GREEN GAINS: A CASE FOR SOUTH AFRICAN-LISTED FIRMS

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Abstract

This study investigates the impact of Environmental, Social, and Governance (ESG) performance on firm value and profitability for firms listed on the South Africa Stock Exchange from 2013 to 2021, using data from Bloomberg. To mitigate possible endogeneity, we utilized the two-stage least squares (2SLS) regression model, using lagged ESG scores (L2), ESG-related bonuses, and executive compensation as instruments.

Our findings reveal that strong ESG performance positively influences firm profitability, but negatively impacts firm value as measured by Tobin's Q. The study suggests that ESG can enhance a firm's efficiency in its current operations, but it does not significantly contribute to its value creation. Furthermore, the Governance dimension of ESG is not statistically significant in both Tobin's Q and ROA models. Fixed Effects Model (FEM) analysis yielded insignificant results, highlighting the potential effects of endogeneity and its consequences if not addressed.

This research contributes to the literature on ESG and financial performance by demonstrating the effectiveness of using robust instrumental variables and controlling for unobserved time-varying factors to derive unbiased estimates. The insights gained from this study can inform policymakers, industry leaders, and academics about the strategic integration of ESG considerations into corporate and investment practices, ultimately fostering sustainable development and enhancing financial performance.

Keywords: Environmental, Social, and Governance (ESG), Firm Value, Profitability, South Africa Stock Exchange, Two-Stage Least Squares (2SLS), Endogeneity, Tobin's Q, ROA, Fixed Effects Model (FEM), Instrumental Variables, Corporate Financial Performance, ESG Integration

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List of Abbreviations

CERES	Coalition for Environmentally Responsible Economies
CSR	Corporate Social Responsibility
DJGI	Dow Jones Global Index
DJSI	Dow Jones Sustainability Global Index
ESG	Environmental Social and Governance
EU	European Union
FEM	Fixed Effects Model
GRI	Global Reporting Initiative
JSE	Johannesburg Stock Exchange
NGOS	Nongovernmental Organizations
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
PBT	Profit Before Tax
REM	Random Effects Model
ROA	Return on Assets
SASB	Sustainability Accounting Standards Board
SDGS	Sustainable Development Goals
SRI	Social Responsibility Investment
TCFD	Task Force on Climate-Related Financial Disclosures
U.S.	United States
UN	United Nations
UNEP	United Nations Environment Programme
VIF	Variance Inflation Factor
WCED	World Commission on Environment and Development
2SLS	Two-Stage Least Squares

List of Tables

List of Figures

List of Appendix

Table of Contents

1. Introduction

The global shift towards environmentally friendly corporate practices has made ESG factors central to discussions on corporate responsibility and financial performance. Increasingly, financiers, shareholders, legislators and society at large expect companies to prioritize these factors in a bid to mitigate environmental risks, support social equity, and uphold strong governance standards.

ESG factors are often viewed as indicators of a business's dedication to sustainability, potentially driving both long-term value and resilience. However, ESG compliance's effects on business equity and profitability remains a contentious issue within both academia and industry.

South Africa presents a compelling case to evaluate the influence of sustainable practices on firm's equity and profits. As Africa's most industrialized economy and its largest carbon emitter, South Africa faces the dual challenge of transitioning to sustainable practices while addressing urgent socio-economic issues, such as high unemployment rates of over 33.5% and economic inequality— the Gini coefficient hovering around 0.63 (Statistics South Africa, 2024). This unique combination of environmental and socio-economic pressures has long challenged South Africa's economy, underscoring the need for sustainable practices within corporate strategies to enhance financial performance while addressing broader societal goals (Kumo, Rieländer, & Omilola, 2014).

The nation's reliance on fossil fuels, alongside socio-political pressures to meet international environmental standards, emphasizes the need to comprehend the influence of ESG compliance on the financial performance of businesses in this unique setting. Investors, policymakers, and corporate leaders are increasingly interested in whether ESG compliance can support environmental objectives while promoting financial stability, especially as companies navigate multifaceted market conditions.

This research addresses endogeneity issues by introducing the two-stage least squares (2SLS) model, therefore augmenting the body of knowledge by seeking to unravel the impact of sustainable practices on firm's value (Tobin Q) and profits (ROA). The 2SLS approach corrects for potential endogeneity, providing a robust estimation of the interplay between sustainability efforts and business outcomes. This comprehensive approach enhances understanding of how ESG practices affect financial metrics and enriches the discourse on ESG's role in corporate performance.

In Chapter 2, we will provide background on the historical journey of ESG and examine the global and local landscapes of sustainability reporting. Chapter 3 will offer a comprehensive analysis of the integral literature on theory and empirical research that supports our research inquiry with a focus on theories explaining investor behavior and market efficiency.

Further, we will present a review of the empirical studies literature undertaken on ESG and impact investing, corporate financial performance, as well as sustainability reporting. Chapter 4 will detail the research methods and design, model specifications, and the statistical approaches applied in the analysis. The analytical findings will be provided in Chapter 5 while Chapter 6 will provide the summary and conclusion, reviewing the hypotheses and offering recommendations and suggestions for further studies.

This study specifically focuses on Environmental, Social, and Governance (ESG) factors, rather than broader or legacy notions of Corporate Social Responsibility (CSR). While the two are sometimes used interchangeably in literature, ESG offers a more structured, data-driven framework that aligns better with investor-oriented performance assessments. Where CSR is mentioned, it is either in a historical or contextual sense and is clearly distinguished.

1.1 Study Problem and Significance

Despite the potential benefits of ESG practices, the empirical evidence about their impact on firm value (as measured by TOBIN Q) and financial performance (as measured by ROA) remains mixed. Several studies, including those by Chininga et al. (2024), Broadstock et al. (2021) and Giese et al. (2019), have examined this phenomenon, concluding that ESG practices enhance financial outcomes by reducing risks and fostering long-term sustainability. However, other studies, including López et al. (2007), Marsat and Williams (2011), and Hussain et al. (2018), reports neutral or negative effects due to potential costs and inefficiencies associated with implementing ESG initiatives.

This ambiguity is particularly evident in developing markets, such as South Africa, where companies operate under unique economic and social conditions. This raises critical concerns for South African firms, which must reconcile stakeholder demands for sustainability with the objective of maximizing firm value, due to the lack of accord regarding the financial repercussions of ESG practices. This backdrop intensifies the need for firms to adopt Environmental, Social, and Governance (ESG) practices that not only enhance financial performance but also address broader social issues. Given these dynamics, South Africa

provides a compelling context for examining how sustainable practices influence a firm's equity and profitability, particularly in an environment where businesses are increasingly expected to contribute to social and economic transformation (Daniel et al. (2013).

1.2 Research Questions

1. What is the relationship between the Aggregate ESG Score and the firm value, as measured by Tobin's Q, and financial performance, as measured by ROA, among South African listed firms

2. How do individual components of ESG (Environmental, Social, and Governance Scores) impact firm value and financial performance in South Africa?

This research adds valuable insights to the current academic literature in multiple aspects. First, by disaggregating ESG factors, it specifies how each component of ESG distinctly affects financial performance, offering insights into which sustainability practices may yield the most significant benefits for South African firms.

Second, by focusing on a developing market, this research extends the literature on ESG's role in diverse economic contexts, where resource constraints and regulatory frameworks differ markedly from those in developed countries. Finally, the study aims to provide practical implications for policymakers, investors, and corporate leaders seeking to foster both financial performance and sustainability within South Africa's unique socio-economic landscape.

1.3 Aims of the Study

This study aims to investigate whether adherence to sustainability practices, as captured by aggregated and disaggregated Environmental, Social, and Governance (ESG) factors, contributes to enhanced firm performance among South African-listed firms. Specifically, it examines the relationship between both the combined ESG score and the individual environmental, social, and governance components with firm value and profitability. Tobin's Q is employed as a proxy for market-based firm value, while Return on Assets (ROA) captures accounting-based financial performance. The analysis also incorporates key control variables, including leverage, firm size, economic growth, market capitalization, debt-to-equity ratio, payout ratio, and interest rate, to account for other influences on firm performance.

2. Background

In this chapter, we delve into the foundational context and background essential to understanding the role of ESG (Environmental, Social, and Governance) in corporate financial performance.

2.1 Global Historical Development: From CSR to ESGs

The origins of sustainability reporting may be linked to the mid-twentieth-century boom in environmental action and awareness. Works of great influence, like the seminal 1962 book "Silent Spring" by Rachel Carson, which revealed the harmful consequences of pesticide usage on the ecosystem, triggered increased environmental awareness and activism (Carson, 1962). Similarly, throughout the 1960s and 1970s, consumer protection, labor rights, and civil rights were among the social movements that emphasized the need for businesses to take social responsibility beyond profit maximization (Hawken et al., 1999).

ESG has evolved from the broader concept of CSR. While CSR emphasized voluntary corporate commitments to social good, ESG offers quantifiable metrics that investors and regulators increasingly use to assess risk and performance. This study positions ESG as the central evaluative framework.

The concept of Corporate Social Responsibility (CSR) gained traction in response to increased awareness of environmental and social concerns, indicating a significant change in firms' societal role. In his seminal article Bowen (1953), established the foundation for corporate social responsibility (CSR) by advocating that companies consider the wider societal ramifications of their operations. Subsequently, conceptual frameworks such as the CSR pyramid model, which Archie Carroll formulated during the 1970s, furnish an approach to delineating the the economic, legal, moral, and philanthropic obligations of businesses (Carroll, 1979).

The late 20th century saw the formalization of sustainability reporting as an organized process, a response to the growing awareness that businesses must regularly disclose their environmental, social, and governance (ESG) impacts. Among the initial efforts of its kind, the Global Reporting Initiative (GRI) was established in 1997 as a collaborative effort involving the UN Environment Programme (UNEP) and the Coalition for Environmentally Responsible Economies (CERES) (Global Reporting Initiative, 2016). The GRI significantly aided in the

development of sustainability reporting requirements, which provided businesses with a standardized framework for disclosing their ESG performance.

Simultaneously, numerous programs and recommendations were launched by global entities like the UN and the Organization for Economic Cooperation and Development (OECD), emphasizing the criticality of conscientious business practices and corporate sustainability (OECD, 2015). The Global Compact, which was established by the United Nations in 2000, established a significant obligation on businesses to develop their operations and business strategies under ten universally acknowledged principles concerning the environment, anti-corruption, human rights, and labor (United Nations Global Compact, n.d.).

In recent years, the integration of regulatory requirements, market limitations, and stakeholder demands has transformed sustainability reporting from an emerging endeavor to a critical requirement in the mainstream. Regulatory frameworks, including the Non-Financial Reporting Directive of the European Union and the 2030 United Nations Sustainable Development Goals (SDGs), further promote the incorporation of sustainability considerations into reporting practices (European Commission, 2014). In addition, the increasing use of responsible investment strategies and sustainable indices highlights the growing significance of sustainability performance as a key factor in generating value for businesses (Clark et al., 2020).

There are a multitude of compelling justifications for contemporary businesses to adopt ESG integration and sustainability reporting. Initially, an increased number of stakeholders—including employees, investors, consumers, and regulators—are cognizant of environmental and social issues. This heightens the pressure on companies to demonstrate their dedication to ethical and sustainable business practices (Freeman et al., 2010). Disregarding Environmental, Social, and Governance (ESG) concerns could potentially lead to detrimental effects on a company's credibility, erosion of investor confidence, and heightened regulatory examination, all of which can yield tangible financial repercussions.

Second, the emergence of responsible investment practices, including impact investing, the integration of ESG and ethical investing, has altered the investment environment. An expanding percentage of investors are incorporating environmental, social, and governance (ESG) factors into their investment decision-making (Clark et al., 2020). Socially Responsible financiers are more likely to fund firms that have implemented robust ESG and sustainability

reporting protocols. This, in turn, can result in improved capital accessibility and a reduced long-term capital cost.

As a result of a global trend toward more accountability and transparency in corporate disclosures (European Commission, 2014), disclosure requirements and mandates for sustainability reporting and environmental, social, and governance (ESG) factors have grown significantly across nations.

Competitive advantages are conferred by sustainability reporting and ESG integration, in addition to risk management and legal conformance. By integrating sustainability into their core business strategy and capitalizing on opportunities for innovation, operational efficiency, and market differentiation, organizations have the potential to generate sustainable value over time and gain a competitive edge (Porter & Kramer, 2006). By integrating sustainability considerations into their value chains and business models, organizations can enhance their resistance to emerging risks, anticipate changes in customer preferences, and capitalize on untapped market opportunities during the transition to a more sustainable and progressive economy.

The South African context presents a heightened urgency for sustainability reporting due to its extensive historical record of environmental challenges and social disparities. The significance of corporate social responsibility and accountability in fostering inclusive development and rectifying historical injustices has been underscored by the enduring impact of apartheid captured in the King IV Report (Institute of Directors in Southern Africa [IoDSA], 2016). Moreover, to ensure sustained economic expansion and environmental conservation, a concentrated dedication to sustainable practices is imperative for the conservation of South Africa's plentiful biodiversity and natural resources (Department of Environmental Affairs, 2012).

Scholarly inquiry can gain valuable insights from the correlation that exists between sustainability reporting and financial performance. It may shed light on how corporations effectively navigate the complexities of sustainable business practices while concurrently striving to enhance shareholder value. This relationship is examined within the context of South African publicly traded companies in this thesis.

2.2 Brief Overview of ESG Reporting Landscape

To determine the long-term viability and moral effect of a company's stock, investors look to ESG (Environmental, Social, and Governance) metrics. All things considered, these metrics do a superior job of predicting how well businesses will do financially in the future, including return and risk.

Business practices in areas such as energy consumption, waste management, pollution levels, protection of natural resources, and animal welfare are all part of environmental criteria as shown in *Table 1*. In addition, climate change, carbon emissions, water use, and biodiversity are all important components of environmental impact.

Social criteria encompass a broad array of topics, including labor practices, talent management, product safety, customer satisfaction, data protection and privacy, community engagement, and how a business handles its ties with its suppliers, distributors, staffing, and local communities. Issues like human rights and the diversity and inclusion initiatives of the business is a key component under this criterion.

Governance standards encompass management, compensation for executives, audits, internal assurances, and shareholder rights that aim to make sure that corporations are honest with their numbers and that shareholders have a say in major decisions. Board makeup, company policy, CEO pay, lobbying efforts, and financial donations are all components of good governance (Eccles et al., 2014; Khan et al., 2016).

Environmental, social, and governance (ESG) reporting is the practice of disclosing information about a company's effects and value creation in relation to these three areas. According to the United Nations Global Compact (n.d.), this kind of reporting goes beyond typical financial measures in providing stakeholders with information about the company's performance. Stakeholders include investors, workers, consumers, and regulators.

By showcasing the company's attempts to manage risks and opportunities associated with ESG elements and by guaranteeing accountability and transparency, ESG reporting primarily aims to show stakeholders how a company's activities affect these three areas. An enhanced reputation, more trust from investors, and possible savings from more efficient use of resources are all possible outcomes of well-executed ESG reporting. Companies that excel in environmental, social, and governance (ESG) metrics not only help with risk management by

spotting any ESG-related issues early on, but they also appeal to socially concerned investors and customers (Clark et al., 2020).

The Task Force on Climate-related Financial Disclosures (TCFD), the Integrated Reporting Framework (IR), the Sustainability Accounting Standards Board (SASB) and the Global Reporting Initiative (GRI) are among the most popular frameworks and standards that direct environmental, social, and governance (ESG) reporting. Firms may utilize these frameworks to organize their reports in a consistent and clear way. The absence of consistency in ESG reporting, however, is a major obstacle that investors face when trying to compare different firms. Finding the right measures to report on and gathering accurate data may also be challenging (Eccles et al., 2014).

Finally, it is impossible to grasp the whole scope of an organization's operations and governance without considering ESG aspects. The communication of this effect, the promotion of openness, and the guidance of investors and other stakeholders in their decision-making processes may all be achieved via ESG reporting. The significance of thorough and consistent ESG reporting is rising as ESG factors are being more and more included in investment decisions.

Comprehensive overview of the key ESG components		
Component	Area of Reporting	Description
Environmental (E)	Energy Use	Includes the efficiency and amount of energy consumption, use of renewable energy, and measures taken to reduce energy usage.
	Waste Management	Encompasses the reduction, recycling, and disposal methods of waste produced by the company.
	Pollution Control	Measures and strategies to reduce emissions, effluents, and other pollutants.
	Natural Resource Conservation	Efforts to conserve water, forests, minerals, and other natural resources.
	Climate Change and Carbon Emissions	Policies and initiatives aimed at reducing greenhouse gas emissions and mitigating climate change impact.
	Biodiversity	Activities related to the protection of ecosystems, flora, and fauna.
Social (S)	Labour Practices	Covers fair wages, working conditions, health and safety, and compliance with labour laws.
	Talent Management	Includes training and development, employee engagement, and retention strategies.
	Human Rights	Procedures and regulations meant to stop violations of human rights and promote dignity for everyone.
	Diversity and Inclusion	Efforts to ensure a diverse and inclusive workplace, promoting equality and preventing discrimination.
	Community Engagement	Initiatives to support and invest in local communities, philanthropy, and volunteerism.
	Product Safety and Quality	Ensuring the company's goods and services are safe and of high quality.
	Customer Satisfaction	Measures to track and improve customer satisfaction and feedback.
	Data Protection and Privacy	Policies and procedures to protect customer and employee data privacy.
Governance (G)	Board Composition	Structure, diversity, and autonomy of the directors' board.
	Executive Compensation	Transparency and fairness in executive pay and incentives.
	Shareholder Rights	Ensuring shareholders have the ability to vote on key issues and are treated equitably.
	Audits and Internal Controls	Robustness of financial audits, internal controls, and risk management processes.
	Corporate Policies and Ethics	Implementation of ethical guidelines, anti-corruption measures, and compliance programs.

Table 1: Comprehensive overview of the key components of ESG

Table 1 provides a comprehensive summary of the fundamental elements of ESG and the respective areas of reporting. It highlights the diverse aspects that companies need to consider and disclose to ensure transparency, accountability, and sustainability in their operations

2.3 ESG and Sustainability Reporting in South Africa

Significant progress and execution have been made in the realm of sustainability reporting and disclosures in South Africa over time. A variety of factors, including regulatory mandates, stakeholder pressures, and a growing recognition of the value associated with sustainable business operations, have contributed to this development. The country has established itself as a frontrunner in the promotion of corporate transparency and accountability through the implementation of sustainability reporting initiatives.

The introduction of sustainability reporting in South Africa underwent a substantial transformation when the 1994 King Report on Corporate Governance was released. The report emphasized the importance of comprehensive reporting that integrates financial, social, and environmental dimensions. The subsequent iterations of The King Report, specifically King III and King IV, fostered the adoption of a more comprehensive approach to corporate reporting and disclosures by businesses and reinforced the fundamental principles of integrated reporting.

In conjunction with King Reports, the Johannesburg Stock Exchange (JSE) has made a substantial impact on the development of sustainability reporting in the sector of publicly traded companies. Listed corporations have a legal duty to adhere to the JSE Socially Responsible Investment (SRI) Index, which serves as an evaluation structure for companies' sustainability performance and reporting practices. A company's inclusion in the SRI Index serves as an indication of its commitment to sustainable development and enhances the organization's credibility.

Furthermore, South Africa has adopted the Global Reporting Initiative (GRI) framework as a standard for sustainability reporting on an international level. The GRI framework delineates a collection of principles and guidelines that mandate corporations to disclose their economic, environmental, and social impacts transparently and consistently. A considerable number of South African-based corporations have embraced the GRI framework to enhance the reliability and comparability of their sustainability reports.

There is an expectation that sustainability reporting in South Africa will continue to advance steadily over the next few years, aligning with emerging trends and global standards. The sustainability reporting landscape has been profoundly catalyzed by the 2030 United Nations Sustainable Development Goals (SDGs) and the Paris Agreement on climate change. Further,

companies will likely be obligated to provide updates on their advancements toward worldwide sustainability goals and tackle a wider variety of sustainability-related challenges.

Bhorat, Hirsch, Kanbur, and Ncube (2014) emphasize the need for economic reforms in South Africa that balance growth with social inclusion, poverty reduction, and job creation. They argue that overcoming socio-economic barriers is key to sustainable growth. In this context, Environmental, Social, and Governance (ESG) practices help businesses be mindful of the societies around them, care for the environment, and take on social responsibility. ESG encourages companies to look beyond profits by considering the broader impact of their operations on society and the environment, thus contributing to a more inclusive, sustainable future while aligning with national goals of addressing inequality and unemployment.

2.4 Overview of Key Concepts

ESG practices are hypothesized to improve firm performance through several transmission channels. Enhanced environmental practices may lead to operational efficiencies and reduced regulatory risks. Social and governance improvements can foster stakeholder trust, reduce agency costs, and improve long-term profitability. These firm-level gains may collectively promote environmental sustainability by incentivizing greener operations.

2.4.1 Firm's Financial Performance

When assessing a business's performance, operational efficiency, financial outcomes, and stakeholder impact is considered. Ogunode et al. (2022) show how complicated it is to measure performance by dividing it into measurements that focus on outcomes, like financial performance, and measurements that focus on factors, like how resources are used and new ideas.

2.4.1.1 Return on Assets (ROA)

The Return on Assets (ROA) statistic is used to assess management's efficacy and efficiency in sustaining profitable operations and maximizing assets (Onyekwelu & Ugwuanyi, 2020; Uwuigbe et al., 2018). ROA provides useful insights into a business's ability to generate profits from its listed assets, allowing for comparisons across different industries and companies. In addition, the ROA indicator helps investors figure out how well management is using resources and meeting financial goals (Palepu et al., 2013).

2.4.2 Firm Value

In the context of listed companies, firm value is commonly assessed through market-based valuation metrics, which reflect investors' perceptions and expectations regarding the prospects and performance of the firm. Firm value encompasses a thorough assessment of a business's performance in the market that considers both its material and immaterial assets.

2.4.2.1 Tobin's Q

In his influential book "A General Equilibrium Approach to Monetary Theory" (Tobin, 1958), James Tobin introduced the Tobin's Q concept, which is now a fundamental concept utilized in the field of financial economics. Essentially, Tobin's Q compares the market worth of a company's equity to the cost of replacing its assets.

When interpreting Tobin's Q, it is crucial to compare the calculated ratio to a benchmark of 1. The market value of equity is greater than the cost of replacing assets when Tobin's Q is greater than 1, this could be a sign of overvaluation. Conversely, a ratio below 1 shows that there may be undervaluation compared to the costs of replacing assets.

3. Literature Review

Extensive theoretical and empirical research has been devoted to examining the association between sustainability reporting and the financial performance of publicly traded firms.

In this section, we will discuss sustainability reporting, which includes environmental, social, and governance (ESG) disclosures. Sustainability reporting is increasingly becoming essential for businesses that desire to demonstrate their commitment to sustainable practices. As stakeholder demands for transparency increase, the relationship between sustainability reporting and financial performance has received significant scholarly attention. This literature review synthesizes existing research on this topic, examining theoretical frameworks, empirical findings, and methodological approaches to understand how sustainability reporting impacts the financial outcomes of listed firms.

3.1 Theoretical Framework

3.1.1 Stakeholder Theory

The survival of a business is dependent on its stakeholders, who include both customers and government agencies, argues Freeman's stakeholder theory. In contrast to shareholder-centric perspectives, stakeholder theory seeks to promote long-term success by prioritizing the satisfaction of multiple stakeholders (Freeman, 1984). Everyone who has a vested interest in an organization's success or failure to reach its objectives is considered a stakeholder. Communities, governments, businesses, customers, suppliers, and NGOs are all considered stakeholders in addition to shareholders (Freeman, 1984).

Instead of putting shareholders' requirements first, companies should think about what's best for all stakeholders, this is the central argument to stakeholder theory. Responding proactively to stakeholder concerns and enhancing reputation are three ways in which organizations may build trust and generate long-term value (Freeman, et.al 2010).

Sustainability reporting is an important arena in which this technique shines since it allows businesses to inform stakeholders about their social and environmental consequences beyond the traditional financial status of the business. An organization's dedication to stakeholder interests and concerns may be shown via thorough and open reporting. As a result, more and more companies are embracing sustainable practices.

In addition, stakeholder theory stresses the significance of ongoing engagement and communication and the malleability of stakeholder relationships. According to Freeman et al. (2010), organizations can better spot new problems, lessen the impact of existing ones, and make the most of opportunities for growth and improvement if they include stakeholders in decision-making and ask for their input on sustainability efforts.

The connection between sustainability reporting and stakeholder theory has become the center of much study. As one example, Clarkson et al. (2008) looked at how stakeholder involvement affected how companies reported on sustainability. Quantity and quality of sustainability disclosures were shown to be positively correlated with stakeholder involvement levels. This emphasizes the significance of stakeholder theory in promoting open and responsible reporting procedures.

Also, Roberts (1992) looked at how stakeholder relationships affected the development of CSR projects. Companies with strong stakeholder connections were more likely to emphasize CSR efforts and incorporate sustainability issues into their business plans, according to the report. This highlights how crucial stakeholder theory is for encouraging moral company practices and creating partnerships that benefit all parties involved.

In their study, Donaldson and Preston (1995), investigated the ways in which stakeholder theory influenced the performance of companies. When it came to financial performance, businesses that did a better job of managing their ties with stakeholders outperformed their competitors and had a greater chance of remaining in business over the long term. Consequently, this demonstrates that stakeholder theory enhances the legitimacy and reputation of firms, which in turn assists these entities in the creation of value and the acquisition of a competitive advantage.

To summarize, stakeholder theory offers a solid theoretical foundation for comprehending the intricate web of interactions that exist between businesses and their stakeholders. Businesses that make decisions and report using a stakeholder-centric approach can foster and enhance trust, reputation, and long-term value for all stakeholders.

3.1.2 Agency Theory

The agency theory sheds light on the principal-agent relationship that exists within organizations by drawing attention to the inherent conflicts of interest that exist between those who hold administrative positions (agents) and proprietorships (principals). The shareholders of publicly listed corporations delegate decision-making power to the management of such companies, who are saddled with the responsibility of expanding shareholder value. On the other hand, managers may engage in opportunistic behavior or emphasize their own interests while professing to be acting in the best interests of shareholders (Jensen & Meckling, 1976).

As a result of the risk that managers may prioritize their own interests above those of the shareholders, agency issues can arise in publicly listed firms that have a division of ownership and control, as stated by agency theory. This is because managers have the ability to pursue their own interests. There are a variety of techniques that have been designed to balance the interests of shareholders and management in order to reduce the impact of these existing conflicts. According to Jensen and Meckling (1976), these mechanisms consist of executive remuneration, board monitoring, and financial reporting.

In addition, Bebchuk and Fried (2003) and Fama and Jensen (1983) did research that looked at the impact that executive pay has on the reduction of agency disputes. Both of these studies were undertaken during the research that was conducted. Through the deployment of performance-based pay schemes, such as stock options and incentives connected to financial goals, which may match the interests of shareholders and managers, it was revealed that incentive-based value-maximizing behavior can be promoted.

As an additional point of interest, agency theory has consequences for the practices of financial reporting regarding disclosure and openness. According to the findings of their research, Healy and Palepu (2001) investigated the influence that agency expenses have on the quality of financial reporting and earnings management. When it comes to tackling the information asymmetry that exists between managers and investors, the findings of the research highlighted the extraordinary significance of providing financial information that is both accurate and open to interpretation.

Essentially, agency theory delivers insightful insights into the intricacies of principal agent relationships inside organizations and provides direction on how to alleviate agency conflicts through the deployment of proper governance processes and incentive structures. This is the

fundamental contribution of agency theory. Organizations have the power to improve the efficiency of their corporate governance and generate long-term value for their stakeholders if they promote openness and accountability, as well as if they bring the interests of shareholders and managers into harmony with one another.

Because it encourages openness and accountability, the adoption of sustainability reporting is an essential component in the process of resolving difficulties that exist inside enterprises. Shareholders are provided with useful information that assists in the assessment of management performance and the formulation of choices made by firms. This information is provided via the disclosure of environmental, social, and governance (ESG) performance measures. Furthermore, according to Eccles et al. (2014), sustainability reporting has the potential to motivate managers to implement sustainable business practices by linking executive remuneration to environmental, social, and governance (ESG) goals and performance measures.

Through the promotion of increased stakeholder involvement and board supervision, sustainability reporting has the potential to significantly enhance corporate governance. Specifically, this is due to the fact that sustainability reporting promotes more engagement from stakeholders. In order to guarantee that management is held responsible for achieving sustainability objectives, boards of directors are tasked with the role of monitoring sustainability initiatives and ensuring proper accountability. Boards of directors are tasked with carrying out this important responsibility. According to Hillman and Keim (2001), in order for organizations to strengthen their reputation, resilience, and aptitude for the development of long-term value, they should include issues about sustainability in the discussions and decision-making processes that take place at the board level.

3.1.3 Legitimacy Theory

Legitimacy, in the realm of organizational science and social science, pertains to the sense or conviction that an organization's activities, behaviors, and structures are fitting, correct, and desirable within the wider social framework (Suchman, 1995). It refers to the concept that organizations should conduct themselves in a way that aligns with the established standards, values, and expectations of society to obtain approval and backing from stakeholders. The legitimacy of companies is not an innate characteristic, but rather it is formed and preserved via continuous engagement with different stakeholders, such as customers, workers, investors, regulators, and the public.

Legitimacy theory suggests that businesses use reporting procedures to improve their legitimacy by showing compliance with society's expectations related to environmental, social, and governance (ESG) concerns and sustainability. ESG factors are the environmental, social, and governance factors that investors and other stakeholders use to judge the long-term and moral effects of putting money into a business or group (Clark et al., 2020). Sustainable reporting functions as a means for firms to convey their success in these domains, showcasing their dedication to ethical business practices and sustainable growth.

Research provides evidence for the significance of legitimacy in sustainable reporting. For example, a study conducted by Cho et al. (2015) discovered that firms that engage in sustainability reporting do so to bolster their credibility among investors and to seek funding from socially responsible investment sources. Furthermore, Deegan (2002) emphasized the function of sustainability reporting in reducing the risks to an organization's environmental legitimacy that it faces when operating in an ecologically sensitive industry.

The inclusion of a great number of essential components is required in order to achieve and maintain legitimacy. Initially and most importantly, businesses have a responsibility to make certain that their actions, attitudes, and practices are in accordance with the cultural norms and values that are associated with sustainability. In order to do this, it may be necessary for them to embrace environmentally friendly methods, promote social responsibility, and adhere to ethical principles in their business operations. Furthermore, credible institutions demonstrate openness with regard to their performance in terms of sustainability by freely releasing relevant information about their policies regarding governance, social governance, and environmental sustainability. Increasing transparency not only helps stakeholders feel more confident and

credible, but it also makes it easier for them to assume responsibility for the operations of an organization.

Furthermore, since legitimacy is a fluid notion, businesses are required to continually adjust and improve their sustainable operations in order to accommodate the ever-changing expectations of the public, the growing concerns of stakeholders, and the feedback they get from those stakeholders. The firm's reputation over the long term is strengthened by continuous improvement, which demonstrates a consistent adherence to sustainability.

Moreover, the notion of sustainability goes beyond just environmental factors and includes social and economic aspects as well. Sustainable development, as defined by the Brundtland Commission, entails meeting the needs of the present generation without compromising the ability of future generations to meet their own (WCED, 1987). Hence, corporations must consider not just environmental stewardship but also social equality and economic success in their sustainability endeavors.

In summary, Legitimacy in sustainable reporting refers to the demonstration of conformity with society's expectations for environmental, social, and governance aspects. This is achieved by practices like transparency, accountability, stakeholder involvement, and ongoing enhancement. Organizations may enhance their connections with stakeholders, manage risks, and generate long-term value for society and the environment by improving their legitimacy in these areas.

3.2 Empirical Review

3.2.1 Evidence from studies that yield a positive association between ESG & Financial Performance/Firm Value

An in-depth investigation of the influence that environmental, social, and governance (ESG) ratings have on the financial performance of corporations in South Africa was carried out by Chininga et al. (2024). This research focused on forty companies that were included in the FTSE/JSE Responsible Investment Index and were listed on the Johannesburg Stock Exchange (JSE). The data for this study came from the comprehensive database maintained by FTSE Russell. In order to estimate the effects of environmental, social, and governance (ESG) ratings and their specific dimensions on accounting and market-oriented evaluation metrics, the authors utilized a two-stage least squares (2SLS) regression technique. This technique covered the period from 2015 to 2019, and it was used to analyze the data. Investing in environmental, social, and governance (ESG) activities has been shown to have a beneficial impact on both accounting and market-based measures of financial success, according to the results of the 2SLS investigation. This suggests that businesses that have better ESG scores are more likely to enjoy improved financial outcomes.

In a similar manner, Pham et al. (2021) focused their analysis on 116 publicly listed firms in Sweden. When conducting their investigation, they used financial data from 2019 in order to investigate the impact that sustainable policies have on financial performance. Their empirical research demonstrates that there is a positive connection between the sustainability of corporations and their financial success, notably with regard to earnings yield, return on assets, return on equity, and return on capital employed. Nevertheless, the research concluded that there was no clear evidence of the influence on Tobin's Q, which is a market-based metric. These results suggest that businesses that engage in sustainability activities, such as those recognized by the Dow Jones Sustainability Index, may increase their financial stability and profitability, but the impact on market value may differ.

In another piece of research, Flammer (2015) used a regression discontinuity methodology to investigate the influence that corporate social responsibility (CSR) has on the financial performance of an organization. The research, which integrated shareholder proposals gathered from Risk Metrics and Shark Repellent, employed data from 2005 to 2012. According to the results, there is a strong link between corporate social responsibility (CSR) activities and

financial success. The acceptance of CSR ideas resulted in favorable announced returns and better accounting performance. Moreover, the research indicates that corporate social responsibility (CSR) has a role in the enhancement of worker productivity and the expansion of sales, hence underlining the potential worth of CSR as a strategic resource for businesses.

In addition, Giese et al. (2019) carried out a study to explore the influence that environmental, social, and governance (ESG) performance has on equity returns. The study focused on the link that exists between ESG ratings, risk, and long-term financial performance. The purpose of the research was to quantify the risk management gains that are linked with good environmental, social, and governance standards by using a dataset that included a broad variety of worldwide companies. According to the findings, businesses that have better environmental, social, and governance (ESG) ratings tend to display lower levels of risk and improved financial performance over the long run. This favorable correlation highlights the significance of environmental, social, and governance (ESG) as a critical component in boosting the resilience and value of a company in the market.

Alareeni and Hamdan (2020) expanded this line of investigation by investigating the association between environmental, social, and governance (ESG) disclosure and business performance among the 505 companies that were listed on the S&P 500 index between the years 2009 and 2018. All of the information was obtained from Bloomberg, with a particular emphasis on how environmental, social, and governance policies affect financial results. A strong positive correlation between ESG disclosure and business performance was discovered by the authors after undertaking regression analysis. According to the findings of their research, businesses that have strong environmental, social, and governance standards tend to have superior financial performance. This is mostly due to the fact that these businesses have a better reputation and better risk management methods.

Broadstock et al. (2021) investigated the impact that environmental, social, and governance (ESG) policies had on the performance of companies during the COVID-19 pandemic. They focused on the resilience of companies that had high ESG ratings. The researchers showed that businesses with better ESG ratings displayed stronger resilience and outperformed those with lower ESG scores throughout the epidemic. This was discovered via an analysis of the stock performance of companies in China during the pandemic. Having a good ESG performance may help to a company's capacity to traverse economic downturns more successfully,

according to the findings of this research, which underscores the significance of environmental, social, and governance standards in providing a buffer against financial crises.

In a research study, Dhaliwal et al. (2011) investigated the emergence of corporate social responsibility (CSR) reporting by analyzing annual reports and financial databases covering the years 1993 to 2008. Their findings, using an event study approach, highlighted a positive market response to CSR disclosures, showing that firms disclosing nonfinancial information experienced a drop in the cost of equity capital, meaning they faced lower expenses when raising funds from shareholders. Over the same time period, Fatoki (2019) examined the financial information that was included in the annual and sustainability reports of South African retail enterprises between the years of 2010 and 2018. Through the use of regression analysis, he discovered that there is a positive association between sustainability reporting and financial success. He discovered that businesses that voluntarily disclose their sustainability policies get greater returns on assets and equity.

These academic studies, in a nutshell, provide empirical data that demonstrates a positive correlation between sustainability reporting (which includes actions related to corporate social responsibility and environmental, social, and governance) and financial performance across a wide range of industries and nations. This highlights how important it is for organizations to include environmental, social, and governance (ESG) considerations into their strategic planning processes. The importance of sustainability as a major driver of financial success is shown by the fact that businesses that place a priority on responsible business practices often generate better long-term financial results.

3.2.2 Evidence from studies that yield a negative/No significant association between ESG & Financial Performance/Firm Value

An investigation was carried out by López et al. (2007) on a total of one hundred and ten companies that were selected from the Dow Jones Global Index (DJGI) and the Dow Jones Sustainability Global Index (DJSI). The objective of their study was to investigate the connection between actions related to corporate social responsibility (CSR) and the performance of businesses, with the rise in profit before taxes (PBT) serving as the particular metric at their disposal. Surprisingly, the findings of their analysis revealed a negative association between corporate social responsibility (CSR) initiatives and an increase in profit before tax (PBT). Therefore, businesses that place a higher priority on Corporate Social Responsibility (CSR) programs may see a decrease in the growth of their profit before tax when compared to businesses that do not place such activities as a priority. The results of the study call into question the widely held idea that robust corporate social responsibility (CSR) policies always result in greater financial performance. This conclusion brought to light the need to do more research into the connection between CSR and financial outcomes.

In the United States, Aupperle et al. (1985) investigated whether or not there was a connection between the financial performance of businesses and the sustainability efforts they engaged in. Based on data collected from the late 1970s to the early 1980s, their research, which used a forced-choice instrument and was published in The Academy of Management Journal, unexpectedly found that there were no statistically significant links between financial success and sustainable development. It may be deduced from this that businesses did not always enjoy increased profitability after implementing environmentally friendly policies and procedures. In addition, they discovered that the presence of an internal social responsibility committee did not result in an increase in a company's profitability when compared to establishments that did not have such a committee.

An investigation into the performance of a collection of market shares in the US was carried out by Alexander and Buchholz (1978) in a manner that was comparable. Their research, which covered the early 1970s, concluded that there was no substantial correlation between Corporate Social Responsibility (CSR) and financial success or market share. These results call into question the idea that corporate social responsibility (CSR) activities always make businesses more money. They also show that the complicated connections between CSR activities and business performance need more research.

In order to investigate the connection between corporate social responsibility ratings and business value, Marsat and Williams (2011) used worldwide MSCI ESG ratings. The purpose of their research, which covered the years 2000 to 2010, was to determine whether or not MSCI ESG ratings of CSR performance had an effect on the value of corporations in a number of different nations. Better corporate social responsibility (CSR) performance did not typically boost firm value and financial success, according to the findings of the study, which controlled for industry, area, year, and research and development (R&D). The research indicated a negative connection between CSR ratings and corporate value. Based on these data, it seems that the connection between corporate social responsibility efforts and the performance of businesses is a complicated one that requires additional examination.

On the other hand, the research that Landi and Sciarelli (2019) conducted was a comprehensive study that had the particular objective of analyzing 54 Italian companies that are publicly listed. The years 2007 through 2015 were considered in the scope of the study. Within the context of Italy, the purpose of their research was to evaluate whether or not there is a connection between ESG ratings (environmental, social, and governance) and financial performance. In order to explore the relationship between the environmental, social, and governance (ESG) performance of firms and their financial outcomes, the researchers reviewed data from a wide range of sectors and evaluated several financial parameters. It was found that there was a significant adverse association between the environmental, social, and governance (ESG) ratings of the Italian businesses that were investigated and their level of financial performance. According to the findings of the study, the effect of environmental, social, and governance (ESG) ratings on market premiums is not statistically significant, despite the fact that managers are becoming more interested in corporate social responsibility (CSR) and sustainability.

Sweeney (2009) investigated the difficulties and opportunities associated with the implementation of corporate social responsibility (CSR) in small and medium-sized businesses (SMEs) in Ireland. For the purpose of this study, qualitative interviews, analysis, and structural equation modeling were used to uncover a variety of challenges that are faced by small and medium-sized businesses (SMEs) when they engage in activities related to corporate social responsibility (CSR). There are problems that small and medium-sized enterprises (SMEs) encounter owing to limited resources and a lack of understanding. These challenges may result in restricted involvement in reporting on sustainability and negative consequences for financial performance.

Through the use of a manual content analysis approach, Hussain et al. (2018) conducted an examination of the sustainability reports of the top 100 firms in the United States, spanning the period of time from 2010 to 2016. They made use of sustainable disclosure indices that included corporate social responsibility standards. The objective of their study was to investigate the connection that exists between these environmental, social, and governance (ESG) aspects and market-based financial performance metrics including Return on Assets (ROA), Return on shareholder equity (ROE), and Tobin's Q. The results of their analysis, which contradicted the initial hypotheses, showed that there were no significant correlations between any of the environmental, social, and governance (ESG) dimensions and financial performance. This was the case regardless of whether the performance was evaluated using traditional accounting metrics or market-oriented indicators. Contrary to the conventional belief that sustainability measures inevitably lead to enhanced financial success, these activities potentially divert resources away from projects that could potentially yield higher profits or benefits for shareholders.

Furthermore, the study that was carried out by Busch and Hoffmann (2011) looked at the relationship between the level of sustainability performance of European businesses and the level of financial success that has been achieved by such businesses. A comprehensive analysis of data spanning the years 2000 to 2009 from a number of European countries was carried out by the researchers in order to determine whether or not a good performance in terms of sustainability was associated with greater financial success. However, when utilizing carbon reduction as a process-oriented indicator, the findings did not offer evidence for a meaningful association between the efficiency of a firm's sustainability efforts and the financial performance of the organization. This presents a challenge to the notion that efforts to promote sustainability would automatically result in increased financial success.

Between the years 2007 and 2011, Nollet et al. (2016) conducted research on the link between social and financial performance in firms that were included in the S&P 500. For the purpose of determining this connection, they used accounting and market measurements. It is interesting to note that their findings varied differently depending on the statistical model that was used. By using linear models, they were able to identify a negative connection, which indicated that as social performance increased, financial success decreased. On the other hand, when they utilized nonlinear models, they discovered a positive connection, which suggests that there is a more complicated dynamic between social and financial success. The usual

interpretations are challenged by these results, which highlight the intricacies of the relationship between social and economic performance in company contexts.

A negative link between corporate conflicts on Environmental, Social, and Governance (ESG) policies and the financial performance of European publicly listed firms was shown by Nirino et al. (2021). This correlation was found to be a relationship between the two. Their study, which covers the years 2010 to 2019, sheds light on the impact that environmental, social, and governance (ESG) concerns have on the financial outcomes of these companies, highlighting the potential risks that are associated with such discussions. All of these findings highlight how important it is for businesses to effectively monitor their environmental, social, and governance (ESG) protocols in order to minimize the adverse effects on their financial health and reputation.

In summary, the relationship between environmental, social, and governance issues (ESG) and economic performance may be negative, or it may not exist at all. When firms undertake environmental, social, and governance (ESG) initiatives, they incur higher costs, which may initially cancel out any potential advantages in financial performance.

This phenomenon is one probable explanation. In addition, the long-term effects of environmental, social, and governance (ESG) efforts could not be immediately reflected in financial indicators, which would result in a delay in the recognition of favorable outcomes. In addition, the relationship between environmental, social, and governance (ESG) and financial performance may be altered by external factors such as market conditions, regulatory frameworks, and industry dynamics, which can lead to different outcomes for different businesses and depending on the circumstances.

Finally, the underlying influence of environmental, social, and governance policies on financial performance may be obscured by measurement challenges and inconsistencies in ESG reporting, making it difficult to draw a clear relationship between the two. The complicated way these parts work together shows how much more research is needed to fully understand the link between ESG (environmental, social, and governance) and financial performance.

4. Data and Methodology

This chapter will present the data and the three methods used to examine the effects of ESG on financial performance and firm value.

4.1 Data

The research included data sourced from Bloomberg that covered the period from 2013 to 2021. The data included firms that are listed on the South African Stock Exchange (JSE). The selection of this time frame was based on many factors. First, it reflects the latest trends and advancements in sustainability disclosures and firm's financial performance. Furthermore, there was a notable surge in the implementation of environmental, social, and governance (ESG) policies and the adherence to reporting criteria by South African enterprises in this period. This has resulted in a comprehensive dataset that is highly suitable for analysis.

Furthermore, by stopping at 2021, we avoid the noise introduced by recent global shocks, such as the COVID-19 pandemic. This time frame lets us look at the link between sustainability reporting and financial performance in a solid way, without the added volatility of more recent, unpredictable events.

Bloomberg was chosen as the data provider because of its comprehensive coverage and dependable accuracy. The database provides an extensive array of financial data on firms listed on the JSE, guaranteeing a varied and inclusive sample for the study. By using this data source, the study provides more precise and widely applicable insights regarding the influence of sustainability reporting on financial performance within the South African setting.

Additionally, the Bloomberg Terminal provides access to Bloomberg ESG data and scores, which span up to 12 years of annual ESG data, and integrates this data into various Bloomberg Professional Service applications for company research and investment processes. Initially covering 252 companies, the scores now cover an index of over 13,000 companies globally, updated to ESG Disclosure scores.

4.2 Dependent variables

This study evaluates the performance of firms through two dependent variables: Tobin's Q and Return on Assets (ROA). These metrics are essential in assessing a company's market value

and asset utilization, respectively. Investors, analysts, and researchers commonly use Tobin's Q and ROA to evaluate a firm's market value and financial performance.

Tobin's Q, representing market-based firm valuation, captures investors' perceptions of future profitability. ROA, on the other hand, reflects accounting-based internal efficiency. These two indicators complement each other and are widely used in empirical finance and development literature as robust proxies for firm performance. Their use also aligns with prior studies on ESG-performance linkages.

4.2.1 The Tobin's Q

Tobin's Q is used to determine the market value of a business by comparing it to the cost of reproducing its assets.

The mathematical expression:

$$Tobin's\ Q = \frac{Market\ Value\ of\ Firm}{Replacement\ Cost\ of\ Firm's\ Assets} \quad (1)$$

Alternatively, it can be calculated as:

$$Tobin's\ Q = \frac{Market\ Value\ of\ Equity + Book\ Value\ of\ Liabilities}{Book\ Value\ of\ Total\ Assets} \quad (2)$$

Hall and Jorgenson (1967), as well as Jorgenson (1987), emphasize Tobin's Q's relevance in understanding investment behavior and economic dynamics. Tobin's Q's complex relationships with investment decisions, corporate performance, and the economy are explained by the authors, highlighting its importance in capital allocation evaluation and government policy.

4.2.2 Return on Assets (ROA)

Return on assets (ROA) is computed by dividing net income by total assets of an organization. The resulting percentage shows the return earned on each unit of the asset used.

The mathematical expression:

$$ROA = \frac{Net\ Income}{Total\ Assets} \quad (3)$$

Net income is the entire earnings a business makes less all costs and taxes, while total ***assets*** refer to the aggregate value of all physical and nonphysical assets possessed by the organization, including real estate, machinery, financial holdings, and intellectual capital.

4.3 Independent variables

Our independent variables are derived from sustainability reporting indicators. These factors are the Governance Score, Environmental Score, Social Score, and the combined Environmental, Social, and Governance (ESG) Score. They address several facets of a business's sustainability policies and disclosures, emphasizing its dedication to social responsibility, environmental protection, and effective governance.

Investors are given the ability to make well-informed choices because of the comprehensive coverage of environmental, social, and governance (ESG) concerns that is provided by the ESG dataset that Bloomberg has compiled over twelve years. Providing a comprehensive perspective on the sustainability practices of businesses, this dataset includes both quantitative measures and qualitative insights. Bloomberg assures the reliability and consistency of its environmental, social, and governance (ESG) data utilizing rigorous data collection and standardization.

Bloomberg's comprehensive ESG dataset is widely utilized by investors interested in incorporating Environmental, Social, and Governance (ESG) factors into their decision-making process. The Bloomberg ESG Disclosure score ranges from 0 to 100, 100 being the best as shown in *Figure 1*.

Figure 1: Bloomberg ESG Score Range

The dataset is an important resource for promoting transparency and accountability in business practices, especially as sustainability gains more prominence in the financial industry. To give a more detailed evaluation of a company's performance in terms of sustainability, each pillar is composed of many distinct subthemes.

The first pillar is the environment which would involve issues such as emissions which is an analysis of the company's efforts to lessen its effect on the environment and its carbon

emissions and emissions. In the area of sustainable practices and technologies, an evaluation of the company's innovative practices and technologies is discussed. The use of resources, including water and energy consumption, is analyzed as part of the company's resource management strategies: resource utilization.

The second pillar involves an examination of the company's dedication to respecting human rights standards across its operations and supply chain is included in the human rights section. Employee wellbeing programs, labor practices, and workforce diversity are all evaluated as part of the workforce. Evaluation of the product's safety, quality, and ethical sourcing processes is included in the product responsibility report. A review of the business's attempts to connect with nearby communities and its contributions to social development is included in the community section.

The third pillar of governance involves a review of shareholder rights, transparency, and accountability in the context of corporate governance systems. This review also includes an evaluation of the effectiveness of the company's leadership and management practices. Another aspect of this pillar is the analysis of the company's corporate social responsibility (CSR) strategy, which covers stakeholder involvement and the implementation of ethical business practices.

A complete framework for assessing the performance of organizations across environmental, social, and governance aspects is provided by these subthemes. This framework has the potential to facilitate informed investment choices and promote sustainable business practices.

4.4 Control Variables

The study makes use of a number of control variables in order to guarantee that the analysis properly isolates the influence that ESG ratings have on the profitability and value of the company. We chose these control variables based on their significance in the existing body of research and their ability to capture firm-specific and macroeconomic factors that could impact financial performance.

Firm size, which is derived from the total assets, is a control variable that is added in order to take into consideration the economies of scale and scope that are often experienced by bigger organizations. In general, larger companies have more resources available to engage in sustainability efforts, which may have an impact on both the profitability of the business and its market price. Additionally, they often have better access to finance markets and the ability to negotiate more favorable terms with both consumers and suppliers. Researchers in the past, such as Barnett and Salomon (2012) and Chininga et al. (2024), have shown that the size of a company may have a considerable influence on the link between environmental, social, and governance (ESG) performance and financial results. This variable is very important. The environmental, social, and governance (ESG) policies of larger companies may also be subject to a higher level of scrutiny, which will further impact their financial measures.

In addition to being a key control variable, leverage, the total debt divided by total assets, is a representation of the company's financial structure. A high level of leverage may be indicative of a greater level of financial risk, which may have an impact on the profitability and value of a company. Companies with greater leverage may face less flexibility in their strategic choices, particularly when it comes to environmental, social, and governance expenditures, due to the pressure to pay their debt commitments. In their 1976 article, Jensen and Meckling stress the significance of taking leverage into account when analyzing the performance of a corporation. They analyze the ways in which leverage influences agency costs and management conduct, which in turn influences the overall success of the company.

For the purpose of controlling for macroeconomic variables that have an effect on company performance, economic growth, which is measured as the GDP per capita, is included. Businesses that are functioning in economies that are expanding at a quick rate may reap the benefits of greater consumer spending and investment possibilities, which may positively impact both their profitability and their market value. This control variable assists in isolating the impacts of corporate environmental, social, and governance (ESG) performance from larger

economic trends. Research such as that conducted by Levine and Renelt (1992) highlights the influence that macroeconomic conditions have on the performance of firms, which lends credence to the inclusion of economic growth as a control function.

Market capitalization is a measure that considers the changes in market perception and investor behavior that are associated with enterprises of varying sizes. It is possible that larger companies, which are represented by bigger market capitalization, are seen as investments that are more stable and less hazardous, which influences the value of these companies as well as their financial performance. The inclusion of market capitalization as a major control variable is something that Fama and French (1992) advocate for since it has an impact on the predicted stock returns and the value of the company.

The debt-to-equity ratio helps assess a company's capital structure and financial risk. A higher debt-to-equity ratio may imply a greater dependency on debt financing, which may affect the company's profitability and market value due to increased debt repayment costs. Modigliani and Miller (1958) examined how capital structure affects firm value to highlight this variable. In environmental, social, and governance activities, this ratio shows how firms balance debt and equity investment.

The Payout Ratio, which measures the proportion of earnings delivered to shareholders as dividends, may be used to regulate a company's payout policy. A higher payout ratio may reflect solid cash flow and profitability as well as management's confidence in the company's financial health. This may also diminish ESG reinvestment funds.

Dividend policy is crucial for investigating environmental, social, and governance concerns with studies such as Lintner (1956) highlighting the significance of dividend policy in comprehending the financial behavior of corporations, which is why this variable is vital for studying the effects of environmental, social, and governance factors.

Interest rate is a macroeconomic variable that may influence the cost of capital for a company. The price of borrowing money, choices about investments, and general economic activity are all impacted by fluctuations in interest rates. Higher interest rates often result in a rise in the cost of debt. Research such as that conducted by Bernanke and Gertler (1995), which investigates the connection between interest rates and business investment, lends credence to the idea that interest rates should be included as a control variable.

By including these control variables as seen in *Table 2*, the study aims to provide a comprehensive analysis of the nuanced impact of individual ESG scores on firm profitability and value, accounting for both firm-specific characteristics and broader economic conditions.

Summary of Variables.

Dependent Variables	**Description/Formula**
Tobin's Q - TQ	Market Value of Firm / Replacement Cost of Firm's Assets
Return on Assets ROA	Net Income/Total Assets
Independent Variables	
ESG Combined Score ESG_Disc	Sourced from the Bloomberg Terminal, internally computed using Bloomberg methodologies.
Environment Score Env_Disc	
Social Score Soc_Disc	
Governance Score Gov_Disc	
Control Variables	
Size (Total Assets)	The Logarithm of Total Assets
Leverage TDTA	Total Debt/Total Assets
Economic Growth	The Logarithm of GDP_Per_Capita
Market Capitalization	The Log of Market Capitalization
Debt-to-Equity Ratio	Debt-to-Equity Ratio
Payout Ratio	Dividend Payout Ratio
Interest Rate	Macroeconomic variable

Table 2: Summary of All Variables.

4.5 Descriptive statistics

4.5.1 Dependent Variables Statistics and Their Explanations

Tobin Q Ratio

As shown in *Table 3,* Tobin's Q Ratio, which compares the market value of a company's assets to their replacement cost, has a mean value of 1.508, indicating that, on average, the market values the firms at a level slightly above their replacement cost. The standard deviation of 0.96 shows a moderate spread around the mean, suggesting some variability in how the market values different firms. The negative minimum value could be an anomaly or reflect temporary market undervaluation, while the maximum value of 8.84 suggests that some firms are significantly overvalued compared to their asset replacement costs.

Return on Assets

Return on Assets (ROA) measures profitability relative to total assets. The mean ROA of 5.37% suggests that firms on average generate moderate returns on their assets. The high standard

deviation of 8.72% indicates substantial variability in profitability among the firms. The negative minimum value indicates that some firms experienced losses, while the high maximum value (77.99%) points to exceptionally high profitability for some firms.

Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Dependent Variables					
Tobin Q Ratio	1116	1.508	0.958	-0.059	8.836
Return on Assets	1116	5.372	8.718	-58.092	77.987
Independent Variables					
ESG Disc	1116	45.470	12.295	6.367	75.837
Env Disc	1116	24.878	19.642	0	76.110
Soc Disc	1116	29.010	13.404	0	64.752
Gov Disc	1116	82.822	9.336	0	99.307
Control Variables					
Total Debt to Total Assets Ratio	1116	22.302	17.439	0	107.341
Total Assets	1116	135054.4	334510.6	144.786	2725817
Market Capitalization	1116	106509.2	312308.5	55.555	3096100
Total Debt to Equity	1116	77.150	187.290	0	4900.654
Dividend Payout Ratio	1116	50.073	77.115	0	1333.709
GDP Per Capita	1116	6630.863	570.400	5735.067	7441.231
Interest Rate	1116	9.206	1.158	7.04	10.46
Age of Company	1105	52.242	39.344	1	171

Table 3: Descriptive statistics

4.5.2 Independent Variables Statistics and Their Explanations

ESG Disc

The Environmental, Social, and Governance (ESG) Disclosure Score has a mean of 45.47, as shown in Table 3, suggesting that firms, on average, are moderately transparent about their ESG practices. The standard deviation of 12.29 indicates variability in ESG disclosures, with some firms being highly transparent and others less so. The range from 6.37 to 75.84 highlights significant differences in ESG disclosure practices.

Environmental Disclosure Score (Env Disc)

Environmental Disclosure (Env Disc) has a lower mean of 24.88, indicating that firms are less transparent about their environmental practices compared to overall ESG practices. The high standard deviation of 19.64 and the wide range (0 to 76.11) suggest substantial differences in environmental transparency among firms.

Social Disclosure Score (Soc Disc)

Social Disclosure (Soc Disc) has a mean score of 29.01, indicating moderate transparency regarding social practices. The standard deviation of 13.40 shows a considerable spread, with firms varying widely in their social disclosure levels. The range from 0 to 64.75 underscores significant differences in how firms report their social practices.

Governance Disclosure Score (Gov Disc)

Governance Disclosure (Gov Disc) has a high mean score of 82.82, indicating that firms are generally very transparent about their governance practices. The lower standard deviation of 9.34 suggests less variability compared to environmental and social disclosures. The maximum score close to 100 indicates that some firms are almost fully transparent in their governance practices.

4.5.3 Control Variables Statistics and Their Explanations

Total Debt to Total Assets Ratio

This ratio, with a mean of 22.3 and a standard deviation of 17.4, indicates that firms generally finance 22.3% of their assets with debt, though some firms have no debt (min = 0) and others have debt that exceeds their assets (max = 107.3%).

Total Assets

As shown in *Table 3,* firms have an average of 135,054.4 in total assets, with a large variability (SD = 334,510.6), ranging from 144.8 to 2,725,817, reflecting significant differences in firm size.

Market Capitalization

The average market value of 106,509.2 suggests a medium-sized firm base, though market capitalizations span from 55.6 to 3,096,100. This spread indicates that the sample includes firms with varied market positions, from relatively small firms to very large ones.

Total Debt to Equity

The Total Debt to Equity ratio has a mean of 77.15%, indicating that firms, on average, have significant leverage. The extremely high standard deviation of 187.29% and the maximum value of 4900.65% indicate that some firms are highly leveraged, which could be due to specific industry characteristics or financial strategies.

Dividend Payout Ratio

The dividend payout ratio has a mean of 50.07%, suggesting that firms, on average, return a significant portion of earnings to shareholders. The high standard deviation of 77.11% and the maximum value of 1333.71% indicate significant variability in dividend policies, with some firms having very high payout ratios.

GDP Per Capita (South Africa, 2013-2021)

The average GDP per capita for South Africa over this period is 6,630.9, with values ranging from 5,735.1 to 7,441.2. This suggests a relatively stable economic environment, though there are some fluctuations in economic performance over the years.

Interest Rates (South Africa, 2013-2021)

The average interest rate during this period is 9.2%, with rates ranging from 7.04% to 10.46%. These variations reflect changes in South Africa's monetary policy, influencing the cost of borrowing for firms and households during these years.

Age of company

As shown in *Table 3,* the mean age of companies is 52.24 years, suggesting that the sample includes relatively mature firms. The standard deviation of 39.34 years indicates significant variability in firm ages, with some being very young and others quite old. The wide range of 1–171 years highlights the diversity in firm histories and experiences.

4.6 Estimation Model

The estimation procedure is based on whether the firm's individual effects are fixed or random and whether there are issues of endogeneity problems that will have to be addressed in the estimation process. The analysis includes the following model specifications:

4.6.1 Regression models with random effects and fixed effects

The Random Effects model takes into consideration the presence of unobserved differences among firms by assuming that these individual effects are not related to the independent variables.

The model is defined as follows:

$$Y_{it} = \beta_0 + \beta_1 ESG_{it} + \theta_1 Z_{1it} + \tau_i + u_{it} \qquad (4)$$

Where Y_{it} represents one of the two dependent variables for firm $_i$ at time $_t$, ESG_{it} is the independent variable for firm i at time t, Z_{1it} represents the control variables for firm i at time t, β_0 is the intercept, β_1, is the coefficients associated with the independent variable, θ_1 is the coefficient associated with the control variables, τ_i is the random effect for firm i, which is assumed to be random and normally distributed with zero mean and a constant variance and u_{it} is the random error term.

Similarly, the Fixed Effects model incorporates firm-specific fixed effects to control for time-invariant unobserved heterogeneity. The model is defined as:

$$Y_{it} = \alpha_1 + \beta_1 ESG_{it} + \theta_1 Z_{1it} + u_{it} \qquad (5)$$

Where α_1 is the firm specific fixed effects which represents a unique intercept for each firm, capturing unobserved, time-invariant factors that are specific to each firm.

4.6.2 The Hausman test

After estimating both the fixed effects and random effects models, researchers use the Hausman test to determine the model that provides more accurate estimates when studying the relationship between variables. This important test examines whether the random effects model's individual effects are related to the independent factors (Hausman 1978). If there is a

correlation, it could indicate endogeneity issues. By making a quantitative comparison of the values from both models, the Hausman test identifies the model that provides more accurate predictions.

In a fixed effects model, the firm-specific effects α_i are constant across time but vary between firms, and they are treated as constants rather than random variables. This model controls for any time-invariant characteristics of each firm that might influence the dependent variable. Importantly, if $\alpha_i = 0$, this suggests that firm-specific effects have no impact on the dependent variable, simplifying the model. Essentially, the fixed effects model eliminates bias from unobserved firm characteristics by controlling for them directly.

4.6.3 Regression Model Using Two-Stage Least Squares (2SLS)

ESG and its components are likely endogenous, at least due to the potential two-way relationship between ESG practices and profitability. Strong ESG practices may lower costs and attract socially conscious investors at a lower cost of capital, which will help generate more returns for the firm. Likewise, highly profitable firms may have the resources to easily comply with and adopt ESG practices. It is therefore important to address this potential endogeneity issue in the estimation process.

To address potential endogeneity concerns, the Two-Stage Least Squares (2SLS) regression model was designed among other approaches to address potential endogeneity problems. This approach allows for the use of instrumental variables to obtain consistent and unbiased estimates of the regression coefficients.

The 2SLS regression model is specified in two stages:

First Stage: Instrumental Variable Regression

$$\mathrm{ESG}_{it} = \alpha_0 + \alpha_1 \mathrm{ESG}_{it-2} + \alpha_2 \mathrm{Board\ Comp}_{it} + \alpha_3 \mathrm{ESG\ bonues}_{it} + \rho X_{it} + e_{it} \qquad (6)$$

Where X_{it} represents control variables, $\mathrm{Board\ Comp}_{it}$ $\mathrm{ESG\ bonues}_{it}$ and e_{it} represents the error term

Where ESG_{it} is the dependent variable representing the Environmental, Social, and Governance performance of firm i at time t, is influenced by several factors: ESG_{it-2}, the lagged ESG performance from two periods ago, $\mathrm{Board\ Comp}_{it}$, the board compensation at the current time and $\mathrm{ESG\ bonues}_{it}$ the ESG-related bonuses paid to executives and the board.

The model also includes control variables X_{it} to account for other factors that may impact ESG Scores, with ρ representing the vector of coefficients for these control variables. The intercept term α_0 captures the baseline level of ESG performance when all other variables are zero, and the error term e_{it} accounts for unobserved factors affecting ESG performance. The coefficients α_1, α_2 and α_3 measure the relationship between these factors and the firm's current ESG performance, providing insights into how past performance, board compensation, and ESG-linked incentives contribute to a firm's ESG outcomes.

Second Stage: Main Regression.

$$TobinQ_{it} = \beta_0 + \beta_1 ESG\_Disc_{it} + \beta_2 X_{it} + u_{it} \quad (7)$$

$$ROA_{it} = \gamma_0 + \gamma_1 ESG\_Disc_{it} + \gamma_2 X_{it} + v_{it} \quad (8)$$

where ESG_Disc_{it} is the predicted value from the first stage, X_{it} represents control variables and u_{it}& v_{it}represents the error term.

In this 2SLS model, the first stage estimates the relationship between the endogenous independent variable and the instrumental variables. The predicted values from this stage are then used in the second stage to estimate the impact on the dependent variable, thereby mitigating any bias that might arise from endogeneity.

The specific form of the equation for both ROA and Tobin's Q can be express as

$$FP_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 Economic\ Growth_{it} + \beta_5 Market\ Capitalization_{it} + \beta_6 Debt\ to\ Equity\ Ratio_{it} + \beta_7 Payout\ Ratio_{it} + \beta_8 Interest\ Rate_{it} + \beta_9 Age\ of\ Company_{it} + \beta_{10} Time\ Dummy_{it} + e_{it} \quad (9)$$

$$FP_{it} = \beta_0 + \beta_1 Env_{it} + \beta_2 Soc_{it} + \beta_3 Gov_{it} + \beta_4 Size_{it} + \beta_5 Leverage_{it} + \beta_6 Economic\ Growth_{it} + \beta_7 Market\ Capitalization_{it} + \beta_8 Debt\ to\ Equity\ Ratio_{it} + \beta_9 Payout\ Ratio_{it} + \beta_{10} Interest\ Rate_{it} + \beta_{11} Age\ of\ Company_{it} + \beta_{12} Time\ Dummy_{it} + e_{it} \quad (10)$$

where FP_{it} represents $TobinQ_{it}$ and ROA_{it} as the dependent variables, ESG_{it}, Env_{it} , Soc_{it} and $Gov_{it}$are independent variables.

$Size_{it}$, $Leverage_{it}$, $Economic\ Growth_{it}$, $Market\ Capitalization_{it}$, $Debt\ to\ Equity\ Ratio_{it}$, $Payout\ Ratio_{it}$, $Interest\ Rate_{it}$, $Age\ of\ Company_{it}$, $Time\ Dummy_{it}$ are control variables and e_{it} is the error term for the firm i in period t. Such variables are also adopted for estimation the fixed effect model as presented in equation 5 and further for the main model, the 2SLS model as presented in equation 7 and 8.

4.7 Hypotheses

Based on a review of the available literature and an understanding of the growing importance of environmental, social, and governance (ESG) factors in the business landscape, the following hypotheses have been developed:

4.7.1 Primary Hypothesis

Hypothesis 1: There exists a positive influence of ESG ratings on firm value.

Hypothesis 2: There is a positive impact of ESG ratings on corporate profitability.

We argue that inferior ESG performance is correlated with higher market values for businesses that perform better in these areas than do others. Profitability levels of companies with robust environmental, social, and governance (ESG) policies are predicted to increase. Strong environmental, social, and governance (ESG) procedures are supposed to translate into improved profitability for companies. This is explained by a number of things, like improved stakeholder relations, improved operational efficiency, and risk management.

These theories are supported by extensive scholarly research and empirical data that demonstrate a positive correlation between ESG performance and corporate outcomes. It is crucial to recognize that there are differing conclusions in the scholarly research, highlighting the complex and context-dependent nature of the connection between ESG practices and corporate performance. This work contributes to existing knowledge by using comprehensive data, recent years, and rigorous econometric techniques.

This study seeks to enhance academic understanding and corporate decision-making by examining the intricate pathways through which ESG practices can impact business value and profitability.

4.8 Validity and Reliability

In this section, we will examine the specific methodological decisions chosen to analyze the impact of ESG practices on company financial performance. Panel data regression models provide a robust framework for assessing longitudinal dynamics by including both time-specific and entity-specific variations. This allows for a thorough understanding of how variables interact over time and across distinct entities.

Moreover, it is crucial to recognize and confront certain methodological constraints and biases that are inherent in the study of panel data. These concerns include endogeneity, measurement inaccuracy, sample selection bias, and omitted variable bias. By carefully analyzing and using proper modeling tools, we aim to reduce these problems and guarantee the reliability of our findings.

Our goal is to give solid information about how company performance might be affected by ESG issues by carefully checking the dependability and accuracy of our panel data regression analysis. This thorough methodology not only improves the trustworthiness of our results but also adds to a more profound comprehension of the intricate forces influencing sustainable business operations.

4.8.1 Justification for Using Instruments in the 2SLS Model

To address potential endogeneity concerns, we have also considered employing a two-stage least squares (2SLS) model. Endogeneity may occur as a result of reverse causality, where current financial performance might influence ESG scores rather than the other way around.

Using lagged ESG scores (L2) helps address endogeneity in the 2SLS model by mitigating reverse causality, where current financial performance might influence ESG scores rather than the other way around. Prior research, such as Flammer (2015), demonstrates the importance of considering temporal lags to establish causality in ESG studies. Lagged variables can help break the simultaneity between ESG performance and financial outcomes. Studies like those by Waddock and Graves (1997) suggest that the effects of CSR (Corporate Social Responsibility) practices on financial performance manifest over time. Furthermore, ESG practices often reflect sustained efforts rather than short-term actions. Lagged ESG scores capture the persistence and continuity of a firm's commitment to ESG, making it a more reliable measure of its long-term impact. Eccles et al. (2014) highlight the importance of long-

term sustainability practices in improving financial performance. The validity of these instruments was supported by the Sargan test, which confirmed that they are not correlated with the error term, satisfying the exclusion restriction. The relevance condition was confirmed via strong first-stage F-statistics.

Using individual ESG scores allows us to separately identify the impact of environmental, social, and governance factors on financial performance. This approach is supported by Khan et al. (2016), who found distinct impacts of each ESG dimension on financial performance. Aggregated ESG scores may mask the individual effects of environmental, social, and governance factors. Disaggregated scores provide detailed insights, reducing the risk of overlooking the unique contributions of each dimension.

Additionally, it is crucial to use ESG-related bonuses and board compensation as instruments, as they aim to align the interests of executives with long-term sustainability goals. These instruments directly tie financial incentives to ESG performance, making them strong predictors of a firm's commitment to ESG practices. Berrone and Gomez-Mejia (2009) discuss the role of incentive alignment in promoting sustainable corporate behavior. These incentives influence executive behavior toward prioritizing ESG goals, which can significantly impact a firm's operational and financial outcomes. Cho et al. (2015) provide evidence on how executive compensation schemes shape corporate policies.

Firms that link executive compensation to ESG performance send a strong signal to stakeholders about their serious commitment to sustainability. This can enhance the firm's reputation, attract investment, and ultimately impact financial performance positively. This is supported by Jensen and Meckling's (1976) theory on signaling and firm reputation. ESG-related compensation schemes are concrete, quantifiable measures that reduce the subjective bias inherent in self-reported ESG scores. This improves the reliability of these instruments in capturing genuine ESG efforts. Frydman and Jenter (2010) emphasize the importance of using objective measures in executive compensation research.

The use of instrumental variables (IV) in econometrics is crucial for addressing endogeneity issues, ensuring causal inference, and obtaining unbiased estimations. Wooldridge (2010) provides a comprehensive overview of various IV techniques, emphasizing the importance of choosing valid instruments and providing numerous examples and applications. Angrist and Pischke (2008) offer a practical introduction to IV methods, illustrating how they can be

applied in empirical research. They highlight the importance of finding valid instruments and discuss the challenges of IV estimation.

Staiger and Stock (1997) address the issue of weak instruments, which can lead to biased IV estimates. They propose methods to test for weak instruments and discuss the implications for empirical research. Bound et al. (1995) discuss the problems associated with weak instruments and their impact on the reliability of IV estimates, emphasizing the need for strong instruments to obtain consistent and unbiased results. Imbens and Angrist (1994) present the notion of local average treatment effects (LATE) and explore the application of IV methods for estimating causal effects amidst heterogeneous treatment effects.

We justify the chosen instruments—the second lag of ESG scores and ESG-related executive and board compensation—based on their ability to address endogeneity, capture specific and persistent effects, align interests, and signal a credible commitment to ESG. By using these instruments, the 2SLS model aims to provide a more accurate and reliable estimation of the impact of ESG on firm value and profitability. This methodological rigor enhances the validity of the study's findings and contributes to the literature on ESG and financial performance.

4.8.2 Justification for Using Time Dummies in the 2SLS Model

Including time dummies in the 2SLS model is essential for capturing unobserved time-varying factors that influence the relationship between ESG scores and financial performance. Time dummies account for changes in the economic, regulatory, and social environment over the study period (2013-2021). This approach controls for year-specific effects that might affect all firms in the sample simultaneously, such as macroeconomic trends, technological advancements, or shifts in regulatory policies.

Research by Petersen (2009) emphasizes the importance of controlling for time-specific effects in panel data models to avoid biased estimates. Time dummies help isolate the impact of ESG scores on financial performance by accounting for exogenous shocks and trends that could otherwise confound the results. Studies such as Bertrand and Mullainathan (2003) highlight the need to control for time effects to prevent omitted variable bias, which occurs when unobserved factors correlated with both the independent and dependent variables are not accounted for.

Kuzmina and Lindemane (2017) discuss the impact of regulatory changes on corporate sustainability practices and emphasize the importance of accounting for these changes in empirical studies. Including time dummies helps control for the variations in regulatory environments across different years, enhancing the credibility of the study's findings. In addition, technological advancements during the study period have influenced firms' operations, competitive dynamics, and reporting practices. Research by Bloom et al. (2012) highlights the impact of technological advancements on firm performance and the importance of controlling these effects in empirical studies. Time dummies provide a mechanism to account for these changes, leading to more reliable estimates.

5. Discussion of Results

This chapter analyzes the review of the 2SLS estimate findings, specifically looking at the influence of ESG disclosures on the two key financial performance indicators in our study: Return on Assets (ROA) and Tobin's Q. The chapter also compares the results from the 2SLS estimation technique with those of the Fixed Effects Model (FEM).

The discussion also focuses on the results of ESG disclosures and the control factors, offering a thorough understanding of their consequences. The Two Stage Least Squares (2SLS) regression technique has been used to mitigate possible endogeneity issue in examining the impact of Environmental, Social, and Governance (ESG) disclosures on firm performance.

5.1 Comparative Analysis of the Environmental, Social & Governance Scores

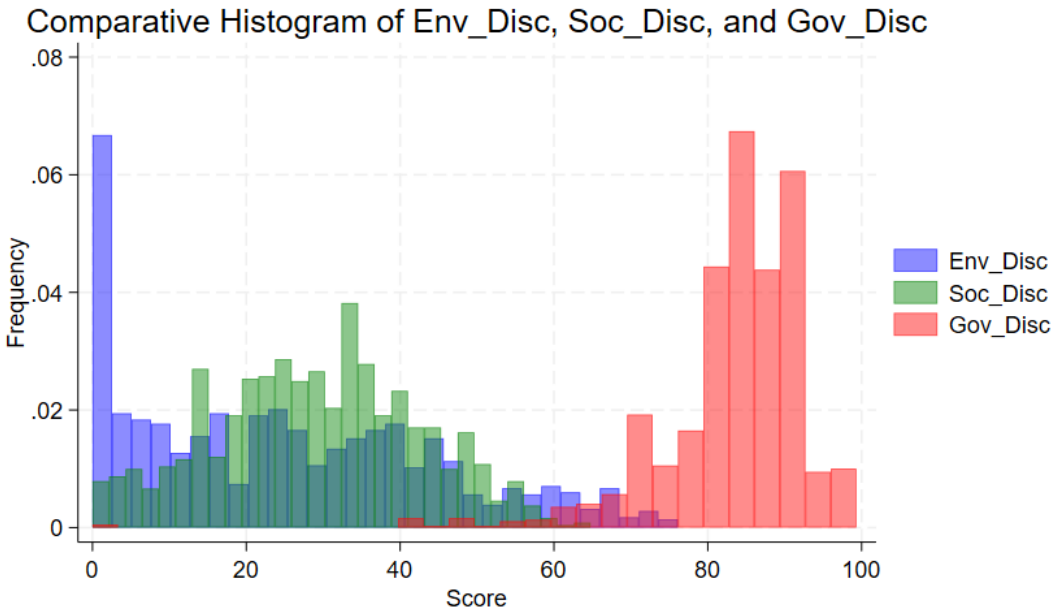

Figure 2: Comparative Histogram of Env_Disc, Soc_Disc & Gov_Disc

Explanation of Comparative Histogram:

Environmental scores represented by the blue histogram show a broad distribution of environmental scores, with a notable concentration around the lower to mid-range. This indicates that while some industries are achieving high environmental scores, a significant number of industries still have relatively low scores, reflecting variability in environmental impact and regulatory pressures. On the other hand, social scores represented by the green histogram illustrate a more centralized distribution of social scores.

Many industries have scores clustered around the mid-range, suggesting moderate social performance across the board. This central tendency indicates that industries are consistently addressing social issues, although there's still room for improvement. Further, the governance scores represented by the red histogram indicate a skew towards higher governance scores. Most industries have governance scores concentrated in the higher range, reflecting robust governance practices and adherence to corporate governance standards in South Africa.

5.2 Correlations Among the Variables

The correlation matrix shown in *Table 7* shows relationships among variables related to firm performance, environmental, social, and governance (ESG) disclosures, financial ratios, and macroeconomic indicators.

Focusing on the independent variables, the correlation between Env_Disc and Soc_Disc is 0.76, which means that there is a strong positive relationship between them. This means that the variables are collinear and may share some underlying factors. On the other hand, the correlation between Env_Disc and Gov_Disc is 0.43, indicating a modest positive association that does not warrant worries about collinearity.

Further, the correlation between Soc_Disc and Gov_Disc is 0.46, indicating a moderate connection. Since there was a strong link between Env_Disc and Soc_Disc, we used the variance inflation factor (VIF) test to look for multicollinearity and see how it affected our regression model.

5.3 The Mean Variance Inflation Factor and VIF Values.

Variable	VIF	1/VIF
Env_Disc	2.64	0.379271
Soc_Disc	2.55	0.392044
Log_Hist_Market capitalization	2.27	0.440362
Log_Total Assets	2.09	0.478099
Gov_Disc	1.32	0.757122
TT_debt_TT Assets	1.24	0.803244
TT_debt_Eqty	1.23	0.814290
Age_of_company	1.05	0.954550
Log_ Interest Rate	1.05	0.955953
Economic Growth	1.04	0.960098
Div_Payout~ratio	1.04	0.965405
Mean VIF	1.59	

Table 4: The Mean-Variance Inflation Factor and VIF Values

The mean VIF of 1.59 is well below the common threshold of 10, indicating that multicollinearity is not a significant problem in this model. As shown in , the individual VIF values for all variables are below 3, further suggesting that multicollinearity is not likely to distort the results significantly. Therefore, the model is stable, and the coefficients are reliable for interpretation.

5.4 Regression Results

This section analyzes the aggregated ESG results from the two-stage least squares (2SLS) regression model, as presented in *Table 5*. Employing individual ESG components (environmental, social, and governance scores) and the aggregated ESG score ensures the robustness of the findings.

Some control variables displayed counterintuitive signs that warrant explanation. Firm size, for example, showed a negative relationship with performance, possibly due to diminishing returns or inefficiencies in larger firms. Economic growth was negatively associated with ROA in the fixed effects model but positive (though insignificant) in the 2SLS model, suggesting firm-level performance may not directly track macroeconomic trends. Mixed signs for payout ratio and interest rate could reflect firm-specific capital structures or delayed market responses. These results highlight the complexity of firm performance dynamics and suggest a need for further sector-specific analysis.

5.4.1 Results Analysis

5.4.1.1 Results Analysis for the Aggregated ESG Results

The 2SLS results, as shown in *Table 5*, indicate that ESG performance has a subtle impact on firm profitability and value. The 2SLS model results for ROA reveal a positive and significant relationship with the aggregated ESG score (0.073), suggesting that firms with better overall ESG performance tend to be more profitable.

For 2SLS model results for Tobin's Q, the aggregated ESG score has a negative and significant impact (-0.012) as shown in *Table 5*, indicating that higher ESG performance may have negative impact on the value of the firms understudy, potentially due to the costs associated with implementing ESG practices and the implication thereof on risk and growth potential of the firm.

Table 5 shows the FEM model results for ROA. It shows a positive but not statistically significant relationship with the total ESG score (0.002). This means that there is a slight upward trend in profitability as firms improve their ESG performance, but the effect is too small to be statistically significant. This could imply that ESG activities, while potentially beneficial for a firm's public image or risk management, may not significantly enhance short-term profitability.

For the FEM model, the Tobin's Q shows that the aggregated ESG score has a negative and significant impact (-0.006) at the 10% significance level, as shown in *Table 5*, This suggests that higher ESG performance may negatively impact the market value of the firms under study, possibly reflecting investor skepticism about the immediate financial benefits of extensive ESG efforts, especially if these initiatives are costly. Such results highlight a potential trade-off where ESG practices might be valued for long-term sustainability or ethical appeal but could come with near-term financial trade-offs that impact firm valuation.

However, we chose to emphasize the 2SLS results in our analysis because of the methodological rigor it provides in addressing endogeneity, a common issue when analyzing the impact of ESG on firm performance. The FEM model may suffer from endogeneity due to omitted variables, measurement errors, or simultaneity between ESG performance and financial outcomes.

In our context, the ESG score may be endogenous to firm value and profitability due to factors like reverse causality (successful firms may have more resources to invest in ESG) or omitted variables. By using instrumental variables (L2.ESG_Disc, ESG board compensation, and ESG bonus), the 2SLS approach helps isolate the independent effect of ESG on firm outcomes, making the results more reliable, yielding more consistent and unbiased estimates.

Moreover, the significant Wu-Hausman F-statistic and Sargan test results in the 2SLS model affirm the validity of the instruments used, supporting the reliability of these estimates over the FEM. Studies such as those by Aouadi and Marsat (2018) and Friede et al. (2015) have similarly highlighted the importance of addressing endogeneity when examining ESG impacts, emphasizing the need for robust instrumental variables.

5.4.1.2 Results Analysis for the Disaggregated ESG Results

In the disaggregated 2SLS results, as reported in *Table 6*, for the ROA model, the environmental score shows a negative and significant relationship (-0.061), indicating that

higher environmental performance may be associated with lower profitability, potentially due to the costs involved in implementing environmental initiatives. This finding is consistent with studies such as Cordeiro and Sarkis (2008), which found that the costs associated with environmental performance can outweigh the benefits, leading to lower short-term profitability.

Conversely, the social score demonstrates a positive and significant relationship with ROA (0.161), suggesting that better social performance correlates with higher profitability. This is supported by Margolis et al. (2009), who conducted analysis and found a generally positive relationship between social performance and financial performance, implying that investments in social initiatives can enhance profitability through improved stakeholder relations and operational efficiencies.

The governance score in the 2SLS model results, however, is not statistically significant in its relationship with ROA (0.022), implying that governance practices do not have a clear impact on profitability in this model. This aligns with the mixed evidence found in the literature, where studies like Bhagat and Bolton (2008) show that governance practices do not consistently predict profitability.

For Tobin's Q, as shown in *Table 6*, the 2SLS results reveal that the environmental score has a strong negative impact (-0.019), suggesting that investors might view higher environmental performance as costly, which in turn reduces firm value. This finding is in line with the work of Jacobs et al. (2010), who found that while environmental initiatives can lead to long-term benefits, they often incur significant short-term costs that can negatively impact firm value.

In contrast, the social score shows a positive and significant relationship with Tobin's Q (0.017), indicating that investors perceive better social performance favorably, thereby increasing firm value. This supports findings by Edmans (2011), who demonstrated that companies with higher employee satisfaction, a key component of social performance, tend to have higher market valuations.

The Governance score remains insignificant in its relationship with Tobin's Q (-0.003), suggesting that governance practices do not significantly influence firm value from the investors' perspective. This aligns with Gompers et al. (2003), who observed that while governance can impact certain firm outcomes, it does not always translate to higher market valuations.

On the other hand, the results of the fixed effects model (FEM), as presented in Table 6, reveal a negative but insignificant relationship between the environmental disclosure (Env_Disc) and ROA (-0.007). This suggests that environmental disclosures may slightly reduce short-term profitability, although the effect is not significant. While the Social Disclosure (Soc_Disc) indicates a positive, albeit insignificant, association between social disclosure and ROA (0.042). While social initiatives could potentially support profitability, the effect here is too weak to draw robust conclusions. The Governance Disclosure (Gov_Disc) also shows a positive yet insignificant impact on ROA (0.041), implying that governance practices might be weakly associated with profitability, but again, not at a statistically significant level.

The FEM Tobin's Q results as shown in *Table 6* reveal that the Environmental Disclosure (Env_Disc has a negative and significant impact on Tobin's Q (-0.006), implying that environmental disclosures might reduce firm value, potentially due to the costs associated with environmental initiatives or investor perceptions of their financial burden. Social Disclosure (Soc_Disc) on the other hand, shows a very small and insignificant positive effect of social disclosure on Tobin's Q (0.0003), suggesting that social practices may not strongly influence market valuation. Further, the Governance Disclosure (Gov_Disc) presents a slight positive effect (0.003), though it is not significant, indicating that governance practices have little immediate impact on firm valuation in this model.

While the FEM results provide insights, the 2SLS estimates offer more robust conclusions, addressing endogeneity concerns that the FEM alone cannot handle. The 2SLS results show a much stronger and significant negative impact of Env_Disc on both ROA (-0.060) and Tobin's Q (-0.018), suggesting that environmental initiatives might impose costs that reduce both profitability and firm value. This clarity in 2SLS results allows us to understand the more substantial financial impact of environmental disclosures, which the FEM could not capture accurately.

In addition, the 2SLS estimates reveal a highly significant positive association of social disclosures with both ROA (0.161) and Tobin's Q (0.017). This significant positive effect underscores the potential market and profitability benefits of social practices, which may enhance firm reputation and stakeholder relations—findings less clear in the FEM results. The 2SLS model does not show significant results for governance on ROA (0.022) or Tobin's Q (-0.003), suggesting that governance practices may not strongly impact firm performance in this setting, aligning with FEM findings.

In conclusion, the 2SLS results are preferred as they mitigate endogeneity concerns, providing clearer evidence of the independent effects of ESG disclosures on firm performance. Specifically, the significant 2SLS findings for Env_Disc and Soc_Disc reveal critical insights into how environmental efforts might detract from firm value, while social disclosures contribute positively to both profitability and valuation. The 2SLS results thereby offer a more reliable basis for assessing ESG's impact on firm performance.

5.4.2 Summarized Results Table - Aggregated ESG Score

Dependent Variable	**ROA**		**TOBIN Q**	
Estimation Technique	FEM *Coefficient*	2SLS *Coefficient*	FEM *Coefficient*	2SLS *Coefficient*
ESG_Disc	0.002 (0.045)	0.073 (0.032) *	-0.006 (0.003)*	-0.012 (0.002)***
Leverage TDTA	-0.144 (0.023) ***	-0.128 (0.022) ***	0.006 (0.002)***	-0.0004 (0.002)
Size (Log_Total Assets)	-5.262 (1.503) ***	-3.728 (0.807) ***	-2.035 (0.105)***	-0.895 (0.074)***
Economic Growth	-64.127 (22.492) **	21.407 (11.881)	-1.319 (1.564)	-0.543 (0.822)
Market Capitalization	7.968 (0.966) ***	4.667 (0.684)***	1.360 (0.067)***	1.031 (0.074)***
Debt-to-Equity Ratio	-0.0004 (0.001)	0.0013 (0.0009)	0.00006 (0.00008)	0.0002 (0.0001)*
Payout Ratio	-0.006 (0.003)*	0.006 (0.004)	0.00008 (0.0002)	0.00011 (0.0003)
Interest Rate	-261.952 (68.395)***	-15.635 (5.910)**	-1.377 (4.755)	0.255 (0.466)
Age_of_company	-2.785 (0.757)***	-0.012 (0.005)*	-0.017 (0.052)	0.002 (0.001)***
Constant	625.145 (184.498)***	-65.967 (45.102)	12.085 (12.825)	3.284 (3.189)
Year Dummy	YES	YES	YES	YES
F/Wald χ^2	18.09	170.570	53.710	239.670
R-squared	0.001	0.193	0.455	0.369
Wu–Hausman F (p-value)	-	4.41521 (0.0359)	-	7.30727 (0.0070)
Sargan χ^2 (p-value)	-	3.87114 (0.1443)	-	2.63934 (0.2672)
Firms	123	123	123	123
Observations	853	1105	853	1105

Significance levels: *** p < 0.01, ** p < 0.05, *p < 0.1

Note(s): Env_Disc; Environment rating, Soc_Disc; Social rating, Gov_Disc; Governance rating, ESG_Disc; Aggregate ESG rating, Leverage; TDTA; Total debt to Total Assets, Debt-to-Equity ratio; DER, Market capitalization; Firm Capitalization, Size; Natural logarithm of total assets, Economic Growth; Log_GDP Per Capita, Dividend pay-out; Payout Ratio, Interest Rate; macroeconomic variable.

Table 5: Aggregated ESG Score

5.4.3 Further discussion of the Results

In this section, we will only concentrate on the 2SLS model outcomes in the control variables for ROA and Tobin Q. We dismiss further discussion of the FEM findings since we are confident in the 2SLS outcomes, which enhance reliability and provide more consistent and impartial estimates.

5.4.3.1 Return on Assets (ROA) Aggregated ESG Results

Table 5 shows the results of the 2SLS model for ROA. To start with, Leverage (TDTA) has a negative and significant impact on ROA, consistent with the trade-off theory, which suggests that higher debt levels increase financial risk and reduce profitability (Modigliani & Miller, 1958).

Similarly, firm size (log of total assets) negatively impacts ROA, implying that larger firms may encounter greater operational inefficiencies due to complex structures. Meanwhile, market capitalization positively affects ROA, indicating that more valuable firms are often more profitable, aligning with the signaling theory (Spence, 1973).

Moreover, the positive coefficient for economic growth (GDP_Per_Capita) is not statistically significant; however, it hints that enterprises in expanding economies might benefit from increased economic activity and consumer spending, which could enhance profitability.

The debt-to-equity ratio, with a coefficient of 0.001, appears to have an inconsequential effect on profitability in this context, suggesting that companies may efficiently balance debt and equity to maximize financial performance.

Additionally, the payout ratio's minimal effect on ROA (0.006) as shown *in Table 5*, also shows that the pay-out ratio has a very small effect on ROA (0.006). This means that dividend policies don't have much of an effect on profitability. This could indicate that the company effectively utilizes retained profits for growth or that dividend distributions do not significantly impact operational capacity.

Interest rates, however, have a substantial adverse impact on ROA (15.635, statistically significant at the 5% level), underscoring that higher interest rates lead to increased borrowing costs and thus reduce profitability. This aligns with the understanding that interest expenses represent a considerable outflow that can dampen net profitability.

Interestingly, company age exhibits a statistically significant negative effect on ROA (0.012, significant at the 10% level) for older firms, indicating potential challenges in maintaining profitability. This may be due to factors such as outdated technology, less flexible business strategies, or heightened competition from newer market entrants.

Finally, the constant term is not statistically significant, suggesting that the baseline profitability of firms when other variables are controlled is not substantial.

5.4.3.2 Tobin's Q Aggregated ESG Results

The negligible negative impact on Tobin's Q (0.001) as shown in *Table 5*, suggests that leverage does not have a substantial influence on market value. This implies that if corporations effectively manage their greater debt levels, the market does not significantly punish them.

In addition, substantial negative effect on Tobin's Q (-0.895), significant at the 1% level) suggests that bigger companies have a comparatively lower market value to their assets. This may indicate market apprehensions about the potential expansion and effectiveness of major corporations. The negative impact of firm size on Tobin's Q suggests that larger firms may face challenges in maintaining high market valuations relative to their asset base.

The coefficient of economic growth (GDP_Per_Capita) is -0.543, as shown in *Table 5*, indicating that there is a negative but negligible relationship between economic growth and company value. This suggests that the market places more importance on other criteria when evaluating the success of companies in developing economies.

The little effect on Tobin's Q (0.0001) indicates that dividend payment regulations have a negligible impact on market value. This might indicate that investors have a bias for companies that reinvest their revenues to fuel growth rather than dispersing them as dividends.

On the other hand, the negligible effect on Tobin's Q (0.255) indicates that interest rates have little influence on market value in this particular scenario. This suggests that the market has adapted to the current interest rate levels.

Finally, the study found that older businesses had a positive and substantial influence on Tobin's Q (0.002, significant at the 1% level), suggesting that the market values them more highly. This might indicate that the market views these businesses as being solid and well-established, having a consistent track record of trustworthy performance.

5.4.4 Summarized Results Table - Disaggregated ESG Score

Dependent Variable	**ROA**		**TOBINQ**	
	FEM	**2SLS**	**FEM**	**2SLS**
Estimation Technique	*Coefficient*	*Coefficient*	*Coefficient*	*Coefficient*
Env_Disc	-0.007 (0.026)	-0.060 (0.028)**	-0.006 (0.002)*	-0.018 (0.003)***
Soc_Disc	0.042 (0.038)	0.161 (0.038)***	0.0003 (0.003)	0.017 (0.004)***
Gov_Disc	0.041 (0.035)	0.022 (0.057)	0.003 (0.002)	-0.003 (0.005)
Leverage TDTA	-0.143 (0.023)***	-0.122 (0.022)***	0.006 (0.002)*	0.0005 (0.002)
Size (Log_Total Assets)	-5.564 (1.501)***	-3.864 (0.785)***	-2.047 (0.104)*	-0.916 (0.071)***
Economic Growth	-57.154 (22.858)*	21.859 (11.862)*	-0.559 (1.582)	-0.490 (0.829)
Market Capitalization	8.045 (0.969)***	4.898 (0.666)***	1.378 (0.067)*	1.078 (0.076)***
Debt-to-Equity Ratio	-0.0001 (0.001)	0.001 (0.001)	0.00006 (0.0001)	0.0002 (0.0001)**
Payout Ratio	-0.006 (0.003)*	0.006 (0.004)	0.0005 (0.0002)	-0.00001 (0.0003)
Interest Rate	-242.769 (69.516)***	-15.797 (5.914)***	1.022 (4.812)	0.215 (0.465)
Age_of_company	-2.622 (0.769)***	-0.012 (0.006)**	0.010 (0.053)	0.002 (0.0006)***
Constant	569.316 (187.882)**	-69.779 (45.008)	5.203 (13.004)*	2.654 (3.248)
Year Dummy	YES	YES	YES	YES
F/Wald χ^2	16.14	210.86	48.51	254.09
Wu–Hausman F (p-value)	-	0.0377		0.0084
Sargan χ^2 (p-value)	-	0.0684		0.1240
R-squared	0.22	0.202	0.28	0.389
Firms	123	123	123	123
Observations	853	1105	853	1105

Significance levels: *** p < 0.01, ** p < 0.05, *p < 0.1

Note(s): Env_Disc; Environment rating, Soc_Disc; Social rating, Gov_Disc; Governance rating, ESG_Disc; Aggregate ESG rating, Leverage; TDTA; Total debt to Total Assets, Debt-to-Equity ratio; DER, Market capitalization; Firm Capitalization, Size; Natural logarithm of total assets, Economic Growth; Log_GDP Per Capita, Dividend pay-out; Payout Ratio, Interest Rate; macroeconomic variable.

Table 6: Disaggregated ESG Score

5.4.4.1 Return on Assets (ROA) Disaggregated ESG Results

As shown in *Table 6*, the coefficient for firm size is -3.864, highly significant at the 1% level. This negative relationship indicates that larger firms tend to have lower ROA. Larger firms may face diseconomies of scale or inefficiencies associated with their size, which can reduce profitability. Additionally, larger firms might have diversified business segments, some of which may not be as profitable, thus diluting overall ROA.

In addition, the coefficient for economic growth is 21.859, significant at the 10% level. Higher economic growth correlates with higher ROA, suggesting that firms perform better in a growing economy due to increased demand and favorable market conditions. This result aligns with macroeconomic theories that propose economic expansion boosts corporate performance by improving sales and investment opportunities.

As shown above in *Table 6*, the coefficient for market capitalization is 4.899, highly significant at the 1% level. This positive relationship indicates that higher market capitalization is associated with higher ROA. Larger market valuations, indicative of investor confidence, may correlate with better operational performance and greater resource allocation efficiency.

In addition, the coefficient for the interest rate is 15.797, highly significant at the 1% level. This negative relationship suggests that higher interest rates are associated with lower ROA. Higher borrowing costs reduce net income, thereby lowering ROA. This finding supports the view that macroeconomic conditions, such as interest rates, significantly impact corporate financial performance.

The coefficient for the age of the company is 0.012, significant at the 5% level. Older companies tend to have slightly lower ROA, possibly due to legacy costs and less flexible business models. This finding might suggest that newer firms can adapt more quickly to market changes and innovate, leading to higher profitability.

Finally, the coefficient for the constant term is 69.779, which suggests a negative intercept. This indicates that, in the absence of the other factors, the baseline ROA would be significantly negative. However, the statistical insignificance of this coefficient implies that the intercept term does not reliably predict the average ROA.

The Rsquared value for the model is 0.202, indicating that approximately 20.20% of the variability in ROA is explained by the model. This relatively low Rsquared suggests that other factors not included in the model might also significantly impact ROA, highlighting the complexity of firm performance determinants.

5.4.4.2 Tobin's Q Ratio Disaggregated ESG Results

According to the results in *Table 6*, the coefficient for leverage is 0.001 but is not statistically significant. This suggests that leverage does not have a significant impact on Tobin's Q Ratio in this model. This could imply that within the range of firms analyzed, variations in leverage do not significantly influence market valuation.

Further, the coefficient for firm size is 0.916, highly significant at the 1% level. This negative relationship indicates that larger firms tend to have lower Tobin's Q Ratio. Larger firms may face diseconomies of scale or inefficiencies associated with their size, which can reduce market valuation. This result aligns with the hypothesis that market valuation does not always proportionally increase with firm size.

In addition, the coefficient for economic growth is 0.489 but is not statistically significant. This suggests that economic growth does not significantly influence Tobin's Q Ratio in this model. It may indicate that market valuation is influenced by other macroeconomic factors not captured in this analysis.

On the other hand, the coefficient for the interest rate is 0.215 but is not statistically significant. This suggests that the interest rate does not significantly influence Tobin's Q Ratio in this model. It may indicate that the cost of borrowing does not directly affect market valuation in the short term.

Finally, the coefficient for the constant term is 2.654, indicating a positive intercept. However, it is not statistically significant, suggesting that the constant term does not have a reliable predictive power for Tobin's Q Ratio.

From the study, the R-squared value for the model is 0.389, indicating that approximately 38.93% of the variability in Tobin's Q Ratio is explained by the model. This suggests that the included variables provide a moderate explanation for the variation in market valuation.

6. Summary & Conclusion

6.1 Research Summary

This thesis primarily examines the correlation between Environmental, Social, and Governance (ESG) disclosures and company financial performance, with a specific emphasis on firm value (Tobin's Q) and profitability (ROA). The aims are to evaluate the effect of various ESG components, including environmental, social, and governance disclosures, on financial indicators.

This study is important because it contributes to the growing body of knowledge on how ESG disclosures can influence corporate financial outcomes, which is increasingly relevant to investors, policymakers, and businesses aiming to incorporate sustainability into their practices.

The used technique incorporates a two-stage least squares (2SLS) model to mitigate the possible problem of endogeneity due to omitted variables, measurement errors, or simultaneity between ESG performance and financial outcomes, guaranteeing that the association between ESG disclosures and business performance remains unaffected by unobserved variables.

The main results from the 2SLS Model indicate that environmental disclosures adversely affect profitability, presumably owing to the expenses incurred in implementing sustainable practices. On the other hand, social disclosures positively impact profitability, suggesting that socially responsible acts improve financial success. On the other hand, governance disclosures did not have a direct effect on ROA. The study also stresses how important it is to deal with endogeneity in order to get accurate estimates.

On the other hand, the results of the 2SLS model show a strong negative impact on the environmental score. This suggests that investors may perceive higher environmental performance as costly, leading to a reduction in firm value. However, it is important to note that while environmental initiatives may incur short-term costs, they often yield significant long-term benefits that positively impact firm value.

In contrast, the social score shows a positive and significant relationship with Tobin's Q indicating that investors perceive better social performance favorably, thereby increasing firm value, indicating that companies with higher employee satisfaction, higher customer satisfaction, healthy and vibrant community engagement, which are key components of social

performance, tend to have higher market valuations. Finally, the Governance score remains insignificant in its relationship with Tobin's Q suggesting that governance practices do not significantly influence firm value from the investors' perspective.

6.2 Conclusion

The primary research question regarding the impact of ESG disclosures on firm financial performance and value has been addressed, with findings indicating that social disclosures typically enhance profitability and firm value, whereas environmental initiatives may necessitate careful consideration due to their associated costs. Governance disclosures on both firm value and profitability metrics do not demonstrate a clear direct effect.

To effectively leverage ESG components, firms should clearly delineate short-term and long-term goals. Social initiatives can be highlighted for their immediate market benefits, such as improved employee morale, customer loyalty, and community support, which directly enhance profitability and are more positively received by investors. On the other hand, environmental and governance improvements should be framed as strategic investments for future resilience and profitability.

Individually, these components might have varied impacts: while environmental and governance practices often involve substantial upfront costs and long-term investments that don't immediately translate into financial benefits, thus negatively affecting firm value as measured by Tobin's Q, their indirect contributions can positively influence profitability by mitigating risks and improving operational resilience. By balancing the immediate benefits of social initiatives with the strategic advantages of environmental and governance practices, firms can better align their ESG performance with both investor expectations and sustainable growth.

From a policy recommendation, the findings suggest that promoting ESG practices can be a viable route to improving firm performance. Regulators should encourage standardized ESG disclosures and integrate ESG metrics into financial reporting guidelines. Investors and policymakers can also offer incentives to firms demonstrating high ESG compliance, as these practices correlate with long-term firm value and sustainable development outcomes.

The study's limitations include its concentration on South African firms, which constrains the applicability of the findings to other regions such as the sub-Saharan Africa due to South Africa’s distinct economic, legislative, and cultural context.

However, focusing only on financial success metrics like ROA and Tobin's Q might mean we don't see how ESG policies affect society, the economy, and the environment as a whole. For example, ESG policies might encourage smart investments that will help businesses be more resilient and profitable in the future. Financial indicators, while important, do not capture the full spectrum of benefits that ESG activities can provide. These include contributions to sustainable development, enhanced societal welfare, and improved business reputation.

Another limitation of this study is the availability of consistent ESG data across all listed firms and years. Additionally, other potential performance measures such as Return on Equity or Economic Value Added were not included due to missing data and inconsistency in reporting. Future research could explore a wider set of performance metrics as ESG data improves in availability and granularity.

Overall, the findings of this study offer valuable recommendations for firms looking to enhance their ESG performance strategically. By balancing immediate gains with long-term sustainability and resilience, companies can achieve both financial success and social responsibility, thereby contributing to a more equitable and sustainable future.

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Appendix A: Correlation Matrix

Table 7: Correlation Matrix Among the Variables

	Tobin_Q_Ratio	Ret_Asset	ESG_Disc	Env_Disc	Soc_Disc	Gov_Disc	TT_debt_TT_assets	Log_Total_assets	Log_GDP_Per_Capita	Log_Hist_Mkt_Cap	TT_debt_Eqty	Div_Payout_Ratio	Log_Interest_Rate	Age_of_company
Tobin_Q_Ratio	1.00													
Ret_Asset	0.48	1.00												
ESG_Disc	-0.05	0.14	1.00											
Env_Disc	-0.08	0.11	0.93	1.00										
Soc_Disc	0.00	0.18	0.89	0.76	1.00									
Gov_Disc	-0.02	0.07	0.65	0.43	0.46	1.00								
TT_debt_TT_assets	-0.03	-0.24	-0.04	-0.02	-0.10	0.01	1.00							
Log_Total_assets	-0.20	-0.03	0.38	0.38	0.35	0.17	-0.02	1.00						
Log_GDP_Per_Capita	0.26	0.24	0.43	0.45	0.37	0.19	-0.04	0.70	1.00					
Log_Hist_Mkt_Cap	-0.04	-0.13	-0.01	-0.01	-0.03	0.01	0.41	0.06	-0.05	1.00				
TT_debt_Eqty	0.06	0.05	0.01	-0.01	-0.02	0.07	0.06	0.07	0.12	-0.01	1.00			
Div_Payout_Ratio	0.06	0.08	-0.07	-0.06	-0.07	-0.07	-0.06	-0.04	0.03	-0.02	0.00	1.00		
Log_Interest_Rate	0.07	-0.03	-0.05	-0.05	-0.04	-0.02	-0.07	-0.01	0.07	-0.04	0.04	-0.13	1.00	
Age_of_company	0.0187	-0.0184	0.1742	0.139	0.1493	0.1545	-0.0864	0.0854	0.042	-0.0147	-0.0426	-0.0108	-0.0251	1