects Regression Results.....	40
Table 6: GMM.....	43

List of Abbreviations

CFP	Corporate Financial Performance
COVID	Coronavirus Disease
CSP	Corporate Social Performance or Corporate Sustainability Performance
CSR	Corporate Social Responsibility
ESG	Environmental, Social & Governance
FDI	Foreign Direct Investment
FSB	Financial Services Board
FTSE	Financial Times Stock Exchange
GLS	Generalized Least-Squares
GMM	Generalized Model of Moments
JSE	Johannesburg Stock Exchange
MKTBK	Market to Book
MSCI	Morgan Stanley Capital International
OLS	Ordinary Least-Squares
PWC	PricewaterhouseCoopers
REM	Random Effects Model
ROA	Return on Assets
SRI	Socially Responsible Investment
TCFD	Taskforce on Climate-related Financial Disclosure
UN SDGs	United Nations Sustainable Development Goals
USD	United States Dollar

Chapter 1: Introduction

1.1 Introduction and Background of the Study

To many, the concept of Environmental, Social and Governance (“ESG”) is still relatively nascent, particularly in emerging markets. ESG is being touted by an increasing number of investment banks as the new frontier for capital markets offerings and adopted by asset managers as an increasingly important investment consideration. In reality, ESG (which can be defined as the set of standards used to evaluate corporate behaviour on the basis of environmental, social and governance impact) is better understood upon recognition that it is the measurement (provides analytical value) of the familiar concept of Corporate Social Responsibility (“CSR”). ESG is what provides CSR with concrete, measurable and comparable scores. In this paper, the terms ESG and CSR will be used interchangeably.

Carroll (2008) contends that the history of CSR can be traced as far back as the 1800s amidst the Industrial Revolution when businesses started recognising enhanced employee relations and social initiatives as beneficial to their operations either through increased productivity or improved perception and goodwill from the community. That said, research and literature on CSR commenced in earnest in the 1950s with Howard R. Bowen’s *Social Responsibilities of the Businessman* attributed as the seminal literature on the subject (Gond et al., 2011). Howard R. Bowen is hailed by numerous scholars as the “Founding father of CSR” (Carroll, 2008; Garriga & Melé, 2004; Gond et al., 2011) and famously defined CSR as “the obligations of businessmen to pursue those policies, to make those decisions or to follow those lines of action which are desirable in terms of the objective and values of our society” (Bowen, 1953 as cited in Gond et al., 2011). Fast forward to the twenty-first century, CSR has become part of the corporate lexicon throughout the globe and is widely understood to mean commitment from business to the contribution of sustainable economic development (World Business Council for Sustainable Development, 2000).

Extensive research has been performed on CSR in developed markets; however, the same cannot be said for emerging markets. Fetscherin et al. (2010) state that large emerging economies (Brazil, Russia, India and China) have had increased international focus on them with respect to factors such as pollution and product quality which have far-reaching effects globally. In addition to general global awareness, good CSR practice is necessary in emerging markets as a means to attract foreign investment (“FDI”) which aids growth (Vaughn & Ryan, 2006).

With the evolution and resultant proliferation of CSR came a requirement for the tangible measurement of corporates’ achievements in this area to allow for comparability and to aid investors in their pursuit of

suitable socially and environmentally responsible investments. ESG scores have since emerged to play that role. With that came the burgeoning demand for stock and fixed income indexes that include “ESG-friendly” companies. The very first socially responsible index was the Domini 400 Social Index (later called the MSCI KLD 400 Social Index), which was launched in May 1990 and includes companies that are deemed to have positive ESG scores whilst excluding those in ESG-sensitive industries such as tobacco and firearms (MSCI, 2020). Since then, many others have been launched with focuses including, amongst others, low carbon indexes, indexes for entities that promote and prioritise gender diversity and social indexes. In South Africa, the FTSE/JSE Responsible Investment Index (“Index”) was formed in 2004 and represents the first of its kind in an emerging market. The Index promotes sustainable business practices, with companies listed thereon being subject to annual ESG assessments.

Naturally, given the importance of ESG to companies’ strategy, and the proliferation of ESG indexes worldwide, extensive research has been conducted on the relationship between CSR and financial performance, with investors and companies alike keen to understand whether there is economic benefit to the time and financial investment made towards their CSR goals. However, this relationship has been insufficiently investigated in the South African context, with limited published studies available for review. Furthermore, to the best of the author’s knowledge, there is no research on the subject from 2015 to date. This period is significant for purposes of this study as it coincides with the growing implementation of formal ESG practices within South African corporates with the adoption of the global FTSE Russell ESG Ratings to the SRI Index (FTSE Russell ESG ratings were integrated with the SRI Index in January 2016). In this paper, the relationship between ESG performance and the profitability of companies will be examined.

1.2 Research Problem and Questions

The relationship between CSR and firms’ financial performance has been a topic of interest for scholars and business practitioners for several decades, prompted by the burgeoning need for the adoption of CSR practices by companies. Studies on this subject have been so widespread that composite studies have been undertaken to review existing research on the subject to determine the association between CSR and firm performance and reported a predominantly positive relationship between financial performance and CSR (Margolis & Walsh, 2001) and a strong business case for the adoption of ESG practices (Friede et al., 2015). The Margolis & Walsh (2001) composite study examines 95 empirical studies between 1972 to 2000 and highlights a gap in the existing literature by noting that the construct of corporate social performance and efforts to measure it, as well as the validity of those assessments, are unreliable and inconsistent. This is notably before the formal establishment of ESG scores. Thus, despite the sheer volume of studies on this

topic, there is a marked deficit in the analysis of this relationship in the South African context in recent years, when ESG has grown significantly in importance and measures thereof have been standardised.

Whilst South Africa boasts the most advanced corporate governance practices in Africa, the broader concept of ESG, inclusive of the environmental and social components, has only truly appeared on the South African radar in recent years. Whilst the knowledge and practice of general CSR has been widespread for companies in South Africa, the formal need to measure, analyse and allocate scores for CSR practices is relatively new. Pressure to formalise ESG inclusion in business practice and financial reporting stems, in some part, to the growing demand for ESG-friendly assets in the capital markets space. Investment banks are increasingly providing green and sustainability-linked loans, whilst fund managers are actively seeking green and ESG-linked bonds to invest their money into. For example, a group of international investors, including Pimco and Fidelity, have published a Net-Zero Investment Framework with the expectation that companies they invest in will reduce their Scope 1 and 2 carbon emissions in an effort to encourage environmental safety¹. Thus, ESG compliance is looking less like an option and more of an imperative if companies are to participate in the global investment market. Du Toit & Lekoloane (2018), Nkomani (2013) and Ntoi (2010) are some of the few that have covered the relationship between CSR and financial performance in South Africa.

However, there is a gap in research that is fully reflective of the sign of the times as ESG takes centre stage in company strategies. As such, this study will seek to fill that gap and address the impact of ESG on firm financial performance in more recent history, thus contributing to the current body of literature on the subject.

In accordance with the problem statement and purpose of this study, the following research question has been established to address the existing knowledge gap:

1. What is the association between ESG and CSR on financial performance in South Africa?

1.3 Research Objectives and Hypothesis

The objective of this paper is to examine the impact of CSR/ESG on financial performance of companies in South Africa listed on the Johannesburg Stock Exchange.

The hypothesis under consideration for this study is, therefore, as follows:

H1: There is a significant relationship between ESG and firm financial performance

¹ Source: https://www.parisalignedinvestment.org/media/2021/03/Pall-Net-Zero-Investment-Framework_Implementation-Guide.pdf

1.4 Scope and Justification of the Study

This study aims to contribute to the existing body of research on the topic of the impact of CSR on financial performance. Currently, developed market research is abundant, with a significant shortage on the emerging market side. Furthermore, the relationship has not been adequately studied in the South African context. A study of this nature, which takes into consideration the years not previously covered by existing/older research, will help provide a more recent view of the relationship between CSR/ESG and financial performance in companies.

The results of this study are unlikely to change the trajectory of ESG adoption by South African companies given the growing importance of ESG practice in global investment philosophies as well as global capital markets and the need for companies to raise funding in this area. However, the research may create further research opportunities to address the limitations of the study and help create a complete body of knowledge on this topic in the South African context. To that end, this study aims to answer a specific question and to also create the scope for new questions to be asked in the furtherance of this area of research. Furthermore, this study seeks to help illustrate the benefits of adoption of ESG policies and assess whether it is aspirational from an economic benefit perspective or not.

1.5 Organisation of the Study

This study is organised into five chapters. Chapter 1 is the introductory chapter which provides the background to the study, highlighting the history of the concepts addressed in the study and the relative importance thereof in the wider body of knowledge on the role of companies in society. Chapter 2 evaluates the universe of literature applicable to social responsibility of companies and the impact of this on stakeholders as well as companies' performance. Chapter 3 will then provide a detailed description of the research methodology employed to identify the association of CSR on the financial performance of companies in South Africa. In Chapter 4, the results of the study will be detailed, with Chapter 5 concluding the study on the basis of the findings in Chapter 4 and providing recommendations for stakeholders of the research for future study as well as the practical implications of the study for relevant practitioners.

Chapter 2: Literature Review

2.1 Introduction

This chapter contains a literature overview on the concept of CSR. It commences with an exploration of stakeholder theory, the grounding theory upon which the study is based. It then proceeds to outline the body of empirical literature on CSR, starting with a deeper dive into the concept, followed by CSR in the South African context and then lastly, the basis of this paper, the relationship between CSR and financial performance.

2.2 Definition of Terms and Concepts

This section of the paper defines core principles of the paper, namely, CSR, ESG and financial performance.

2.2.1 Corporate Social Responsibility

Smith (2003) defines CSR as the obligations of a company to society, whilst Lichtenstein et al. (2004) links CSR to a firm's involvement in charitable causes. Another definition states that CSR describes the processes through which firms respond or do not respond to social requirements (Van der Laan et al., 2008). CSR, in the context of this study, means policies and actions undertaken by companies for the purpose of integrating social responsibility to their day-to-day operations. Furthermore, a firm's CSR is measured by what is known as its Corporate Sustainability Performance (CSP) (Drempetic et al., 2020). The requirement for CSP stems from the fact that CSR is not a measurable variable, hence CSP, which is a measurement of various aspects of a firm's social policies (Charlo et al., 2015).

2.2.2 Environmental, Social and Governance

Friede et al. (2015) considers ESG a proxy for CSP. That is, ESG scores provide a value for a firm's CSP and by extension, their CSR practices. Dutch asset management firm Robeco very simply defines ESG as "using Environmental, Social and Governance factors to evaluate companies and countries on how far advanced they are with sustainability" (Robeco, 2022). Effectively, ESG pertains to the assigning of value and scores to a company's stance and policies on environmental, social and governance principles, which translate into a company's sense of social responsibility.

Going forward in this paper, the concept of CSR and ESG are used interchangeably. However, more specifically, ESG is considered a tool for the measurement of CSR.

2.2.3 Financial Performance

In this paper, financial performance can be loosely defined as profitability, which is based on the ability of a firm to use resources to generate incomes that are greater than expenses. There are various measures of profitability. The ones applicable to this study are outlined in the research methodology chapter.

2.2.4 Overview of the Johannesburg Stock Exchange

Overview and History

The Johannesburg Stock Exchange (“JSE”) was established in 1887 amidst South Africa’s first Gold Rush. As the largest stock exchange in Africa, the JSE is a multi-asset class securities exchange, providing investors with a deal liquidity pool across its product suite. The JSE provides a primary market for new and existing issuers; a secondary market for the facilitation of trading in equities, bonds and derivatives; post-trade services for support through clearing and settlement; and technology services as well as information services, which provide market data to interested parties (JSE, 2022).

Regulation

In 1947, the first legislation regulating financial markets was promulgated, following which, the JSE joined the World Federation of Exchanges in 1963. The exchange matured to an electronic-based trading system in the 1990s. In its role as a licenced market regulator, the JSE is governed by the Financial Markets Act No. 19 of 2012 and the Financial Intelligence Centre Act No. 38 of 2001. A significant part of the JSE’s regulatory activities include the monitoring of markets’ activities to identify potential market abuse and any non-compliance of JSE members with their regulatory obligations.

ESG Reporting⁽¹⁾

Whilst the JSE has been lauded as a pioneer in good governance practices given the world acclaimed King Code, the exchange did not have set reporting standards for ESG in its entirety.

On 14 June 2022, the JSE released its Sustainability and Climate Disclosure Guidance documents with the aim of promoting good governance and guiding listed member companies in global best practice for ESG disclosure in a manner that is suitable for the local market. The JSE touts the benefits of this guidance documents as follows:

- Aiding issuers in navigating the continuously changing world of sustainability reporting
- Relate sustainability reporting to value creation drivers
- Outlining of the business case for sustainability reporting

- Garner interest in growing opportunities within sustainability reporting
- Champion drive for unified global reporting standards
- Aid in the contribution to the achievement of the UN SDGs

The JSE Sustainability Disclosure Guidance is aligned with the financial markets’ preeminent international reporting initiatives including the GRI Sustainability Reporting Standards, the Taskforce on Climate-related Financial Disclosures (TCFD), whilst maintaining local South African relevance.

The JSE Climate Change Disclosure Guidance is geared towards preparing listed companies for the journey towards global best practices such as a move towards net zero. The guidance is appropriate for those who have only started in their climate journey as well as those who have already made progress. The aim is to ultimately create standards for local companies for the reporting of climate-related initiatives.

Table 1: Stylised Facts on the JSE from 2016-2019

	2016	2017	2018	2019
Number of Listed Entities	388	377	372	354
New Listings	18	21	12	6
Market Capitalisation (ZARbn)	13 580.6	15 461.4	12 682.0	17 440.3

Source: www.jse.co.za

2.2.5 Corporate Social Responsibility in South Africa

It is well known that South Africa’s recent history is a chequered one. The Apartheid regime was met with widespread funds outflow in the 1980s when the United States Congress and United Nations implemented economic sanctions in the country, resulting in large investors divesting from South Africa to illustrate their stance on the crimes against humanity committed by the Apartheid government—one of the earlier signs of socially responsible investment decisions. With the demise of the Apartheid government came renewed global investor appetite for South African assets; however, this came with heightened scrutiny into corporate governance structures (du Toit & Lekoloane, 2018). Vaughn & Ryan (2006) outline initiatives South Africa underwent in response to aid investor comfort.

King Report on Corporate Governance

As a response to the changing global economic backdrop and increased scrutiny of South Africa’s corporate affairs, the King Report on Corporate Governance was issued in 1994 with the primary objective being to promote globally comparable standards of corporate governance in South Africa (Kakabadse & Korakabadse, 2002). Also known as the King Code, this report on corporate governance detailed 7 main characteristics of good corporate governance: discipline, transparency, independence, accountability, responsibility, fairness and social responsibility (Vaughn & Ryan, 2006). The Report has since been revised with new issues in 2002, 2009 and 2016. Whilst the King Report has no legal weight, it has come to be

expected that large corporates and state-owned entities should adhere to its disclosure requirements and the main principles governing the Code (Vaughn & Ryan, 2006).

Insider Trading Act

South Africa's Insider Trading Act was passed in 1998 and permits the Financial Services Board (FSB) to act more decisively with respect to insider trading offences (Vaughn & Ryan, 2006). The Act is well in line with global standards with 3 main innovations detailed by Malherbe & Segal (2001):

1. Civil liability has been added to criminal liability, which requires less burden of proof and thus allows for easier convictions for offences.
2. Investigations of suspected offences can be withdrawn from litigation in favour of "settlement" payment which is made public, detailing the possible transgression and the corporate and individual(s) involved. This often has a significant impact on share price performance with investors selling off to indicate disapproval and/or concerns about further insider trading cases in that stock.
3. Settlements are held for distribution to stockholders who had incurred losses as a result of trading in the equity during the period the transgression took place.

Enhanced JSE Listing Requirements

In order to enforce compliance with the King Code, in 1995 the JSE Listing Requirements made it mandatory for all listed companies to disclose the degree of their compliance to principles outlined in the King Report on Corporate Governance (Malherbe & Segal, 2001). The JSE Listing Requirements have evolved and been revised since then to include adherence to International Accounting Standards, thus allowing South African corporates to disclose in a manner that was more closely aligned with global best practice (Vaughn & Ryan, 2006).

These initiatives played a significant role in carving a path for South Africa's participation in the global market as a true peer. They have also led to South Africa being considered a strong corporate governance adherent in the global space, and certainly the best example available in Africa.

2.3 Theoretical Framework

The concepts in this study are grounded in theoretical framework that has been studied extensively by scholars over the years. Stakeholder theory is explored as the grounding theory to this paper and to help explain the integration of the ethical roots of CSR with stakeholder theory as a business practice.

2.3.1 Stakeholder Theory

In the modern age, it has come to be accepted that a company's activities cannot take place in isolation, separate from all those who have an interest in the company, i.e., stakeholders. Freeman (1984), who is widely credited as the originator of stakeholder theory, defines stakeholders as all persons and groups who contribute towards the realisation of a company's objectives or are impacted by a company's actions in the achievement of its goals. At the very core of stakeholder theory are two concepts:

1. the purpose of the firm, which is meant to elucidate management's idea of shared value creation with stakeholders; and
2. the responsibility management has towards stakeholders, which is centered around the type of relationship management seeks to have with its stakeholders in the pursuit of the realisation of the purpose of the company (Freeman, 1994 as cited in Freeman et al., 2004).

This theory is quite a departure from the belief held by Milton Friedman that the sole responsibility of businesses is to increase performance and thus maximise shareholder value, rejecting all notions that the single-minded pursuit of profits is in some way immoral (Friedman, 1970).

Whilst stakeholder theory is practical in nature and seeks to provide a blueprint for the inclusion of stakeholders in the achievement of a company's strategic and financial goals, CSR is more altruistic in nature and has strong leanings in the ethics of business. Brown & Forster (2013) use Adam Smith's writings (*Theory of Moral Sentiments* and *Lectures in Jurisprudence*) to help explain the ethical considerations that have implications for CSR as well as stakeholder theory. Carroll (2004) posits that even though business' ethical obligations to society at large may not be a requirement, they are expected. In contrast, proponents of stakeholder theory maintain that the ethical components of stakeholder theory are entirely separate from the application of the theory as a management and social tool (Freeman, 1984). Whilst scholars of CSR and stakeholder theorists are often at odds with one another over what a company's ethical obligations to society are, Brown & Forster (2013) find that morality and economics in business should not be viewed as separate concepts, but rather that fair business conduct and an adherence to the law should allow for economic freedom. Interestingly, in a paper on the defence of stakeholder theory, following criticism from opposing scholars, Phillips et al. (2005) state that whilst stakeholder theory is not explicitly a theory centered around morality, it is implicitly moral because of its content which is focused on the values and morals crucial to the management of companies. Thus, whilst there still remain efforts to be made in the reconciliation of CSR and stakeholder theories, they are not far apart, with stakeholder theory being cited as instrumental in aiding scholars of CSR to identify business obligations to society (Brown & Forster, 2013).

2.4 Review of Empirical Literature

2.4.1 Corporate Social Responsibility Expanded

CSR has been widely studied by researchers globally. Given its widespread adoption by corporates across the board, it is an imperative for companies to identify the role they play in society and integrate ethical standards to their operations (Lichtenstein et al., 2004). CSR has now evolved from a purely theoretical concept based on normative and ethics-centric ideas to a practical performance-centered managerial science (Lindgreen & Swaen, 2009).

Lindgreen & Swaen (2009) posit that CSR's roots are stakeholder-centric and maintain that stakeholders are central to company operations, thus placing pressure on companies to balance potentially contradictory stakeholder demands and transforming these into practical CSR goals and policies. In certain instances, companies may try to sway stakeholders' views in an effort to encourage alignment with the company's set strategies and goals (Lamberg et al., 2003; Andriof and Waddock, 2002 as cited in Lindgreen & Swaen, 2009). This stakeholder management is crucial for the buy-in of stakeholders into the broader corporate objectives. Carroll (2004) presents a framework for the four ways in which businesses are held responsible to society: "economic responsibility" (profitability), "legal responsibility" (adherence to the law), "ethical responsibility" (maintain ethics), "philanthropic responsibility" (good corporate citizenship).

The cornerstone of economic responsibility is the pursuit of profit. Heal (2005) defines the function of CSR as the anticipation and minimisation of the divergence between companies and society, with the aim of aligning differing social and corporate costs if that is the source of conflict.

2.4.1.1 Corporate Social Responsibility and Financial Performance

Research on the relationship between CSR and financial performance is vast, with many interested in business research keen to decipher whether the considerable efforts of CSR adoption in corporates leads to any economic/financial gain for companies. The majority of studies in the past few decades indicate a positive relationship between CSR and financial performance, assuming a lagged response in financial performance benefit (du Toit & Lekoloane, 2018).

Bragdon & Marlin (1972) and Moskowitz (1972) can be credited with some of the earlier research on the relationship between a company's financial performance and its social responsibility actions. Since then, there have been extensive contributions to this field of study with even further research being completed in an effort to analyse existing research. One such review is from Margolis and Walsh in their 2001 book

People and profits: the search for a link between a company's social and financial performance, in which the authors reviewed 95 studies on the subject and found that 80 of those suggest that Corporate Social Performance (“CSP”) is a predictor or determinant of Corporate Financial Performance (“CFP”) (Callan & Thomas, 2009). The CSR business case can be justified through the following four benefits: 1) reduction of cost and risk, 2) enhanced legitimacy and reputation, 3) competitive advantage and 4) synergies (Lindgreen & Swaen, 2009). All these benefits are contributors towards financial performance. In assessing the volumes of available research, the author of this paper focused on more recent studies to examine and review the relationship between CSR/ESG and financial performance. Whilst there have been significant studies developed over time, it was important to the author to review studies from the mid-2000s into the 2010s, as they would most likely be a more up-to-date and accurate reflection of CSR and ESG practices today. The evolution and proliferation of CSR practices means that whilst the core principles may remain, the way corporates integrate said practices into their business strategies has more than likely changed.

A Turkish study by Ararat et al. (2017) examined the relationship between corporate governance practices and firm value and profitability and found some evidence that improved corporate governance resulted in higher profitability, whilst a strong relationship was found between good governance and a company's market value. In a developed market context, Vander Bauwhede (2009) found that greater compliance with international corporate governance best practice resulted in better company performance as measured by the Return on Assets (“ROA”) metric. This same trend appeared to hold true through the financial crisis of 2008/2009 when companies with greater CSR investment yielded superior share returns, greater profitability and sales per employee, than their lower CSR investment counterparts (Lins et al., 2017), evidence that CSR can be beneficial in economically turbulent times. Rodriguez-Fernandez (2016) found a bi-directional relationship between CSR and profitability: that good corporate governance may lead to higher profits and higher profits encourage good corporate governance and social responsibility. Numerous other studies found similar relationships between CSR and financial performance in emerging and developed markets alike (Lopez-Quesada et al., 2018; Nkomani, 2013; Callan & Thomas, 2009; Statman, 2005; Ntoi, 2010; Luo & Bhattacharya, 2013).

In contrast, there has been research that has found a negative relationship between CSR and profitability. In a UK study, Brammer et al. (2006) found that companies with greater CSR scores tended to achieve lower stock returns, whilst those with no CSR score at all performed considerably better. Emerging market Morocco fared no better, with a study reporting a significantly negative relationship between CSR and financial performance, concluding further that companies that invest in CSR yield profitability and equity

capital that is lower than other companies that do not, likely because of the cost needed to invest in CSR practices and policies (Faical & Elouidani, 2018).

However, not all research has yielded definitive results. A number of studies have reported an inconclusive relationship between CSR and financial performance. Van der Laan, G., Van Ees, H. & Van Witteloostuijn (2008) argue that aggregated measures of CSR at firm level do not take into account the true impact of varying stakeholder groups and are thus inadequate to provide an accurate description of the relationship between CSR and financial performance. Furthermore, in expansion of their thoughts on stakeholders, they posit that if there is any relationship between CSR and financial performance, it would depend on the relationship between the company and the stakeholder (Van der Laan, G., Van Ees, H. & Van Witteloostuijn, 2008). Charlo et al. (2015) did not find any evidence of a compelling association between CSR and financial performance, noting further that socially responsible companies are not at a financial advantage over other companies; however, CSR practices do not necessarily have a negative impact on financial performance either.

In summary, the research in this area is vast and polarising. There are proponents of a strong relationship between CSR and financial performance. These scholars hold that a company's investment in CSR has tangible financial benefits separate from the altruistic aims of CSR as a concept. In contrast, however, some country studies have found the opposite to be true: that

investment in CSR does not provide any meaningful upside to a company's financial performance thus questioning the monetary and human capital expended for the purpose of CSR initiatives. Other researchers are unconvinced of either side of the coin and hold the view that this relationship is far too complex with a multitude of factors to be considered before any conclusions about the association is made. Whilst the research in this field is extensive, South Africa-centric studies on this topic have been minimal. There is a growing interest, however, and some strides have been made to decipher the relationship in the South African context, though none so recent as to fully encapsulate the current CSR landscape in South Africa reflecting the advent of ESG in the country. This study aims to fill the research gap, analysing the relationship between ESG and financial performance in South Africa from 2016 to 2019, to allow for a comprehensive analysis of companies listed on the Johannesburg Stock Exchange. The choice of period is important as 2016 marks the year that the local CSR-friendly Index, the FTSE/JSE Responsible Investment Index, formally adopted the FTSE Russell ESG Ratings methodology. This is an important data point, as 2016 is the year that South African companies (albeit only those who were constituents on the FTSE/JSE Responsible Investment Index) were first exposed to the measurement of ESG metrics using a globally accepted methodology. The study specifically excludes 2020 from the scope as the impact of Covid-19 has resulted in 2020 being

anomalous to prior years and thus incomparable to the rest of the period under consideration.

Chapter 3: Methodology

3.1 Introduction

This study follows the quantitative approach, using micro panel data to control for individual companies' heterogeneity. It subjects secondary data to economic analysis to understand the impact of CSR on profitability. The chapter is organised as follows: Section 3.2 presents the specification of the model; this is followed by the description of variables in section 3.3, and panel unit roots and panel cointegration tests in sections 3.4 and 3.5 respectively. Moreover, section 3.6 presents the panel Granger causality tests. In section 3.7, the summary to the chapter is presented.

3.2 Research Approach and Design

This study follows a quantitative research approach, using a panel data set consisting of a time series for each cross-sectional member in the data set. According to Badi (2015), the use of panel data enables us to control for individual heterogeneity and provides more informative data, more variability and less collinearity among the variables. The multiple regression panel data model will be estimated to allow for both fixed and random effects, in that the model will treat the constant as a group (section)-specific and random parameters to allow for additional explanatory variables to reduce the unobserved group-specific effects that may be correlated with the other explanatory variables.

3.2.1 Sample, data period and sources

This study makes use of panel data for South African companies listed on the JSE between 2016 to 2019. Data will be collected from annual reports of the firms using the Bloomberg tool. The CSR data will be sourced from the CSRHUB, an online ESG database with numerous ESG metrics for thousands of companies across the globe. The proposed data sample will cover 4 years from 2016 to 2019. Whilst this sample period is relatively shorter than most other studies carried out in emerging markets, the focus is on the period from when FTSE Russell ESG Ratings were integrated into the JSE Responsible Investment Index (January 2016), marking South Africa's first introduction to the world of formal ESG analysis, to December 2019, pre-Covid-19.

3.2.2 Model Specification

Following Marshal (2016), this empirical relationship between CSR activities and its dimensions on profitability is algebraically expressed in equation 1 and 2 as:

$$PROF = f(CSR, control) \dots\dots\dots 1$$

$$PROF = f(CSR_CO, CSR_EP, CSR_EN, CSR_GV, control) \dots\dots\dots 2$$

where *PROF* is firm profitability proxied as the return on assets (ROA) and market-to-book (MKTBK) ratios; *CSR* is the aggregate CSR score; *CSR_CO*, *CSR_EP*, *CSR_EN* and *CSR_GV* represent CSR scores for community initiatives, employee initiatives, environmental initiatives and governance initiatives respectively. The control variables include number of years listed on the JSE (*LIST_AGE*), the use of a Big 4 audit firm (*BIG4*), leverage (*LEV*) and firm size (*SIZE*).

The expansion of the functional equation 1, which includes the specific proxies to model the effect of aggregate CSR on return on assets and market-to-book value ratios are defined in equations 3 and 4 respectively as:

$$ROA_{it} = \alpha_0 + \alpha_1 CSR_{it} + \alpha_2 LIST_{AGE_{it}} + \alpha_3 BIG4_{it} + \alpha_4 LEV_{it} + \alpha_5 SIZE_{it} + \theta_{it} \dots\dots\dots 3$$

$$MKTBK_{it} = \delta_0 + \delta_1 CSR_{it} + \delta_2 LIST_{AGE_{it}} + \delta_3 BIG4_{it} + \delta_4 LEV_{it} + \delta_5 SIZE_{it} + \mu_{it} \dots\dots 4$$

The expansion of the functional equation 2, which includes the specific proxies to model the effect of CSR dimensions on return on assets and market-to-book value ratios are defined in equations 5 and 6 respectively as:

$$ROA_{it} = \beta_0 + \beta_1 CSR_CO_{it} + \beta_2 CSR_EP_{it} + \beta_3 CSR_EN_{it} + \beta_4 CSR_GV_{it} + \beta_5 LIST_AGE_{it} + \beta_6 BIG4_{it} + \beta_7 LEV_{it} + \beta_8 SIZE_{it} + \varepsilon_{i,t} \dots\dots\dots 5$$

$$MKTBK_{it} = \gamma_0 + \gamma_1 CSR_CO_{it} + \gamma_2 CSR_EP_{it} + \gamma_3 CSR_EN_{it} + \gamma_4 CSR_GV_{it} + \gamma_5 LIST_AGE_{it} + \gamma_6 BIG4_{it} + \gamma_7 LEV_{it} + \gamma_8 SIZE_{it} + \epsilon_{i,t} \dots\dots\dots 6$$

Taking motivation from the potential feedback effect of previous years' financial performance on current levels of financial performance, this study follows Marshal (2016) as a specified dynamic panel model in equations 7 and 8 as:

$$ROA_{it} = \phi_0 + \phi_1 ROA_{i,t-1} + \phi_2 CSR_{it} + \phi_3 LIST_AGE_{it} + \phi_4 BIG4_{it} + \phi_5 LEV_{it} + \phi_6 SIZE_{it} + \tau_{it} \dots\dots\dots 7$$

$$MKTBK_{it} = \psi_0 + \psi_1ROA_{i,t-1} + \psi_2CSR_{it} + \psi_3LIST_AGE_{it} + \psi_4BIG4_{it} + \psi_5LEV_{it} + \psi_6SIZE_{it} + \zeta_{it} \dots \dots \dots 8$$

$$ROA_{it} = \pi_0 + \pi_1ROA_{i,t-1} + \pi_2CSR_CO_{it} + \pi_3CSR_EP_{it} + \pi_4CSR_EN_{it} + \pi_5CSR_GV_{it} + \pi_6LIST_AGE_{it} + \pi_7BIG4_{it} + \pi_8LEV_{it} + \pi_9SIZE_{it} + \varepsilon_{i,t} \dots \dots \dots 9$$

$$MKTBK_{it} = \omega_0 + \omega_1MKTBK_{i,t-1} + \omega_2CSR_CO_{it} + \omega_3CSR_EP_{it} + \omega_4CSR_EN_{it} + \omega_5CSR_GV_{it} + \omega_6LIST_AGE_{it} + \omega_7BIG4_{it} + \omega_8LEV_{it} + \omega_9SIZE_{it} + \epsilon_{i,t} \dots \dots \dots 10$$

3.2.3 Description of Variables

3.2.3.1. Dependent Variables

The dependent variables are Return on Assets (“ROA”) and Market-to-Book (“MKTBK”) ratios. ROA is an accounting-based measure of financial performance that determines how profitable a company is relative to its asset base. It is calculated as Net Income / Total Assets. Whilst accounting measures of profitability have been criticised over the years due to susceptibility to management manipulation, ROA remains a preferred measurement of financial performance as it is utilised extensively in the market and well understood by industry participants (Johnson et al., 2019). It is well worth noting that management manipulation is far less likely in listed companies as they have to adhere to international accounting standards and their reporting is subjected to audit by a third party provider.

The MKTBK ratio (also known as price-to-book) measures the company’s market capitalisation in relation to its book value. It is often used to assess investor perception of a company’s value, by calculating how much investors are willing to pay in the stock market for the company’s assets. MKTBK is widely thought to be a robust market measure of financial performance (Beurden, 2008).

3.2.3.2 Independent Variables

Four CSR pillars are included in the study and can be defined as follows:

CSR score for community initiatives: This assesses the company’s commitment to the communities in which it operates and reflects the company’s corporate citizenship, charity as well as volunteer efforts. Rodriguez-Fernandez (2016) noted in his study that companies with a higher social behaviour index (i.e., active in community initiatives) have notably higher ROA as they are lauded for having better CSR policies. It has

also been shown that corporations perceived to be socially responsible citizens attract more consumers, with the consumers finding that the corporate's actions resonate with their values (Lichtenstein et al., 2004).

CSR score for environmental initiatives: This assesses the company's efficacy in addressing climate change, policies in place to reduce the company's carbon footprint and the reporting thereof as well as the way in which the company manages resources such as water, energy and materials. The issue of climate change has taken centre-focus in the minds of ordinary citizens, with the impact of global warming being felt across the world as reflected in warmer temperatures and less predictable weather patterns. It is no surprise then that consumers have a strong preference for companies that prioritise sound environmental practices (Statman, 2005). Gilchrist et al. (2021) showed in their study that environmentally sound policies and practices enhance both shareholder value as well as value to nonfinancial stakeholders.

CSR score for employee initiatives: This assesses the company's compensation and benefits programmes for their employees, the diversity and labour rights practices as a proxy for fair and non-discriminatory treatment of employees and training, safety and health efficacy in the workplace. The employee is a key stakeholder in the company, as such attraction and retention of quality employees is critical to a company's success. Employers who prioritise the health, safety and well-being of their employees are able to attract and retain good employees (Fakoya & Malatji, 2020). On the financial side, it has been shown that employees also measure a company's reputation based on compensation and benefits (Walker & Dyck, 2014).

CSR score for governance initiatives: This assesses efficacy, independence and diversity of the company's board, the company's ethical leadership as reflected in company culture and day-to-day operations and transparency and reporting of business affairs and policies to all stakeholders. Good corporate governance is vital for a company's reputation and impacts access to global capital markets as well as appeal to investors. Stakeholders require companies to report on the corporate governance policies in order to assess the firm's progress towards the achievement of its objectives and to determine whether to support the firm (Akisik & Gal, 2017). For an emerging market take, a Korean study showed that corporate governance is a key factor in determining the market value of listed companies and whilst good corporate governance was not necessarily an indicator of higher profitability, it did result in a lower cost of external capital (Black et al., 2012). This was supported by Vander Bauwhede (2009) who reported that there was correlation between operating performance and adoption of governance best practice; however, this did not imply causation.

3.2.3.3 Control Variables

The control variables are number of years listed on the JSE, whether the company is audited by a Big 4 audit firm, leverage and size.

Number of years listed on the JSE: It is argued that the best measure of a firm's age when assessing impact on profitability is number of years listed as listing marks the point at which a firm is objectively considered to be a viable economic enterprise (Shumway, 2001). Emerging Market studies on the relationship between firm age and profitability generally posit a negative correlation. Turkish scholar Akben-Selcuk (2016) further reports that not only does profitability decline as a firm ages, but younger firms may experience a weakening in profits in the beginning, which gradually improves as the firm ages, until it declines again in old age. In support of this claim is a Chinese study which states that there is a negative relationship between age of the firm and profitability for listed Chinese stocks in the period 2008 to 2018 (Rahman & Yilun, 2021). That said, a firm's financial performance may not be related to the duration it has been a public company. Whilst the recent surge in delisting on the JSE has been linked in certain studies to poor financial performance, Nikani & Holland (2022) believe that the absence of financial visibility and high transaction costs have a greater impact on the decision to voluntarily delist the company.

Big 4 audit firm: Indicative of the use of a Big 4 accounting firm as an external firm. In South Africa, the Big 4 accounting firms are PwC, Deloitte, KPMG and Ernst & Young. Companies that publish annual reports with external assurance conducted by a Big 4 audit firm have been shown to have a larger market value relative to those that do not (Landau et al., 2020). A Nigerian study showed that a company being audited by a Big 4 firm exhibited better financial performance, as measured by ROA (Ado et al., 2020). It is believed that audit quality, assumed to be high for Big 4 audit firms, is an important feature of good corporate governance and improves the financial performance of socially responsible firms (Dakhli, 2022). We can infer that adherence to global accounting standards and best practice allows for full reporting transparency which is in turn rewarded by global investors.

Leverage: Measured as the percentage of the company's operations that are financed by debt. The use of gearing in a company is necessary for inorganic growth. Firms require debt to finance large acquisitions or maintenance capital expenditure and thus, high leverage is not necessarily a negative. In a study of Indonesian real estate companies, a good proxy for EM as well as capital-intensive industries, it is shown that ROA has a negative relationship leverage (Daryanto et al., 2018).

Size: It is held by some that firm size has a positive and significant impact on the financial performance of

companies, as it is a proxy for the relative importance of its financial resources (Faical & Elouidani, 2018). This, however, is in contrast with others who have reported a negative relationship (Ammar et al., 2003). Nigerian scholars Bolarinwa & Obembe (2019) posit that the size is indeed an important factor in the ability of Nigerian firms to generate greater profitability. The researcher would expect this to hold true in this study as well, noting that critical mass is important for the scaling of company operations and thus increasing of profitability.

Table 2: Variable Descriptions

Variable	Description	Expected Sign
Dependent Variables		
Return on Assets	The ROA ratio measures how profitable a company is in reference to its asset base.	
MKTBK	The Market-to-book ratio measures the company's market capitalisation in relation to its book value.	
Independent Variables		
CSR	A company's total CSR score denoting a proxy for CSR activity.	+
CSR_CO	CSR score for community initiatives.	+
CSR_EN	CSR Score for environmental initiatives.	+
CSR_EP	CSR score for employee initiatives.	-/+
CSR_GV	CSR score for governance initiatives.	-/+
Control Variables		
LIST_AGE	Number of years a company has been listed on the JSE.	-/+
BIG4	Use of a Big 4 accounting firm as external auditor.	+
LEV	Leverage.	-
SIZE	Size of the company measured as the natural logarithm of total assets.	-/+

3.3 Estimation Approach

3.3.1 Fixed Effect, Random Effect and Generalized Model of Moments

Generally, simple linear panel data models can be estimated in three different ways: (1) common constant; (2) fixed effects; and (3) random effects (Dimitrios and Stephen, 2016). In the fixed effects method, the constant is treated as group (section)-specific, thus the model allows for different constants for each group. The fixed effects model captures all effects specific to a particular individual and do not change over time. Thus, in this case of a panel of companies on the JSE, the fixed effects would take into account data points such as geographical factors and taxes paid, as these rarely change dramatically; these can vary between companies but not over time, relatively. In some cases, it may involve a large number of dummy constants as some panels may have thousands of individual members, in which case the fixed effect model would utilise N degrees of freedom (Dimitrios and Stephen, 2016). This in itself is not a problem as there will always be more data points than N. To assist the researcher, in most cases the model is transformed by differencing all the variables or by removing the deviations from the mean for each variable, the resultant

effect of which is the removal of the dummy constants, thus avoiding the problem of estimating numerous parameters. This is not expected to be a problem in this study. Differencing the model might be undesirable due to the potential distortion of the parameter values and the removal of any long-run effect (Badi, 2015).

Alternatively, the difference between the fixed effects and the random effects method is that the latter assumes the constants for each section as random parameters, not fixed. The research, however, needs to make specific assumptions about the distribution of the random components. Additionally, if the unobserved group specific effects are correlated with the explanatory variables, then the estimates will be inconsistent and biased.

In general, the difference between the fixed effects and random effects is that the former assumes that the company differs in its intercept term, whereas the latter assumes that each company varies in its error term. According to Badi (2015) when the panel is balanced (that is, contains all existing cross-sectional data), it is expected that the fixed effects model will work better. In other instances, where the sample includes limited observations of the existing cross-sectional units, the random effects model may be more suitable.

The Hausman test is formulated to assist in making a choice between the fixed effects and random effects approaches (Dimitrios and Stephen, 2016). Hausman (1978) adapted a test based on the idea that under the hypothesis of no correlation, both OLS and GLS are consistent, but OLS is inefficient, while under the alternative, OLS is consistent and GLS is not. More specifically, Hausman assumed that there are two estimators, β_0 and β_1 of the parameter β , and added two hypothesis-testing procedures. Under the null hypothesis, both estimators are consistent but β_0 is inefficient, and under the alternative hypothesis, β_0 is consistent and efficient, but β_1 is inconsistent. For the panel data, the appropriate choice between the fixed effects and the random effects methods involves investigating whether the regressors are correlated with the individual (unobserved in most cases) effect. According to Badi (2015), the Hausman statistic may be viewed as a distance measure between the fixed effects and the random effects estimators. Thus, the test involves a null hypothesis that random effects are consistent and efficient, versus the alternative hypothesis, that random effects are inconsistent (as the fixed effects will be always consistent). If the value of the statistic is large, then the variance between the estimates is significant, thus we reject the null hypothesis that the random effects model is consistent and use the fixed effects estimator. In comparison, a small value for the Hausman statistic implies that the random effects estimator is more suitable.

Equation 2 will be estimated using the generalized method of moments (GMM) estimator developed by Arellano and Bover (1995). The system GMM combines a regression in differences with one in levels. As a result, it can reduce potential bias in a finite sample (Blundell and Bond, 1998). Moreover, the GMM

technique controls for unobserved firm-specific effects, first-difference non-stationary variables, overcomes the endogeneity of the explanatory variables by using instruments and tests for the presence of autocorrelation (Saci, Giorgioni, & Holden., 2009).

3.4 Summary

This chapter discussed the methodology adopted by the study; the generalized method of moments estimator developed by Arellano and Bover (1995). Panel unit root tests will be conducted to examine the order of integration of variables and Dumitrescu and Hurlin (2012) method for testing for causality between variables will be applied in the study. In the next chapter, the findings and analysis of the results are discussed.

Chapter 4: Discussion of Findings

4.1 Introduction

The focal point of Chapter 4 is towards the discussion of the regression results of the data analysis as explained in Chapter 3. It includes a discussion of the descriptive analysis, diagnostic tests, correlation analysis and conclusion.

4.2 Descriptive Statistics

Table 3 presents the descriptive statistics of all the variables described in Chapter 3 of the dissertation. The results indicate that the variability of the data used as measured by the standard deviation is highest in the number of years a company has been listed on the JSE, as this number can vary from a few months to several years. The lowest standard deviation is recorded in the aggregate CSR score as most of the variables embedded into the CSR score are challenging to measure and are thus stable for most companies over the forecast horizon considered in the study.

Table 3: Descriptive statistics

	Mean	Median	SD	Min	Max	N
ROA (%)	0.0622	0.0745	0.2716	-7.3184	0.9021	1112
WROA	0.0745	0.0745	0.0953	-0.1229	0.2714	1112
MKTBK	1.7184	1.2000	4.6731	-131.5400	18.9300	1071
WMKTBK	1.7363	1.2000	1.4272	0.3300	5.8000	1071
CSR_CO	0.5231	0.5300	0.0954	0.1700	0.8100	744
CSR_EP	0.5804	0.5933	0.0984	0.2600	0.8000	632
CSR_EN	0.5514	0.5600	0.0981	0.1900	0.8000	815
CSR_GV	0.5317	0.5500	0.0916	0.2350	0.8200	815
CSR	0.5603	0.5692	0.0660	0.3084	0.7296	630
LEV	1.2377	0.7300	3.7132	-91.7700	15.1800	1096
WLEV	1.1795	0.7300	1.2696	0.0800	5.1900	1096
AGEPUB	22.2057	13.0000	21.1948	0.0000	59.0000	1366
LIST_AGE	2.5931	2.6391	1.1761	0.0000	4.0775	1312
SIZE	15.0598	15.3459	2.5433	4.5326	21.5357	1308

Note: ROA= Return on assets (ROA); MKTBK= Market-to-book; CSR = Aggregate CSR score; CSR_CO= CSR scores for community initiatives; CSR_EP= CSR scores for employee initiatives; CSR_EN= CSR scores for environmental initiatives; CSR_GV= CSR scores for governance initiatives; LIST_AGE= Number of years listed on the JSE; BIG4=If a firm is audited by a Big 4 audit firm; LEV=Leverage; SIZE= Firm size. W denotes winsorized values of the variables. Source: Candidate's estimates from research data.

During the forecast horizon in the study, the data show that ROA on average stands at 6.2% with a minimum of -12.3% and a maximum of 27%. Sable Exploration & Mining and Bauba Resources made up the minimum

and maximum end of the range distribution, respectively. Both these companies are in the mining sector and it is possible for mining companies to squeeze massive returns out of their assets, so the 27% ROA seems normal. Additionally, there are years that Bauba was recorded to not have paid any taxes and this could also attribute the high end of the ROA. The negative ROA implies that Sable is incurring losses and therefore not obtaining the expected benefits from its assets.

The data shows that on average the CSR scores for community initiatives (CSR_CO), CSR scores for employee initiatives (CSR_EP), CSR scores for environmental initiatives, (CSR_EV), CSR scores for governance initiatives (CSR_GV) and Aggregate CSR score (CSR) for all the constituents included in the sample is less than 1. This implies that on average companies do not over-invest into ESG initiatives. This was expected as it is still not clear what benefits companies yield from investing in corporate socially responsible initiatives: some studies have found a positive relationship between CSR and financial performance of a company (Margolis and Walsh (2001), Lindgreen and Swaen (2009), Ararat et al. (2017); in contrast, some studies have found a negative relationship Brammer et al. (2006), (Faical and Elouidani, 2018) and some studies found inconclusive results (Van der Laan, G., Van Ees, H. and Van Witteloostuijn (2008), Charlo et al. (2015).

A leverage ratio of less than 1 is typically considered good by industry standards and a leverage ratio greater than 1 may result in the company being perceived as a risky investment or credit by potential investors and lenders respectively, whilst a leverage ratio higher than 2 is considered cause for serious concern (Bodie et Al., 2014). In the data set, leverage ranges from 0.08 to 5.1, with an average of 1.17. Leverage is not necessarily a negative trait for a business because most large capital investment requires debt financing; the drawback of leverage creeps in when debt increases too fast as a percentage of total capital and eventually servicing of such level of leverage becomes a burden on the firm's resources. Steinhoff International is the most leveraged firm amongst the firms included in the sample with a leverage ratio of 15.18. The period under review includes the time when PwC investigation found USD7.4 billion accounting fraud at Steinhoff in 2017 (Reuters, 2017). Since the asset values were inflated, this level of leverage could be worse than recorded. Choppies Enterprise has been progressively becoming less dependent on debt to grow its business (Annual report, 2019), and this explains why it has the least and declining leverage ratio in the sample covered. The firm size was at an average of ZAR15.1 billion and ranged between ZAR4.5 billion and ZAR21.2 billion.

4.3 Correlation Results

The Classical Linear Regression Model assumes that there are no exact linear relationships among the sample values of the explanatory variables. This requirement can also be stated as the absence of perfect multicollinearity (Dimitrios and Stephen, 2016). Under conditions of perfect multicollinearity, the OLS

estimators are not unique; however, perfect multicollinearity rarely arises with actual data. The occurrence of perfect multicollinearity often results from correctable mistakes, such as the dummy variable trap or including logarithmic versions of the variables in the same equation. The more relevant question and the real problem is how to deal with the more common case of imperfect multicollinearity, which exists when the explanatory variables in an equation are correlated, but this correlation is less than perfect. In reality, every multiple regression equation will contain some degree of correlation among its explanatory variables. The goal is to identify whether the degree of multicollinearity observed in one relationship is high enough to create issues (Dimitrios and Stephen, 2016). When multicollinearity exists among two or more explanatory variables, variances, and consequently the standard errors, of the OLS estimators will tend to be large.

The correlation matrix below depicts results that indicate that there exists a perfect relationship between each variable and itself. This is expected and is depicted by a correlation of 1, i.e., the correlation between ROA and ROA is 1.00. On the contrary, there exist no perfect multicollinearity amongst the variables, meaning none of the correlation coefficients amongst the different variables are 1 or significantly close to 1. Firstly, the correlation between ROA and CSR_CO, CSR_EP, CSR_GV, LIST_AGE, SIZE, BIG4AUDIT is positive as expected by the hypothesis of the study. The only anomalies in the correlation results are CSR_EN and the aggregate CSR that have a negative correlation, which is interesting as it implies that the effect that CSR_EN has is significant enough to change the entire direction of the aggregate CSR correlation. However, the correlation between MKTBK and CSR_CO, CSR_EP, CSR_GV, CSR_EN, CSR LIST_AGE, SIZE, BIG4AUDIT is positive as expected by the hypothesis of the study. All the correlation coefficients of all the pair variables are significantly less than 1 and thus the model is not suffering from multicollinearity.

Table 4: Correlation Matrix

	ROA	MKTBK	CSR_CO	CSR_EP	CSR_EN	CSR_GV	CSR	LIST_AGE	SIZE	LEV	BIG4	INDUSD
ROA	1.0000											
MKTBK	0.2016 <i>0.0000</i>	1.0000										
CSR_CO	0.0485 <i>0.1981</i>	0.1010 <i>0.0080</i>	1.0000									
CSR_EP	0.0366 <i>0.3669</i>	0.1974 <i>0.0000</i>	0.6595 <i>0.0000</i>	1.0000								
CSR_EN	-0.0472 <i>0.1961</i>	0.0272 <i>0.4619</i>	0.6013 <i>0.0000</i>	0.4881 <i>0.0000</i>	1.0000							
CSR_GV	0.0140 <i>0.7022</i>	0.0888 <i>0.0160</i>	0.5718 <i>0.0000</i>	0.5117 <i>0.0000</i>	0.4820 <i>0.0000</i>	1.0000						
CSR	-0.0130 <i>0.7481</i>	0.1093 <i>0.0075</i>	0.8411 <i>0.0000</i>	0.8492 <i>0.0000</i>	0.8118 <i>0.0000</i>	0.7121 <i>0.0000</i>	1.0000					
LIST_AGE	0.0065 <i>0.8307</i>	0.0205 <i>0.5064</i>	0.1093 <i>0.0029</i>	0.1379 <i>0.0005</i>	0.1612 <i>0.0000</i>	0.1750 <i>0.0000</i>	0.1914 <i>0.0000</i>	1.0000				
SIZE	0.1270 <i>0.0000</i>	0.1981 <i>0.0000</i>	0.2315 <i>0.0000</i>	0.2127 <i>0.0000</i>	0.3354 <i>0.0000</i>	0.4669 <i>0.0000</i>	0.2145 <i>0.0000</i>	0.2042 <i>0.0000</i>	1.0000			
LEV	-0.0436 <i>0.1494</i>	0.1230 <i>0.0001</i>	0.1787 <i>0.0000</i>	0.1284 <i>0.0015</i>	0.1292 <i>0.0004</i>	0.0999 <i>0.0062</i>	0.1395 <i>0.0006</i>	0.1879 <i>0.0000</i>	0.4085 <i>0.0000</i>	1.0000		
BIG4AUDIT	0.0763 <i>0.0109</i>	0.1209 <i>0.0001</i>	0.2167 <i>0.0000</i>	0.1856 <i>0.0000</i>	0.2729 <i>0.0000</i>	0.4395 <i>0.0000</i>	0.1616 <i>0.0000</i>	0.1711 <i>0.0000</i>	0.5509 <i>0.0000</i>	0.1415 <i>0.0000</i>	1.0000	
INDUSD	-0.0649 <i>0.0303</i>	-0.1674 <i>0.0000</i>	-0.0910 <i>0.0131</i>	-0.1900 <i>0.0000</i>	-0.0109 <i>0.7560</i>	-0.0907 <i>0.0095</i>	-0.1111 <i>0.0052</i>	-0.1619 <i>0.0000</i>	-0.1832 <i>0.0000</i>	-0.2279 <i>0.0000</i>	-0.1419 <i>0.0000</i>	1.0000

Note: ROA= Return on assets (ROA); MKTBK= Market-to-book; CSR = Aggregate CSR score; CSR_CO= CSR scores for community initiatives; CSR_EP= CSR scores for employee initiatives; CSR_EN= CSR scores for environmental initiatives; CSR_GV= CSR scores for governance initiatives; LIST_AGE= Number of years listed on the JSE; BIG4= If a firm is audited by a Big 4 audit firm; LEV= Leverage; SIZE= Firm Size. Source: Candidates estimates from research data. *Italicised values represent p-value*

4.4 Regression Results: Random Effects

The results of the random effects (REM) estimation of equations 3, 4, 5 and 6 are shown in Table 5, with equations 3 and 5 using CSR and its dimensions (CSR_EN, CSR_EP, CSR_GV, CSR_CO) as the independent variables respectively with ROA as the dependent variable. The same structure of independent variables is captured in equations 4 and 6 with MKTBK as a dependent variable. The Hausman test is formulated to assist in making a choice between the fixed effects and random effects approaches. The test failed to reject the null hypothesis, that random effects are consistent and efficient against the alternative hypothesis that random effects are inconsistent, which means that the random effects are accepted, therefore rendering fixed effects ineffective (Dimitrios and Stephen, 2016). The R-squared, which measures the proportion of the total variation in the dependent variable that is explained by the sample regression equation, shows an R-squared of approximately 30.4% for the ROA equations (3 and 5) and 32.7% for the MKTBK and aggregate CSR equation (4) while 34.3% is observed for the MKTBK and CSR dimension equation (6). The increased R-squared in the MKTBK model can be deduced to the likelihood of a high correlation of MKTBK with the SIZE variable that is measured by the total value of assets. Thus, the explanatory power of the second model is biased.

From the estimated coefficients in Table 5, a positive relationship between Return on Assets (ROA), Market-to-Book value (MKTBK) and the Aggregate CSR although significance is only observed in equation 4. This indicates that improving CSR activities generate positive market returns, which can be explained by a possible valuation premium given by the market for the higher-scoring ESG companies (Abdelaziz 2020). This result was expected as hypothesised by a number of prior studies, (Margolis and Walsh (2001), Lindgreen and Swaen (2009), and Ararat et al. (2017). These studies found that companies that invest in corporate socially responsible areas are likely to yield the benefits of increased profitability and an increased market-to-book value ratio.

Additionally, a significant positive relationship can be observed between both ROA, MKTBK and the CSR_EP; this implies that if employees are treated fairly, they are likely to be more productive and lead to high profitability for the firm. Moreover, when the stakeholders and shareholders are aware that the company's most valuable resources (employees) are well taken care of, it implies that the company's expected earnings are likely to increase and therefore a high valuation is placed upon the firm. The relationship between CSR_CO, (equation 5 and 6)

though significant, it is negative and this goes against the overall expectation and prior studies of Lindgreen and Swaen (2009), and Ararat et al. (2017). These studies found that companies that invest in corporate socially responsible areas are likely to yield the benefits of increased profitability.

The relationship between ROA, MKTBK and CSR_GV, though positive, it is not statistically significant in equation 5 and 6. The direction of the relationship is expected as good governance is expected to positively contribute to the returns of the firm and subsequently, the valuation of the company. This is backed by prior studies of Rodriguez- Fernandez (2016) who found a bi-directional relationship between CSR and profitability and that good corporate governance may lead to higher profits and higher profits encourage good corporate governance and social responsibility. Numerous other studies found similar relationships between CSR and financial performance in emerging and developed markets alike (Lopez- Quesada et al., 2018; Nkomani, 2013; Callan & Thomas, 2009; Statman, 2005; Ntoi, 2010; Luo & Bhattacharya, 2013).

In equations 3 and 5, the positive relationship between ROA and the tenure of listing (LIST_AGE) is found to not be statistically significant, however in equations 4 and 6, the relationship is significant between MKTBK and LIST_AGE explained by the market being familiar with the firm and the way it generates its earnings, its governance structure and the way its treats the environment as well as its employees; these all point to a premium valuation by investors. Leverage is found to have a significant negative relationship with ROA, which is not expected, unless its leverage at an unsustainable level that it becomes a burden to service the leverage of the company; in the same vein, leverage is found to have a significant positive relationship with MKTBK as expected, an appropriate level of leverage is expected to increase the valuation of the firm and subsequent earning's potential. Lastly, equation 3 and 5 found a positive relation between ROA and BIG4AUDIT, but statistically not significant. The relationship between MKTBK is positive and statistically significant as would be expected, the market will view a company's earnings as of high quality if they are audited by the Big 4 audit firms. It does not necessarily mean the firms that are not audited by the Big 4 are reporting inaccurate earnings; however, the confidence placed by the market in the earnings verified by the Big 4 is high, which leads to a high valuation premium.

Table 5: Random Effects Regression Results

Equation	ROA				MKTBK			
	3		5		4		6	
	Coefficient	Std. err.	Coefficient	Std. err.	Coefficient	Std. err.	Coefficient	Std. err.
Constant	0.196**	0.079	0.187**	0.081	4.966***	1.337	4.607***	1.342
CSR	0.032	0.057			1.270*	0.683		
CSR_CO			-0.110*	0.065			-1.270*	0.741
CSR_EP			0.085*	0.049			2.265***	0.586
CSR_EN			0.005	0.048			-0.379	0.537
CSR_GV			0.104	0.069			1.308	0.845
LIST_AGE	0.007	0.006	0.008	0.006	-0.259**	0.110	-0.214**	0.109
SIZE	-0.005	0.004	-0.006	0.004	-0.231***	0.068	-0.237***	0.067
LEV	-0.020***	0.003	-0.020***	0.003	0.257***	0.043	0.260***	0.042
BIG4	0.016	0.021	0.011	0.022	1.282***	0.405	1.157***	0.401
INDUSTRY (Ref_Communications)								
Consumer Discretionary & Consumer Staples	-0.013	0.033	-0.016	0.033	0.493	0.629	0.448	0.620
Financials	-0.098***	0.033	-0.094***	0.033	-0.219	0.631	-0.185	0.622
Healthcare	-0.008	0.039	-0.008	0.039	-0.472	0.747	-0.430	0.736
Industrials	-0.077**	0.036	-0.081**	0.036	-1.473**	0.672	-1.508**	0.663
Materials	-0.106***	0.035	-0.113***	0.035	-1.122*	0.657	-1.223*	0.649
Media	-0.101	0.077	-0.110	0.077	-0.250	1.459	-0.553	1.439
Oil & Gas & Energy	-0.073	0.058	-0.083	0.059	-1.499	1.088	-1.638	1.078
Real Estate	-0.077**	0.035	-0.073**	0.036	-1.407**	0.670	-1.274**	0.662
Software & Tech Services, Technology & Information Technology	-0.030	0.043	-0.026	0.043	-1.303	0.803	-1.200	0.792
Wald χ^2	106.04**		112.38**		122.2***		141.73***	
Prob > χ^2	0.000		0.000		0.000		0.000	
R-squared	0.3035		0.3053		0.3269		0.3432	
Hausman χ^2 (p-value)	11.55(0.173)		13.73(0.056)		3.18(0.867)		12.99(0.284)	
Number of firms	132		132		132		132	
Observations	605		605		592		592	

Note: ROA= Return on assets (ROA); MKTBK= Market-to-book; CSR = Aggregate CSR score; CSR_CO= CSR scores for community initiatives; CSR_EP= CSR scores for employee initiatives; CSR_EN= CSR scores for environmental initiatives; CSR_GV= CSR scores for governance initiatives; LIST_AGE= Number of years listed on the JSE; BIG4= If a firm is audited by a Big 4 audit firm; LEV= Leverage; SIZE= Firm Size. Source: Candidates estimates from research data

4.4.1 Regression Results: System GMM Results

The GMM equations 7, 8, 9 and 10 found a positive relationship between ROA, MKTBK and aggregate CSR, though not significant. Equations 7 and 8 finds that there is a significant positive relationship between ROA and its one period lagged value, this implies that a 1 percent change in the ROA in the previous period leads to a 0.75 and 0.65 percent increase in the current ROA, respectively. This is of course theoretical given that two financial years could be influenced by more than the previous period ROA. Additionally, the model found a negative relationship between ROA and CSR_EN, CSR_GV and LEV, in line with the findings of Brammer et al. (2006) who found that companies with greater CSR scores tended to achieve lower stock returns, whilst those with no CSR score at all performed considerably better. Furthermore, Faical and Elouidani, (2018) found that Emerging market, Morocco, fared no better, with a study reporting a significantly negative relationship between CSR and financial performance, concluding further that companies with investments in CSR yield profitability and equity capital that is lower than other companies which do not, likely because of the cost needed to invest in CSR practices and policies. This is despite the positive relationship that is found with the aggregate CSR, which could be caused by CSR_EP and CSR_CO as stronger instrumental variables. What is worth noting is that none of these relationships are statistically significant, apart from leverage and therefore the results need to be inferred with caution.

The GMM equations 9 and 10 have MKTBK as the dependent variable instead of ROA and find the exact opposite of the GMM equations 3 and 5. It indicates a positive relationship between MKTBK and CSR_EN, CSR_EP, CSR_GV and LEV, the only negative relationship is found to appear between MKTBK and CSR_CO. These results are similar to the findings of a Turkish study by Ararat et al (2017) that examined the relationship between corporate governance practices and firm value and profitability, and found some evidence that improved corporate governance resulted in higher profitability, whilst a strong relationship was found between good governance and company's market value. Moreover, Vander Bauwhede (2009) found that greater compliance with international corporate governance best practice resulted in better company performance.

We find that the relationship between MKTBK and MKTKBK one period lagged, and LEV are statistically significant at 1% significance level, however, the relationship between MKTBK and CSR_CO, CSR_GV and CSR_EN are not statistically significant. We therefore find that

CSR_EP and LEV are important variables in explaining the variation in the dependent variable, this is made robust by identifying the lagged variables of CSR_EP and LEV as instrumental variables in the both ROA and MKTBK system of equations.

Under both the random effects and GMM equations 3 and 5, the results show that there is a positive and significant relationship between ROA and CSR_EN, CSR_GV and LEV. However, under the random effects, the results indicate a positive and significant relationship between MKTBK and CSR_EP, CSR_GV and LEV, while under equations 4 and 6, the opposite is found, though, not statistically significant. This may support the inconclusive findings of Van der Laan, G., Van Ees, H. and Van Witteloostuijn (2008) who argue that aggregated measures of CSR at firm level do not take into account the true impact of varying stakeholder groups and are thus inadequate to provide an accurate description of the relationship between CSR and financial performance.

According to Dimitrios and Stephen (2016), if the J-stat is 0, the GMM model in question is significantly robust, similarly, if the p-value is 0 then the model is spurious and therefore should not be relied upon. The GMM equations 4, 5, 6 and 7 all have a p-value that is significantly different from zero and therefore can be deemed to be reasonably robust in describing the data.

Table 6: GMM

Equation	ROA				MKTBK			
	7		8		9		10	
	Coefficien t	Std. err.	Coefficien t	Std. err.	Coefficien t	Std. err.	Coefficien t	Std. err.
CONSTANT	-0.057**	0.032	0.033	0.077	-0.566**	0.023	-0.068**	0.687
ROA(-1)	0.754***	0.114	0.652**	0.267				
MKTBK(-1)					0.423**	0.203	0.134	0.098
CSR	0.122	0.305			7.312	4.319		
CSR_CO			0.332	0.380			-10.413	7.509
CSR_EP			0.303	0.267			11.431	2.644
CSR_EN			-0.300	0.299			3.870	3.686
CSR_GV			-0.147	0.415			10.875	8.445
LIST_AGE	0.542***	0.114	0.422***	0.112	0.342***	0.122	0.442***	0.114
SIZE	-0.004	0.001	-0.003	0.002	-0.214***	0.077	-0.125***	0.089
LEV	-0.013***	0.003	-0.008	0.005	0.535***	0.157	0.423***	0.060
BIG4	5.61E***	1.58E	6.47E	1.78E	1.49E	3.73E	-1.03E-07	1.80E-07
INDUSTRYD (Ref_Communications)								
Consumer Discretionary & Consumer Staples	-0.017	0.031	-0.055	0.042	0.098**	0.012	-0.016	0.620
Financials	-0.056	0.034	-0.052	0.063	-0.325	0.854	-0.058	0.622
Healthcare	-0.088**	0.023	-0.025	0.085	-0.584**	0.032	-0.088**	0.736
Industrials	-0.012	0.041	-0.081**	0.011	-1.154	0.987	-0.012***	0.012
Materials	-0.196	0.038	-0.018	0.045	-1.211	0.894	-0.169	0.649
Media	-0.198***	0.019	-0.255**	0.017	-0.258**	0.012	-0.185	0.698
Oil & Gas & Energy	-0.155	0.066	-0.069	0.098	-1.877	1.066	-0.158	0.059
Real Estate	-0.063	0.044	-0.089*	0.066	-1.845	0.985	-0.055	0.698
Software & Tech Services, Technology & Information Technology	-0.125**	0.012	-0.033*	0.023	-1.358	0.069	-1.058**	0.023
Mean dependent var	-0.013179		-0.012767		-0.172058		-0.152973	
S.E. of regression	0.139394		0.126190		1.186893		1.279072	
J-statistic	3.978564		5.025822		9.935096		3.517823	
Prob(J-statistic)	0.552506		0.412737		0.077095		0.620692	
S.D. dependent var	0.110574		0.094646		1.467552		1.614872	
Sum squared resid	8.296890		5.366361		574.7558		531.7086	
Instrument rank	10		13		10		13	
Observations	632		545		613		533	

Note: ROA= Return on assets (ROA); MKTBK= Market-to-book; CSR = Aggregate CSR score; CSR_CO= CSR scores for community initiatives; CSR_EP= CSR scores for employee initiatives; CSR_EN= CSR scores for environmental initiatives; CSR_GV= CSR scores for governance initiatives; LIST_AGE= Number of years listed on the JSE; BIG4=If a firm is audited by a Big 4 audit firm; LEV= Leverage; SIZE= Firm Size. Source: Candidates estimates from research data

Chapter 5: Conclusion

5.1 Introduction

Outlined in this chapter is the summary of the findings of the research, conclusions, recommendations for companies and government and finally, limitations of the study and avenues for further research.

5.2 Summary and Conclusion of the Study

This research sought to add to the growing body of research that seeks to understand the relationship between Corporate Social Responsibility (CSR) measured using a few CSR scores such as CSR for community initiatives, environmental initiatives, employee initiatives, governance initiatives and financial performance. Financial performance represented Return on Assets (ROA) and Market-to-Book value (MKTBK). The study focused on South African-listed equities from 2016, when the FTSE Russell ESG ratings methodology was integrated into the JSE Responsible Investment Index, until 2019, a year prior to the severe impact of Covid-19 on the global economy. The study reviewed empirical literature that applied to the study. As far as the author's knowledge could infer, there are limited empirical studies that examine the relationship between Corporate Social Responsibility and financial performance. The study utilised panel data and employed the multiple regression panel data model, applying random effects and Generalized Model of Moments (GMM) estimation approaches.

There has been a considerable number of empirical studies and the vast majority in the past few decades have found a positive relationship between CSR and financial performance, with a few anomalies that found negative and inconclusive relationships, respectively. Many researchers focused their attention on the standard CSR score without disintegrating the CSR score into the different scores such as employee CSR and environment CSR. The author also finds that the previous studies limited financial performance to pure accounting profitability which in turn limits the evidence into the perceptions of investors towards the firm which can be captured by a valuation metric such as Market-to-Book value. This study addressed both limitations of a few previous studies to add to the body of knowledge.

The findings in this study are in support of a few prior studies, as the relationships are diverse with the inclusion of the CSR scores (employees, environment, community and governance).

From the results of the study, the models employed proved to be somewhat robust as the R-squared was statistically significant in explaining the variations in the dependent variables.

The findings of the study indicate a positive relationship between Return on Assets (ROA), Market-to-Book value (MKTBK) and the Aggregate CSR, but only one equation out of the 4 equations indicated this relationship. This is unsurprising as the aggregate is inclusive of numerous CSR metrics with varying impacts on financial performance. However, when the individual CSR variables are considered, the results indicate either a positive or negative relationship with financial performance, thus reflecting all three outcomes as assessed in the literature review: the relationship between CSR and financial performance can be positive, negative or inconclusive.

That said, it is worth noting that the period under assessment of this study, ending in 2019, does not fully reflect the leaps and bounds CSR application and ESG integration have made on a global scale, and specifically in South Africa. This may imply that further research needs to be conducted with specific focus on more recent years, and with an evaluation of the specific CSR metrics, rather than aggregate measurements. This information has become more widespread and standardised in recent history, thus allowing for a more comprehensive analysis of the topic.

5.3 Recommendations

ESG is quickly becoming a non-negotiable for international capital markets and international investors. South African listed companies that wish to expand their pool of capital and investors beyond South African borders will find that the adoption of sound ESG/CSR practices is a necessary prerequisite. However, governments need to ensure a conducive environment is created to allow for corporations to fulfil their CSR ambitions in a manner that results in true impact. For example, machine-heavy industries such as mining should not have to rely on the government (through municipalities) to permit them to put up renewable energy plants and route that power supply through the government in order to support their production needs. The emergence of loadshedding as a real threat to the South African economy should mean the government creates a business-friendly environment that allows companies to future-proof themselves without reliance on the state. This is crucial in enabling international investment and capital markets participation. More broadly, ESG policy adoption by the Government of South Africa may have a significant impact on the country. At present, global focus is on climate change and the mitigation thereof. Countries across the globe have set formal intentions

for the lowering of total carbon emissions in their countries. In South Africa, the Climate Change Bill is under consultation, which aims to transition the country to a low-carbon economy by reducing greenhouse gas emissions. Ultimately, the promulgation of this bill into an act, will impact how the country does business. As a coal-reliant economy, South Africa will need to shift from coal energy into renewable sources, which should, all things kept equal, eventually drive down the cost of energy for end-users. To aid in the transition, private companies will have to follow suit. For now, large, listed corporations are already making strides in their commitment to reducing the production of greenhouse gases. The enactment of the Climate Change Bill will influence how all companies do business, including private (non-listed) companies and may very well end up impacting medium enterprises. This in turn will start informing how all companies allocate their capital, with significant capital expenditure being necessary initially to create alternative energy sources. It is worth noting that energy intensive industries will be impacted most, such as transport, mining and manufacturing. This transition will necessitate skills development across the board, which may result in new employment prospects in the country.

Overall, formal adoption of ESG policies by the national Government will eventually trickle down to all economic participants with all players expected to comply.

5.4 Limitations and Avenues for Future Studies

This study assumed that the chosen CSR/ESG database is complete in terms of data collection and there is not bias towards any firm. There are a few ESG database providers and therefore an average of the data across several different providers might yield more robust results. Future researchers may consider this in making their studies more informative.

The study covered a relatively short period in terms of the sample and therefore the results would be inclusive of the traits specific to the period when the FTSE Russell ESG Ratings were integrated into the JSE Responsible Investment Index. Furthermore, the behaviour of firms during the Covid-19 pandemic can provide some evidence on how firms behave with respect to CSR in times of stress in the economy. Future researchers may consider incorporating structural breaks into their studies to get a gauge on the firms' behaviours before the integration of FTSE Russell ESG Ratings and during the Covid-19 era. Finally, the study does not test for the causal relationship between CSR and financial performance. Therefore, the causality relationship cannot be confirmed.

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