

**The impact of transparent sustainability  
reporting on share returns in South Africa**

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

05 March 2024

## Abstract

Corporate Social Responsibility (CSR) has become increasingly significant in the business world as companies have recognised their long-term success is linked to their social and environmental contributions. Responding to stakeholder pressures, companies are disclosing sustainability information through sustainability reports. While these documents are used to provide details of a company's sustainability initiatives, their quality and depth vary. Some companies may opt for superficial disclosures, while others delve deeper. Transparency in these reports is crucial as it reflects the quality of CSR communication and strengthens stakeholder relationships.

This study investigates how investors perceive the transparency of sustainability reports, employing a quantitative method through investment style analysis over 13 years. The portfolios were evaluated based on ESG transparency scores. The findings demonstrate a link between the clarity of ESG reporting and stock returns, highlighting the strategic importance of ESG transparency for corporate management. Clear reporting is shown to influence investment decisions, underscoring transparency's role not only in financial success but as a core ethical commitment. The study advocates for businesses to actively promote high ESG transparency as a means to encourage long-term growth and sustainability.

## Keywords

Transparency, Sustainability, Investment Style Engine, Financial Performance

## Plagiarism Declaration

*I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.*

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05 March 2024

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# 1. Introduction

## 1.1. Background

Amid the escalating environmental and societal challenges facing our planet, the concept of Corporate Social Responsibility (CSR) has gained significant attention from both academics and business leaders. Friedman (2007) famously argued that the primary goal of companies should be to enhance profits for their shareholders, suggesting that concerns related to social responsibilities should be deemed a secondary priority, thus managed by external entities. However, this perception has changed significantly in recent years.

Today, the responsibilities of companies have expanded significantly. While the emphasis on shareholder value remains, there is an increased accountability towards the broader stakeholders (Konadu et al., 2021). These stakeholders exert considerable pressure on companies, compelling them to not only invest in CSR initiatives but also to transparently report on such activities. As a result, business managers find themselves in the constant task of balancing resources allocated towards CSR activities. This evolution in expectations represents not merely a trend but a fundamental shift that businesses must adopt to sustain public trust and ensure long-term viability. Furthermore, it's crucial for them to exhibit transparent and ethical leadership.

Listed companies, with their diverse international investor base, encounter the challenge of maintaining clear and effective communication. This diversity in investment sources naturally complicates the communication process. Nevertheless, to create strong relationships and consistent investment, companies must navigate these challenges and ensure the continuous provision of relevant and timely information. This information is vital for investors to assess the company's historical performance and to formulate predictions about its future prospects (Bernardi & Stark, 2016).

Historically, the primary responsibility of companies was to report financial stability to shareholders via financial statements. Subsequently, annual reports evolved to convey additional economic information to stakeholders. Today, investors demand a more comprehensive reporting approach and seek for the inclusion of non-financial information including environmental, societal, and governance (ESG) aspects (De



Villiers & Maroun, 2017). In a notable global trend, consumers are becoming increasingly ethically conscious and are leveraging their purchasing power to pressurise companies into prioritising CSR (Waddock et al., 2002). Consequently, companies are now proactively incorporating supplementary data into their reports, thereby shedding light on their sustainability practices.

South African companies listed on the Johannesburg Stock Exchange (JSE) must adhere to the King Code of Governance. These guidelines are specifically designed for the South African environment to promote good governance. These companies are encouraged to comply with internationally recognised standards in disclosing their sustainability initiatives (Natesan, 2020). Increasingly, South African companies are adopting the Global Reporting Initiative (GRI) guidelines for this purpose. These guidelines provide a unified framework assisting companies worldwide in consistently reporting their societal and environmental impact (Global Reporting Initiative, n.d.).

Publishing a sustainability report can offer various advantages for a company. As noted by (Inyang, 2013), key benefits include enhanced corporate and brand value. This is primarily because such reports demonstrate the impact of a company's activities, serving as a form of legitimisation. Additionally, sustainability reports facilitate benchmarking, allowing for easier comparison with competitors (Boiral & Henri, 2017). They also enhance transparency and accountability both within the organisation and externally (Konadu et al., 2021). These factors collectively may confer a competitive edge to the company.

However, a significant challenge in sustainability reporting is the ambiguity surrounding the concept of transparency. There lacks a universally accepted definition of transparency, especially in the context of sustainability (Michener & Bersch, 2013). This paper aims to delve deeper into the understanding of transparency within sustainability reporting and how it is perceived by investors.

## 1.2. Knowledge gap

Creating a single, universal definition of transparency is challenging due to the need for consensus across various fields, which may not be currently feasible. Transparency is defined differently in different contexts, leading to several issues (Michener & Bersch, 2013). One significant challenge is the diverse interpretations of transparent communication. For instance, the understanding of a text can vary

based on the reader's expertise. Experts in a particular field might comprehend it easily, while others may struggle. This presents a problem for sustainability reports, intended to inform a wide range of stakeholders (Michener & Bersch, 2013). These stakeholders represent a diverse group, each with their own expectations, making it important to ensure sustainability reports are accessible and understandable to everyone. This raises a crucial question regarding the extent to which stakeholders can grasp and interpret the information presented in these reports (Kaptein & Van Tulder, 2017).

Studies have identified a clear relationship between transparency and trust, suggesting that a company's commitment to open communication can significantly enhance trust levels (Mol, 2015). However, communities around the globe have shown signs of decreased trust towards authorities and large organisations. In a survey conducted in 2020, Edelman found that public trust across 28 countries was eroding. Specifically, in that year, more than half of the respondents, 57%, expressed scepticism towards the honesty of authorities. While 56% harboured similar sentiments about the business sector. This survey also highlighted a broader decline in trust directed at academics, government officials, journalists, and individuals in leadership positions (Edelman, 2021).

Various elements have been identified as contributors to the diminishing levels of trust. Past financial downturns, such as the Dot-com bubble, the Asian financial crisis, and the housing market collapse, have significantly influenced this trend (Foster & Magdoff, 2009). The Volkswagen emissions scandal is another critical instance demonstrating how trust in major corporations can be severely affected (van Vuuren, 2020). On a brighter note, there has been a noticeable improvement in trust related to sustainability reporting, although much work remains. A 2020 survey by the GRI, they revealed that in certain European Union countries, as well as in Australia, the USA, and Canada, there was a rise in both transparency and trust concerning the environmental and social impacts reported by companies. Nonetheless, the overall trust level has yet to surpass the 50 percent mark, suggesting ample room for enhancing trust in this domain (Global Reporting Initiative, 2020).

Higgins et al. (2020) highlight several cases where organisations project a particular image to their stakeholders, only to act in ways that contradict this portrayal. This inconsistency is seen as a type of hypocrisy stemming from insufficient transparency.

The research suggests that companies may sometimes present their activities in a way that misleads stakeholders, redirecting stakeholders' focus away from critical information towards other elements of the operations. This redirection of focus could be an intentional tactic by the company for strategic purposes (Maqbool & Zameer, 2018).

Previous studies highlight a tendency among companies to report more favourable and positive outcomes and often overlook negative events or performances. This trend is particularly noted in leading businesses, which are expected to be at the forefront of sustainable development (Higgins et al., 2020).

### 1.3. Problem discussion

Towards to end of the 1980s, research within the social and environmental sectors began to gain notable interest and transitioned from what was once considered unconventional to a more accepted focus. Over the years, the corporate world has recognised that long-term success extends beyond the sole pursuit of profit and growth. The integration of an organisation within society now depends on a wider array of considerations. These considerations not only encompass the economic achievements of a company but also its contributions to and effects on society and the environment. This shift signifies a transformation in business priorities, positioning non-economic elements as essential components of a company's sustainability strategy (De Villiers & Maroun, 2017).

Companies tirelessly explore innovative strategies to surpass their competitors and ensure their longevity (Halkos & Nomikos, 2021). Maqbool and Zameer (2018) proposed that a company's engagement in CSR could potentially offer a competitive edge, subsequently strengthening its financial position. These endeavours can enhance a company's profitability and brand image. Effective CSR activities can translate into sustainable competitive advantages, enriching both a company's reputation and share price (Zhang & Niu, 2015).

Yet, scepticism persists. A considerable number of business managers remain unconvinced about the direct correlation between CSR activities and enhanced profitability. One plausible explanation for this scepticism is the perception that many CSR initiatives appear disjointed from core business operations (Tilt et al., 2021). Additionally, while the inception of sustainability reporting aimed to address the inadequacies of traditional financial reports, the process is both resource-intensive

and time-consuming (García-Sánchez et al., 2019). Transitioning to a sustainable operational model often implies short-term cost escalations and substantial modifications to current resource usage (Aggarwal, 2013). Despite the potential long-term benefits, many shareholders are hesitant to embrace this shift. Researchers postulate that empirical evidence showcasing the enhancement of financial performance upon adopting sustainable practices could be a potential motivator for companies (Grewal et al., 2021).

Some research data have illustrated a notable correlation between a company's socio-environmental initiatives and its financial outcomes (Zhang & Niu, 2015; Barth et al., 2017; Beck et al., 2018). However, it's imperative not to oversimplify the complex relationship and assume an exclusively positive correlation (McWilliams & Siegel, 2000). In fact, past studies have depicted a range of impacts, from positive to neutral to even negative. These varied outcomes, as Aggarwal (2013) suggests, may be influenced by several factors, including the methodologies employed, criteria for measuring sustainability, financial metrics used, and the specific sample and timeframe of the study. Furthermore, Ching and Gerab (2017) suggested that while ample research has delved into the connection between sustainability performance and financial metrics, there is a noticeable gap in understanding the relationship between how transparent a company is in reporting sustainability initiatives and its share returns.

#### 1.4. Main research question

Central to this study is the research question that seeks to unravel the complex relationship between the transparency of sustainability reports and the share returns of companies within South Africa. The question is framed to understand whether openly and transparently reporting on sustainability initiatives can influence the share returns of these companies, either positively or negatively. Furthermore, by designating share returns as the primary measure of financial performance, the investigation ensures an objective and quantifiable metric that can be directly compared against the company's transparency rating. The choice to employ the investment style engine as the analytical methodology further signifies the study's commitment to rigorous and unbiased assessment.

How is transparency of sustainability reporting perceived by investors?

## 1.5. Aim and Purpose

The primary objective of this investigation is to bridge the identified research gap by examining the relationship between the transparency of ESG reporting and share returns within South Africa. This research aims to provide a potential rationale for companies to enhance the precision and depth of their sustainability documents. One of the distinguishing elements of this study is its focus on share returns, contrasting with prior studies that have predominantly concentrated on financial performance metrics such as Return on Assets (ROA) and often overlooked investors' reactions to transparent reporting. By extending the research timeframe to span 13 years, the intent of this study is to offer a comprehensive perspective on the dynamic relationship between the transparency of sustainability disclosures and share return performance.

Despite its esteemed position in sustainable development on the global stage, South Africa lacks rigorous academic studies probing the influence of transparency on listed companies. This apparent gap underscores the need for a specific focus on examining companies listed on the JSE. By doing so, the research hopes to provide a deeper understanding of transparent reporting.

## 1.6. Practical contribution

This study serves as a valuable resource for stakeholders and regulatory bodies, highlighting the critical role of transparency in sustainability reports. It underscores the obligation of company executives to maintain transparency in their reporting practices to investors, emphasising the need for genuine and straightforward communication. The research is designed to explain investor perceptions regarding transparency in sustainability reporting.

## 2. Literature Review

### 2.1. Introduction

This chapter is dedicated to delving into the intricacies of transparent reporting of sustainability initiatives within South Africa. Its objective is to review the academic literature available on subjects related to this research, including CSR, transparency, sustainability reporting, legitimacy and stakeholder theories. Each section of this literature review is designed to enhance the reader's understanding of these theories and concepts, thereby contributing to a holistic view of the topic.

### 2.2. Corporate Social Responsibility

With heightened stakeholder awareness and increasing environmental challenges, organisations are compelled to demonstrate responsibility beyond mere profitability (Waddock et al., 2002). The concept of CSR encompasses a wide range of initiatives and actions undertaken by companies to promote societal and environmental well-being. While CSR was once considered a secondary, charitable act, it has now evolved into a core strategic element that integrates a company's social, environmental, and economic dimensions (Sampong et al., 2018). This transition has been driven by growing demands from stakeholders and investors for transparency and ethical conduct (Konadu et al., 2021). These investors, key contributors to a company's finances, expect returns on their investment from the organisation's revenue.

Historically, in both mature and emerging markets, investors have valued companies with strong corporate governance and have been wary of those with weak governance (Peterson et al., 2015). Investors often consider factors such as non-transparent disclosures, inadequate boards, restrictive shareholder rights, and flawed executive compensation strategies, integrating them into their evaluation processes (CFA Institute, 2020). CSR is no longer merely a moral obligation but also a strategic tool to enhance corporate reputation, strengthen stakeholder relations, avoid scandals, and ensure long-term business viability (Maqbool & Zameer, 2018).

#### 2.2.1. Triple Bottom Line

The Triple Bottom Line (TBL) concept, established as a socio-ecological agreement between communities and businesses, redefines measures of corporate success.

Introduced by Elkington in 1994 and further elaborated on by Savitz in 2006, TBL emphasises the role of sustainability. This approach evaluates an organisation's impact not just financially but also socially and environmentally. TBL differs from traditional accounting by incorporating assessments of a company's social and environmental contributions alongside its profitability and shareholder value (Savitz, 2013). This framework broadens the scope of corporate reporting to include areas traditionally challenging to quantify, such as social and environmental impacts (Księżak & Fischbach, 2017).

The increasing scepticism towards financial reporting has spurred the need for the TBL approach. Stakeholders now expect large companies to demonstrate greater accountability in their actions and performance. TBL offers a way to enhance transparency and provide a more comprehensive framework for decision-making (Savitz, 2013). It allows businesses to report on significant non-financial outcomes, captured under the three Ps: People, Planet, and Profits (Elkington, 1997). Involvement in TBL, by both employees and external stakeholders, creates a deeper understanding of the company and enhances stakeholder relationships. Participation in this reporting is beneficial and essential for businesses striving toward sustainability.

### 2.2.2. Transparency in Corporate Social Responsibility

Fernandez-Feijoo et al. (2014) underscore the significance of transparency in the effective implementation of CSR policies, particularly those grounded in reputation. They assert that CSR fundamentally requires companies to take responsibility and be accountable for their impacts on economic, social, and ecological levels. The challenge of maintaining transparency in CSR is intensified by broader societal issues, especially within governance systems (Fernandez-Feijoo et al., 2014). This complexity has sparked a growing interest in alternative methods, positioning CSR as a pivotal strategy in addressing these challenges.

Kaptein and Van Tulder (2017) argue that for an organisation to be truly transparent, it must provide information that enables stakeholders to fully understand relevant issues. This degree of transparency is crucial for CSR to transcend a peripheral governance approach. Stakeholders need comprehensive information to effectively distinguish between genuine CSR efforts and those that are merely superficial, aimed at enhancing a company's image. Achieving this level of transparency is essential,

as it has the potential to elevate CSR into a significant governance tool (Higgins et al., 2020).

The current demand for transparency in the market sharply contrasts with the level of disclosure provided by many companies. Research indicates that contemporary disclosure practices often fall short, tending to be reactive and event-driven. Companies frequently respond to public pressure following specific incidents (van Vuuren, 2020). This pattern highlights a gap between the need for transparency and actual corporate practices. Furthermore, social audits, which could serve as mechanisms for accountability, are frequently influenced by corporate management. This can lead to their use as tools for public relations rather than genuine accountability (Dubbink et al., 2008). Additionally, a significant portion of social and environmental disclosures by companies is characterised by self-praise and may not accurately reflect their true environmental and social performance (Higgins et al., 2020). This discrepancy indicates a notable divergence between the idealistic goals of CSR and its practical application, particularly regarding transparency and accountability.

## 2.3. Sustainability

### 2.3.1. Background

The concept of sustainability gained worldwide recognition in 1987 when the UN World Commission on Environment and Development published a report called 'Our Common Future' (commonly referred to as the Brundtland Report) (Purvis et al., 2019). The report expanded the understanding of sustainable development, setting the stage for further research in this area. The Brundtland Report emphasises the wise use of environmental and socio-economic resources while aiming to ensure their availability for future generations and, in turn, enhance the quality of life globally (Cobbinah et al., 2011).

Following the introduction of sustainability in business, many companies recognised its potential to enhance their operations. However, achieving true sustainability and effectiveness requires institutions to seek efficiency in all activities and decisions, striving to produce more efficiently with less pollution and resource consumption while also being socially responsible (Konadu et al., 2021).



The pillars of sustainability emerged from this, incorporating the economic, social, and environmental areas of sustainability and guiding organisations toward sustainable development (Purvis et al., 2019). This involves seeking economic prosperity, social justice, and environmental protection. Alongside the Triple Bottom Line, the concept of ESG gained prominence. ESG replaces the economic factor with corporate governance and expands the focus beyond commercial outcomes to include transparency in disclosures, audit committees, corporate conduct, and anti-corruption measures (Konadu et al., 2021). The relationship between humanity and nature is crucial in this context, extending from everyday actions to more complex initiatives undertaken by large corporations (García-Sánchez et al., 2019).

The environmental pillar of sustainability emphasises the importance of protecting natural elements crucial for maintaining the integrity of the global ecosystem. This pillar recognises that overexploiting natural resources can adversely affect society's well-being and health, impacting air and water quality, soil, and living organisms (Goodland, 1995). The adoption sustainable production practices and enhancing energy efficiency are essential steps toward reducing environmental stress, conserving natural resources, and minimising pollution. These efforts are undertaken with a forward-looking perspective, considering the needs of future generations (Goodland, 1995).

The social pillar of sustainability is anchored in principles of equality and equitable distribution of wealth (Moldan et al., 2012). This pillar is closely linked with the economic and environmental pillars within sustainability and advocates for the right to adequate housing, healthcare, and education, aiming to achieve a fair and just society. Therefore, within an organisation, it relates to human resources practices that inform employees about sustainable practices such as recycling waste, reducing water pollution, improving air quality, and preserving wildlife. Employees are ultimately aware of their actions on various aspects of society, both within the organisation and in their personal lives (Moldan et al., 2012).

The economic pillar of sustainability involves not only the company but also its engagement with the community (Dhahri & Omri, 2018). The effective structuring of a business is crucial for achieving positive outcomes, business expansion, and consequently benefiting society. Achieving economic profitability through sustainability requires scaling operations to advance the market with sales and

products and this necessitates a balanced and functional integration of the three sustainability pillars.

The focus of an organisation should be on maintaining equilibrium among these pillars to meet the overarching goals of the company, with each pillar plays a critical role. Such an approach ensures that economic activities contribute positively both to immediate societal needs and long-term environmental sustainability.

### 2.3.2. Transparency in Sustainability

Over the past two decades, the practice of transparency in sustainability and environmental politics has significantly expanded globally. This expansion has transcended national borders, encompassing a range of institutions including global value chains, both locally and internationally. Mol (2015, p. 2) observes that transparency has evolved from a marginal concept to a central aspect of modern society, evolving into what he terms a new, "placeless form of transparency." This change reflects how global value chains are increasingly required to be transparent and disclose information regarding their sustainability practices. This trend towards transparency is reshaping how businesses operate and communicate within the global market, emphasising the importance of transparent practices throughout the entire value chain (Wognum et al., 2011).

Mol (2015) also discusses the emergence of new intermediary entities that play a crucial role in disseminating and simplifying information related to sustainability in global value chains. These developments are making sustainability data more accessible and relevant, not just within the networks of these chains but also to external individuals. Mol (2015) categorises transparency into four types: management, regulatory, consumer, and public transparency (refer to Table 1 below). Each type plays a distinct role, yet they often intersect in practical applications. This evolution underscores the increasing significance and complexity of transparency in the global arena, where trade and environmental responsibility are deeply intertwined.

Table 1: Types of transparency as by Mol (2015) in value chains and networks

Ideal type value chain transparency	Disclosure of information by	Disclosure of information for	Example
<b>Management transparency</b>	Upstream* economic actors in chains	**Downstream economic actors in chains	Total Quality Management
<b>Regulatory transparency</b>	Economic actors in chains	Regulatory and inspection bodies	EU tracking and tracing system
<b>Consumer transparency</b>	Economic actors in chains, certification bodies	Consumers and certification bodies	Eco-labels and certification
<b>Public transparency</b>	Economic actors in chains, certification bodies	Public (citizen consumers)	Carbon disclosure project

*\*Upstream refers to chain actors higher up in the value chain such as primary producers and raw material processors.*

*\*\*Downstream refers to chain actors lower in the value chain such as final processors, retailers and consumers.*

The first type of transparency is typically restricted to certain participants within the value chain and centres around traceability aspects, such as logistics and total quality management. Management transparency is not usually intended for external entities like public authorities or consumers but instead, serves as an internal tool to enhance operational efficiency and improve coordination among the various players within the value chain.

The second type is mandated by public authorities and often responds to various legislations and policies concerning product standards, safety, and compliance. Therefore, disclosure requirements are established by governmental bodies and are primarily directed towards inspectors and regulatory agencies. This transparency ensures that products meet certain standards and requirements, protecting public interests and ensuring compliance with the law.

The third type of transparency is more expansive and relates to the disclosure of information about companies' products and their production processes. This includes providing detailed information that enables the assessment of the additionality of products through private or public certification and labelling. This transparency is aimed at both consumers and certification bodies, facilitating informed purchasing

decisions and ensuring that products meet certain environmental and social standards.

Finally, the fourth type is public transparency, which involves disclosing information about the sustainability aspects of products and production processes to the general public and serves two purposes. The first purpose is to legitimise the production processes and products to a wider audience, including consumers, media, and non-governmental organisations (NGOs). Secondly, it benefits the companies involved by publicly validating their sustainability claims and labels. This helps safeguard the reputation of the entities within the chain and can provide a competitive advantage in the market.

Across all these forms, the exchange and dissemination of information are recognised as critical elements for companies striving to advance corporate sustainability within their networks and value chains. Authors such as Wognum et al. (2011), and Mol (2015) have emphasised the importance of integrating sustainable practices into their operational frameworks and building sustainable relationships within their business networks.

## 2.4. Sustainability Reporting

To standardise sustainability reporting, various guidelines and standards have been developed globally. These frameworks provide companies with a structured approach to disclose their ESG initiatives, ensuring transparency and comparability across industries and regions. The escalating recognition of CSR in today's business environment has necessitated the creation of robust guidelines, standards, and reporting instruments. These instruments aid in bringing consistency, comparability, and accountability to the sustainability efforts of organisations (Diaz-Becerra et al., 2021).

Historically, financial statements were the principal means by which companies communicated their performance to stakeholders. However, growing socio-environmental consciousness has led to the inception of sustainability reports as complementary tools. These reports provide comprehensive insights into a company's ESG practices, presenting a more holistic view of corporate performance (Wognum et al., 2011). The shift towards sustainability reporting was not an overnight transition but rather an evolutionary process influenced by various global incidents, including environmental incidents and corporate wrongdoing. The 1960s and 1970s

saw the initial stages of environmental reporting, prompted by high-profile pollution incidents. These events spotlighted the urgent need for better corporate policies, legal frameworks, and eventually, standardised reporting practices (van Vuuren, 2020).

Numerous guidelines and standards have emerged over time and are designed to assist businesses with their sustainability reporting. One of the most globally recognised among these is the GRI framework. Created in partnership with the United Nations Environment Programme (UNEP) and the Coalition for Environmentally Responsible Economies (CERES), GRI's objective was to create guidelines that would be universally applicable (Onoja et al., 2021). These guidelines have assisted organisations in better articulating environmental and social initiatives within their operations to stakeholders (Safari & Amreen, 2020). The Integrated Reporting (IR) framework, developed by the International Integrated Reporting Council (IIRC), is another noteworthy standard. The IR framework urges companies to integrate their financial and ESG information, thereby promoting a more interconnected representation of organisational performance (Wachira et al., 2020).

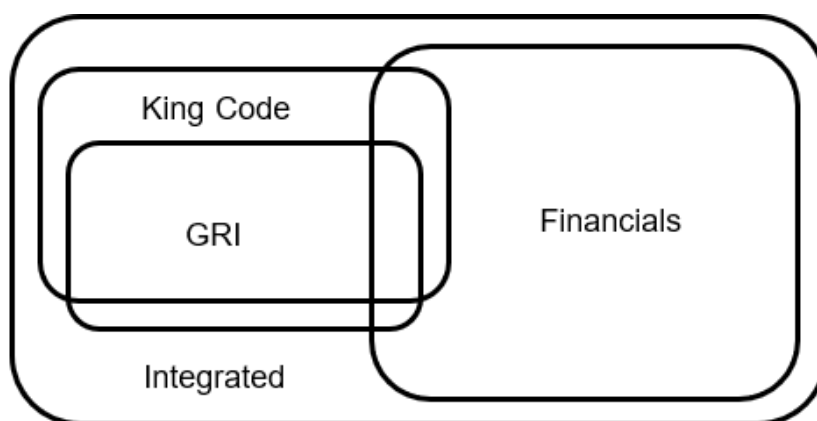
#### 2.4.1. Guidelines, Standards, and Reporting in South Africa

In South Africa, the corporate governance landscape is shaped by a combination of codes, guidelines, and legislation. This includes frameworks such as the King Code of Corporate Governance, the IR framework, the Companies Act, the GRI, as well as the ISO Standards on Environmental Management (14001) and Social Responsibility (26000), among others. The JSE introduced its Social Responsibility Index (JSE-SRI) in May 2004, aiming to spotlight companies that embrace the TBL approach and comprising ESG initiatives. It also offers a comparative metric between socially conscious companies and others, catering to investors keen on integrating non-financial risks into their investment criteria (Gladyssek, 2012). To earn a spot on the JSE-SRI index, listed companies must meet specific criteria based on set indicators within distinct evaluation areas. These indicators are separated into "core" essentials that companies must meet and "desirable" ones that are aspirational in nature. The overarching themes of the index revolve around ESG concerns intertwined with broader sustainability issues (Du Toit & Lekoloane, 2018). As Bernardi and Stark (2016) point out, merging financial reporting with social and environmental performance narratives offers substantial benefits when making investment

decisions, especially when the disseminated information is quantifiable and comparable (Boiral & Henri, 2017).

Sustainability reporting in South Africa can be traced back to the first King Report, published in 1994. The King Code of Corporate Governance, commonly referred to as the "King Code," represents South Africa's commitment to good corporate governance. Its principles are grounded in the notion that good corporate governance is inherently linked to sustainable business practices (Du Toit & Lekoloane, 2018). With its latest version, King IV, unveiled in 2016, it incorporates an "apply and explain" philosophy. Instead of a checklist, King IV offers principles that companies should strive to adhere to. Therefore, a company can choose not to apply a principle but must provide a reasoned explanation, creating a culture of transparency and accountability.

As the GRI is considered the leading framework for sustainability reports, it complements the King IV ethos well and provides the granularity and structure required for effective sustainability reporting (Sampong et al., 2018). While King IV provides the "why" with its overarching governance philosophy, GRI offers the "how" with its detailed standards and indicators. The alignment between GRI and King IV is evident in the JSE reporting requirements, encouraging companies listed on the JSE to use recognised frameworks like GRI for their sustainability disclosures (Wachira et al., 2020). The integration of these reporting frameworks is crucial for promoting transparency and accountability in corporate South Africa.



*Figure 1: Integrated Report Frameworks*

However, sustainability reporting in South Africa is not without its challenges. Due to the wide range of stakeholders that companies have to engage with, each stakeholder's expectations can vary significantly, often putting companies in a

dilemma. Companies are therefore required to strike a balance between adhering to global standards and accommodating local realities. Furthermore, while large corporations possess the resources and expertise to produce comprehensive sustainability reports, smaller companies may find it challenging to keep pace (García-Sánchez et al., 2019). Another challenge lies in ensuring the quality and credibility of disclosures. Although frameworks like the GRI provide a structured approach, the actual content of reports can significantly vary in terms of depth, accuracy, and relevance. It remains an ongoing challenge to ensure that sustainability reports are not merely tick-box exercises but rather a genuine reflection of a company's sustainability initiatives (van Vuuren, 2020).

#### 2.4.2. The GRI Reporting Guidelines

The GRI reporting guidelines are designed to provide companies with a structured approach to disclosing their sustainability performance, covering a wide range of topics from environmental conservation to labour practices (Diaz-Becerra et al., 2021). Since its inception in 2000, the GRI framework has gained broad acceptance, extending its reach to over 100 countries (KPMG, 2022). Despite its global popularity, the GRI has faced criticism for its perceived insufficient integration of economic, environmental, and societal aspects, with critics arguing that it leans more towards providing indicators rather than truly embedding companies with sustainable development values (Boiral & Henri, 2017).

With each iteration, GRI has sought to evolve and expand its guidelines to better address the challenges of sustainability reporting and stakeholder expectations. For instance, the guidelines have been updated over time to incorporate emerging subjects such as climate change, human rights, and corruption (Peterson et al., 2015). Its most recent iteration, G4, launched in October 2016, introduced the first universally accessible global standards for sustainability reporting. Distinguished from its predecessors, the GRI Standards employ a modular structure, enhancing their flexibility and ease of future modification (Onoja et al., 2021). In 2021, a further update to the framework introduced a revamped appearance and numbering system.

A study in 2022 by KPMG found that the GRI guidelines remain the preferred framework for sustainability reporting globally. The study evaluated two distinct groups: the initial group encompassed 5,800 global enterprises, representing the top 100 revenue-generating firms across 58 countries (N100), and the subsequent group

included the world's 250 revenue-leading companies based on the Fortune 500 list (G250). The findings indicated that a considerable majority of N100 (79%) and G250 (96%) companies employ some form of guidance or framework in their reports. This growth is illustrated in Figure 2. The GRI emerged as the predominant choice, being implemented by 68% of N100 and 78% of G250 reports in 2022. Conversely, stock exchange guidelines were embraced by 23% of N100 as well as 23% of G250 businesses. This data underscores the increasing adoption rates of sustainability reporting among N100 and G250 companies between 1993 and 2022.

### Global sustainability reporting rates (1993–2022)

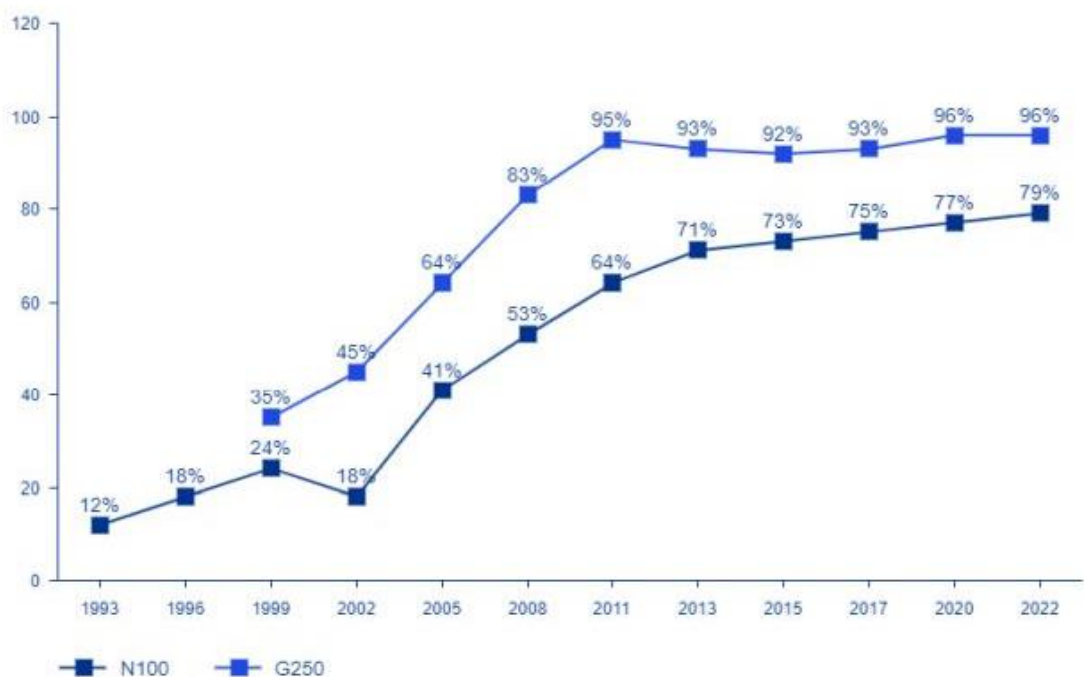


Figure 2: Global Adoption of Sustainability Reporting (KPMG, 2022)

### 2.4.3. Transparency in Sustainability Reporting

The concept of corporate transparency has been extensively explored and defined in various ways by researchers. Bushman et al. (2004) described transparency as the degree to which information about a company is readily accessible to people outside the organisation. They further identified three key indicators to measure transparency: the quality of corporate reporting, the detail about private assets, and the extent of information dissemination. These indicators collectively provide a comprehensive understanding of the different aspects of transparency in corporate reporting.



Building on this framework, Dubbink et al. (2008) introduced additional criteria for assessing transparency: efficiency, freedom, and virtue. They focused on the quality of information, denoting efficiency, and the moral and ethical dimensions of reporting, represented by freedom and virtue. They argued that enhanced transparency could lead to greater dynamic efficiency and innovation in corporate reporting.

In this study, transparency is considered a pivotal factor in promoting sustainable practices and understanding their impact on investors. This perspective aligns with the views of Kaptein and Van Tulder (2017), who emphasised the need for objective measures to determine the efficacy of corporate sustainability reporting. They contended that increased transparency in sustainability reporting is essential for effective sustainability initiatives.

Various methods for objectively assessing corporate transparency are found in the literature. For example, Piechocki (2004) devised a transparency scorecard, using 8 factors divided into thematic, linguistic, and depth indicators. These were evaluated on a five-point Likert scale across fifty criteria and synthesised through a heuristic approach, providing a structured way to assess transparency. Lee and Saen (2012) proposed a novel approach using Data Envelopment Analysis (DEA) that merged economic transparency with profitability, social responsibility, and environmental sustainability. This method covered various aspects, including governance, accountability, human rights, social contribution, environmental management, and innovation.

Shahi et al. (2014) developed an automated scoring system for sustainability reports using machine learning for text categorisation, focusing on the GRI's environmental subclass and associated performance indicators. While this method was highly accurate in identifying specific disclosure items, it had moderate success in overall document scoring. In contrast, Standard and Poor's Transparency & Disclosure Score primarily focuses on the quantity rather than the quality of disclosed information (Patel & Dallas, 2002). Additionally, the CSR ranking available on CSRHub adopts a multi-dimensional approach, employing twelve indicators that cover employee, environment, community, and governance performance, based on secondary data sources (CSRHub, n.d).

These diverse methodologies and criteria demonstrate the complex and multifaceted nature of assessing corporate transparency. It is clear that a wide range of criteria

has been developed to evaluate transparency in sustainability reporting. However, these methods often face challenges related to subjectivity and can be time-consuming, potentially leading to delayed assessments.

#### 2.4.4. Sustainability Reporting Shortcomings

The voluntary nature of many sustainability reporting guidelines results in significant variability in the quality and depth of reports. Some companies may opt for superficial disclosures, while others delve deeper. This inconsistency poses challenges for stakeholders, especially investors, in comparing and assessing the sustainability performance of different companies (Orazalin & Mahmood, 2020). Additionally, even when companies adhere to frameworks like the GRI, the complexity and broad scope of these guidelines can sometimes lead to large reports that stakeholders may find challenging to navigate and comprehend (Ditta & Mahmood, 2021). There are also questions about the tangible effects of these documents. Despite their informative nature, the extent to which they influence organisational actions or the decisions of stakeholders remains a topic of debate (García-Sánchez et al. 2019).

Another limitation is the external assurance of sustainability reports. While some companies seek third-party verification for their sustainability disclosures, the criteria and consistency of these external audits can vary significantly. The absence of a universally accepted standard for the assurance of sustainability reports leads to questions about the credibility of some externally assured disclosures (Karaman et al., 2021). Kikwiye (2019) investigated 17 oil and gas companies listed on the Dar es Salaam exchange in Tanzania, aiming to find discrepancies between the GRI standards and actual reports. The study found that the sustainability disclosures of these firms were often narrative-driven and lacking in concrete financial metrics, suggesting possible underutilisation of the GRI framework or instances of "greenwashing." Research by Cardoni et al. (2019) also highlighted disparities in ESG metrics across oil and gas companies, even when they all claimed adherence to GRI norms.

While the King IV code emphasises integrated reporting, there is still room for improvement in ensuring that companies provide a holistic view of their performance, integrating financial and non-financial aspects seamlessly (Natesan, 2020). Despite the progress made in pushing corporations towards more responsible behaviour, inherent challenges in the system still need to be addressed.

## 2.5. Company's Share Price Performance

The performance of a company's total return is a crucial indicator for assessing its financial stability and market reputation. This measure includes share price returns, dividends, buybacks, issuances, and other corporate activities. As such, it provides insight into the market's perception of the organisation's current performance and future potential. In industries such as mining, where companies often require significant capital to operate and are affected by fluctuations in commodity prices, the stock price becomes a key indicator of the company's resilience and strategic approach (Johnson & Lamdin, 2015).

Historically, share price was primarily influenced by financial parameters, such as earnings, dividends, and future growth prospects. However, the contemporary investment landscape has evolved, with non-financial metrics playing an increasingly pivotal role in influencing investors' perceptions and, by extension, share prices (Zhang & Niu, 2015). In the context of South African companies, share price performance is linked to several factors. The geopolitical landscape, regulatory environment, global commodity prices, and company-specific operational efficiencies are traditional factors influencing stock prices (Gruenhagen & Parker, 2020).

## 2.6. Theoretical Frameworks

It is crucial to explore the underlying theories that have dominated past research when considering the link between the transparency of sustainability reporting and a company's financial performance. Predominantly, the discourse has revolved around legitimacy and stakeholder theories, both of which are system-oriented perspectives.

Legitimacy theory explains why companies opt for social and environmental disclosures. It is based on the idea that companies seek societal validation, suggesting that businesses must align with societal expectations to ensure their continued existence (Deegan, 2006). An organisation's legitimacy is not solely grounded in its actions but is significantly influenced by societal perceptions and thus, maintaining congruence with societal expectations becomes paramount. If these expectations shift, companies must adapt accordingly or proficiently communicate their stance (Deegan, 2006). Disclosing sustainability initiatives is often seen as an effort to gain societal legitimacy, bridging any information divide between companies and their stakeholders (Ching & Gerab, 2017).

On the other hand, stakeholder theory refines the broader perspective offered by legitimacy theory. This theory suggests that companies should cater not only to their shareholders but to a broader spectrum of stakeholders. This expansion has intensified CSR activities, addressing a more diverse stakeholder base, each with its own expectations. Stakeholder power significantly influences CSR disclosures (Jitaree, 2015). Meeting stakeholder expectations, therefore, becomes a strategic tool for companies, ensuring they communicate their alignment with stakeholder demands and uphold their societal duties (Sampong et al., 2018).

However, stakeholder theory is not without its criticisms. Balancing the demands of all stakeholders poses a challenge for managers. A practical approach might be to prioritise stakeholders based on their influence or economic power (Gherardi et al., 2014). Such prioritisation ensures that CSR activities are not just mechanisms to secure societal legitimacy but also strategies to foster positive relationships with various stakeholders (Sampong et al., 2018).

Both legitimacy and stakeholder theories offer invaluable insights into why companies engage in sustainability reporting. They underscore the imperative of aligning business practices with societal expectations and the strategic importance of maintaining stakeholder relationships. As the research landscape evolves, understanding these theoretical foundations becomes pivotal in exploring the connection between a company's transparency in communicating its ESG initiatives and its financial performance.

## 3. Hypotheses

### 3.1. Overview

The link between sustainability reporting and a company's share returns has become a focal point for both scholars and business professionals in recent times. As ethical consumerism gains momentum, there has been a push for greater corporate responsibility and transparency. In this chapter, a number of hypotheses are introduced, based on a detailed examination of existing literature and centred on the potential connection between the transparency of sustainability reporting and the company's financial performance. With the growing emphasis on ESG factors, it becomes crucial to explore how truthfully and openly communicating sustainability initiatives can influence financial outcomes.

### 3.2. Literature Informed Hypothesis

Before delving into the hypotheses proposed by this study, it is crucial to acknowledge the increasing importance of sustainability reporting in the contemporary business landscape. The emphasis on sustainable business operations has transitioned from a temporary trend to an integral component of modern business strategy. As ESG initiatives become more deeply integrated into decision-making processes, the accuracy and comprehensiveness of reporting emerge as critical factors influencing a company's public image and, ultimately, its financial performance.

The significance of robust sustainability reports extends beyond mere documentation. They serve as vital tools for facilitating communication between a company and its diverse stakeholder groups, by consistently presenting transparent and comprehensive sustainability metrics, firms demonstrate a commitment to meeting stakeholder expectations. Such a commitment can lead to competitive advantages and potentially enhanced financial results. Furthermore, the relationship between financial performance and sustainability reports is not merely theoretical and warrants thorough investigation. While previous research has laid a foundation, this study aims to corroborate or challenge past findings within the current corporate context.

As mentioned, this study is grounded in legitimacy and stakeholder theories. Legitimacy theory posits that companies seek to legitimise their operations through their social and environmental initiatives, ensuring their activities align with the values and expectations of their stakeholders. Thus, transparent sustainability reporting is viewed as a reliable metric for measuring the extent to which companies effectively legitimise their operations. Simultaneously, stakeholder theory asserts that companies' obligations extend beyond their shareholders, requiring them to address the concerns and interests of other stakeholders as well. Transparent and rigorous sustainability reports can signal a company's recognition of these broader obligations.

### 3.3. Proposed Hypotheses

This study will offer greater insights into whether transparently disclosing ESG practices are linked with superior financial performance in terms of share returns. This will be done through the research questions and hypotheses mentioned below.

#### **Question 1:**

Is there a noticeable difference in share price returns among portfolios ranked according to their ESG transparency score?

#### **Hypothesis 1:**

H1<sub>Null</sub>: No significant difference exists in the performance of portfolios ranked by ESG transparency scores at a 5% significance level.

H1<sub>Alternate</sub>: A significant difference is present in the performance of portfolios ranked by ESG transparency scores at a 5% significance level.

#### **Question 2:**

Does a portfolio ranked highly for ESG transparency outperform the market benchmark?

#### **Hypothesis 2:**

H2<sub>Null</sub>: The top-ranked portfolio does not significantly outperform the market benchmark at a 5% significance level.

H2<sub>Alternate</sub>: The top-ranked portfolio significantly outperforms the market benchmark at a 5% significance level.

**Question 3:**

Does the best performing ESG-ranked portfolio consistently outperform the worst performing portfolio in terms of share returns?

**Hypothesis 3:**

H3<sub>Null</sub>: No significant difference in share returns exists between the best and worst performing ESG-ranked portfolios at a 5% significance level.

H3<sub>Alternate</sub>: A significant difference in share returns exists between the best and worst performing ESG-ranked portfolios at a 5% significance level.

## 4. Methodology

### 4.1. Introduction

The core of academic research lies in its systematic approach, which is essential for conducting thorough and credible investigations. In examining the complex link between transparent sustainability reporting and financial performance, adopting a methodology that ensures insightful, accurate, and reliable findings is crucial. This chapter delves into the specifics of the research design, starting with the research approach and philosophy. It details the choice of methodology and justifies its alignment with the research objectives. Furthermore, aspects such as the population, sampling method, data gathering techniques, and data analysis methods will be elaborated upon.

### 4.2. Research Design

The foundation of this study was based on the quantitative research approach. Bryman and Bell (2022) suggested that theoretical frameworks offer perspectives that aid in interpreting reality. By gathering and analysing data, the research aimed to observe how these theories manifest in real-world settings. This approach was rooted in a deductive method, which facilitated the testing of theorised relationships (Saunders and Lewis, 2017). Positivism, advocating for the application of scientific techniques in academic research, underscored this quantitative approach. The priority was to maintain objectivity throughout the study, ensuring that the data remained unaffected by any potential biases from the researcher. While the attraction of secondary data was recognised for its accessibility and cost benefits, it was imperative that this data was tailored to fit the unique requirements of the research.

The study adopted an experimental research design. Saunders and Lewis (2017) classified this approach as a 'mono-method' due to its reliance on a single primary data collection technique. This method tested the research hypothesis using a quasi-experimental design and combined longitudinal analysis with cross-sectional assessments. Periodic portfolio recalibrations were utilised to discern the dynamics between the variables (Taljaard et al., 2015).

This research aims to test the influence of the ESG transparency rating (the independent variable) on share returns (the dependent variable). A causal model was



adopted, suggesting the potential for the independent variable to induce causation through various links. Two conditions were set for establishing causation: the first was that the causal relationship needed to be unidirectional, where a change in one aspect would result in a change in another. The second condition was the presence of a mediator connecting the independent and dependent variables (Greenland & Brumback, 2002). Figure 3 below illustrates the link between the two variables.

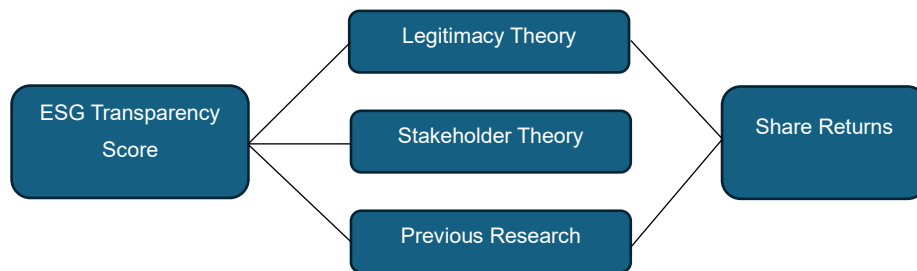


Figure 3: Research structure

### 4.3. Population

The current research conducts a comprehensive examination of the companies listed on the JSE All Share Index, spanning the period from December 2010 to December 2023. The JSE is a prominent financial marketplace, hosting approximately 400 companies. However, this study narrows its focus to those companies within the All Share Index, a segment comprising around 160 companies. These selected companies are of particular interest as they collectively constitute about 99% of the market capitalisation of all companies listed on the JSE (Trading Economics, n.d.). Concentrating on the All Share Index is strategic as companies that are not included in this index are typically excluded from such studies due to their relatively small size and lack of sufficient liquidity, which tends to deter most institutional investors. This rationale aligns with the observations made by Muller and Ward (2013), who noted the challenges faced by smaller companies in attracting substantial investment.

### 4.4. Sampling Method

Due to the broad scope of this research and time constraints, a representative sample of the larger population was required (Saunders & Lewis, 2017). Thus, the sample for this study consisted of all companies listed on the All Share Index and in the CSRHub database from December 2010 to December 2023, totalling 258 companies at the time of data extraction in January 2024. A list of these companies is shown in Appendix A. This specific period was selected because CSRHub began

collecting data on companies in 2008, and in the earlier years, only limited CSR data was available for South African companies. The cutoff date of 31 December 2023 was chosen for this study, ensuring that both the CSR performance and financial data for the listed companies were current.

Focusing on South African companies listed on the JSE, the selection was limited to those with complete data available on the CSRHub database. Companies missing significant amounts of data in either financial or CSR performance were excluded from the study. This approach aligns with methodologies used in similar research, such as those conducted by Matakanye et al. (2021), and Aggarwal (2013), who also limited their samples to listed companies for which comprehensive CSR and financial data were accessible. Consequently, 46 companies were excluded from the sample due to significant data gaps or unavailability. These companies are disclosed in Appendix B.

The sampling method used was non-probability and purposive, with companies selected based on specific characteristics to fulfil the aims of the study (Saunders & Lewis, 2017). This ensured the inclusion of companies most relevant to the research objectives. Market capitalisation was deemed the primary criterion for the selection of companies for the sample, as companies with higher market capitalisation typically trade more regularly, making their shares more liquid.

The sample also included companies from a wide array of sectors on the JSE. This careful selection ensured that the research was not biased toward the characteristics of any particular sector or industry. By encompassing a variety of sectors, the study offered a more comprehensive and representative view of the JSE All Share Index. This broad representation was crucial in reinforcing the sample's representativeness, making it a more accurate reflection of the diverse range of industry sectors within the JSE All Share Index.

#### 4.5. Data Collection

To fulfil the objectives of this research, it was crucial to delve into two specific types of longitudinal, secondary datasets: the qualitative aspects of the sustainability reports and the fluctuating share price returns of JSE-listed companies. The share price return data, which provides invaluable insights into each company's financial trajectory, was extracted from the comprehensive database compiled by Muller and Ward (2013). An advantageous facet of this study was the adoption of the style

engine analysis methodology put forth by Muller and Ward (2013). This methodology ensured that the required share price return data was readily accessible within the style engine database, eliminating the need to explore alternative data sources.

For each company, the historical ESG transparency score was sourced from the CSRHub database. These ratings undergo monthly updates, resulting in a collection of 168 data points for each company over the studied period. The gathered data was then exported to Microsoft Excel for further analysis. This step included a thorough review to ensure that all companies had complete data for the variables under investigation for each year of the study. Following this, a matching process was undertaken to align the companies with complete transparency data with those that had comprehensive financial data. This methodical approach ensured consistency and completeness in the dataset used for the research.

#### 4.6. Analysis Approach

This study primarily focused on examining the relationship between the transparent sustainability reporting and the financial performance of companies listed on the JSE. The evaluation of financial performance centred on total share returns, identified as the principal indicator for this analysis. To conduct this analysis, the investment style engine methodology was employed (Muller & Ward, 2013). This method was meticulously implemented using Microsoft Excel, ensuring precision and reliability in the analytical process.

The critical data on share prices for the selected sample of companies were sourced from the database linked to the style engine. It is crucial to note that dividends were factored into the calculation of total share returns. This inclusion was pivotal, as dividends are a significant component of investor returns (Muller & Ward, 2013). Including dividends in the total share returns ensured that the assessment of financial performance was comprehensive, taking into account both share price appreciation and dividend income.

The style engine used in this study is notable for its adaptability, allowing for the selection of different criteria to form a portfolio of companies over a specific period. In this process, companies were ranked according to their ESG transparency scores. Following this ranking, five portfolios were created, each containing an equal number of companies. The returns of these portfolios were calculated daily over a month, focusing on tracking the cumulative returns at the end of each month. At the

beginning of each new month, the portfolios were reformed based on updated ESG transparency scores, influenced by changes in the sample, such as companies joining or leaving due to listings or delistings on the JSE. The dynamic nature of market capitalisation among JSE companies meant that the sample, and consequently the five portfolios, experienced regular changes. The analysis did not include potential transaction costs resulting from these frequent adjustments to the portfolios, as Muller and Ward (2013) argued that such costs would be minimal and therefore not significantly impact the study's findings.

The findings from the style engine analysis will be depicted through graphical representation. This visual approach allows for an effective comparison of the performance of different portfolios and highlights variations in their performance throughout the study. A "price relative" was also plotted against the Y-axis, designed to reveal any excess returns generated, with the slope of the line indicating either outperformance or underperformance of the portfolios when measured against each other or the benchmark (Muller and Ward, 2013).

This study's approach differs from other research that has investigated the link between ESG transparency and financial performance, where the common method has been to use regression analyses. These studies typically aimed to identify correlations between the quality of sustainability reports and average annual market returns (Zhang & Niu, 2015; Barth et al., 2017). However, Muller and Ward (2013) have raised concerns about this focus on average returns, suggesting it might be less effective compared to examining cumulative returns. In contrast, the style engine methodology used in this study concentrates on comparing cumulative returns across various portfolios throughout the research period, seen as a more refined alternative to traditional approaches. Its effectiveness is further supported by Mehta and Ward (2017), who praised the methodology's ability to mitigate company-specific variations and provide comprehensive insights over several years.

#### 4.7. Data Analysis

The creation of the five portfolios was facilitated using a style engine. The data was then processed, and the outcomes of this process were visually represented through time series graphs in Microsoft Excel. This method allowed for a clear comparison of each portfolio's performance over the study period and was chosen because it

focuses on cumulative returns, offering an advantage over traditional methods that typically only consider average monthly or quarterly results.

While T-tests are commonly employed to assess the significance of portfolio returns, they are considered methodologically unsuitable for comparing multiple portfolios due to their assumptions of unimodal normal distributions and unequal variances (Fagerland, 2012). The Shapiro-Wilk method was utilised to test for normality to determine if this assumption held true for the dataset in this research.

The evaluation of the first research question involved a graphical comparison of the five quintiles to determine if there was a clear linear ranking in portfolio performance based on ESG transparency scores. The hypothesis was then examined using the Friedman test for multiple comparisons. The Friedman test, a non-parametric method, is advantageous for comparing multiple portfolios without requiring data to follow a normal distribution (Saunders & Lewis, 2012). Although initially applied to the first research question, a post hoc analysis using the Wilcoxon Signed-Rank test was also conducted to test for comparisons across multiple portfolios.

In addition to the previously mentioned tests, this study employed bootstrapping to further evaluate the significance of its findings. This method is superior to parametric tests as it does not assume normality of the distribution (Ward & Muller, 2010). Bootstrapping is a robust confirmatory quantitative tool, often used to determine confidence intervals (Salkind, 2010). This approach, used in conjunction with the Friedman and Wilcoxon Signed-Rank tests, aimed to provide a more comprehensive understanding of the potential replicability of high returns associated with the best-performing portfolio.

The bootstrapping process involved generating 100 random ESG transparency portfolios through a style engine. The CAGR of each portfolio was calculated and compared to the CAGR of the top-performing quintile portfolio to determine whether the superior returns observed were statistically significant or could occur by chance.

The analysis of the second research question examined the top-ranked portfolio against the benchmark to determine any significant differences in returns between them. The style engine provided a visual comparison of the portfolios' performance, with the Wilcoxon Signed-Rank test used to examine significant differences. This analysis was useful for identifying periods where the portfolio either outperformed or

underperformed relative to the benchmark, with the slope of the price relative offering insights into sustained performance trends over time.

Similarly, the third research question focused on visually comparing the highest and lowest-ranked portfolios, with the gradient of the price relative indicating consistent performance over time. The Wilcoxon Signed-Rank test was used to test for significant differences between portfolios.

The Wilcoxon Signed-Rank test, a non-parametric approach suitable for analysing matched pair data, contrasts with the Friedman test, which allows for the comparison of multiple portfolios. The Wilcoxon Rank-Sum test is designed for comparing two distinct portfolios, enabling focused analysis without the requirement for normally distributed data (Woolson, 2007).

#### 4.8. Unit of Analysis

The focal point of analysis for this particular study is the daily cumulative share returns of specifically chosen and ranked portfolios based on their ESG transparency scores. The study adopted a visual approach, utilising graphical representations of time series data to effectively analyse these returns. This method enabled a clear and concise visualisation of the trends and patterns that have emerged over time, making it easier to interpret complex financial data. Through these graphical illustrations, the study facilitated an in-depth understanding of the movement of share returns on a daily basis. By comparing these returns, the research aimed to identify any significant correlations or trends that might exist.

The study employs the Compound Annual Growth Rate (CAGR) to understand the performance of each portfolio over time. This metric provides an average growth rate that a portfolio would achieve on an annual basis over the specified period. However, it is important to note that CAGR is different to the actual growth rate experienced as the yield is annualised and incorporates compounding. This approach allows for a standardised comparison of growth across different time frames and portfolios. The calculation method for CAGR is shown below in Equation 1:

$$CAGR = \left( \frac{FV}{PV} \right)^{\left( \frac{1}{years} \right)} - 1 \quad (1)$$

Utilising monthly lognormal returns for the Wilcoxon Signed-Rank tests offers distinct advantages, especially when examining significant differences in the impact of

transparency in sustainability reporting. Firstly, lognormal returns inherently adjust for the skewness and asymmetry in the distribution of stock returns, providing a more accurate and realistic analysis of financial data over time. This adjustment is crucial for accurately capturing the true nature of stock price movements, which are typically not symmetric. Secondly, employing lognormal returns facilitates the comparison of relative changes rather than absolute ones, allowing for a better understanding of the effects of transparency on share returns. The formula for calculating lognormal returns is provided below in Equation 2:

$$r_i = \ln \left[ \frac{FV}{PV} \right] \quad (2)$$

This methodological approach was strategically chosen to provide a comprehensive analysis of the potential impact of ESG transparency on the financial outcomes of these portfolios. Not only does this approach enrich the understanding of ESG factors in financial performance, but it also contributes to the growing body of knowledge in the field of sustainable finance.

#### 4.9. Quality controls

Ensuring accuracy and maintaining data integrity are critical components of every research project, especially true in quantitative research. Therefore, establishing the reliability and validity of the collected data is a fundamental step prior to conducting a more in-depth analysis.

While there are many different methodological approaches to researching transparency, no single method is universally acknowledged for evaluating it. Consequently, different rating agencies may assign varying scores to companies based on their individual sources and algorithms. CSRHub is recognised as a reliable database and is frequently utilised by scholars (Matakanye et al., 2021). While CSRHub is transparent about its sources, it keeps its algorithm confidential. A fact sheet provided by CSRHub is displayed in Appendix C.

Furthermore, this study recognises the possibility of human error in the data collection process, particularly given the manual nature of searches across various websites and reports. To mitigate this risk, these searches were conducted independently. Nonetheless, there remains a chance that some companies may have been unintentionally overlooked. Additionally, the decision to limit the focus to companies listed on the CSRHub database from 2010 to 2023 may have narrowed

the sample size, potentially affecting the breadth and outcomes of the study. Such limitations are important to consider when interpreting the research findings, as they provide context to the scope and applicability of the results.

#### 4.9.1. Reliability

Research reliability refers to the trustworthiness of a study, particularly whether it would yield similar results if repeated under similar circumstances. This aspect also considers whether the outcomes of the study were affected by temporary or random factors. Reliability is intricately linked to how precisely and consistently information is managed throughout the research process. Bryman and Bell (2022) highlight three key factors that impact the reliability of a study: stability, internal reliability, and repeatability.

- Stability in research emphasises the need for consistent measurements over time. In this study, data was consistently collected from monthly ESG transparency scores of the selected companies over a 13-year period. To maintain stability, the same variables were used for all companies throughout this timeframe, ensuring that the results were consistent.
- Internal reliability concerns the degree to which results are unaffected by changes in the conditions of the study. Where multiple researchers are involved, it is essential for them to agree on the methodologies for interpretation. The aim of data collection in this research was to enable generalised conclusions. Thus, it was crucial to establish interpretation criteria in advance, such as the database used for assessing the transparency of sustainability reporting and the methods for calculating financial performance. One challenge in quantitative research is the potential unreliability of data, mainly due to the human element in data gathering and analysis.
- Inter-observer reliability focuses on the potential for subjective interpretation of data by different researchers. It recognises the risk of varying interpretations when more than one observer is involved. In this study, careful steps were taken to ensure accuracy, objectivity, and neutrality in both data collection and interpretation, aiming to reduce biases that could arise from human input.

Utilising secondary data presents unique advantages, notably its replicability and uniformity. Nevertheless, such data can be susceptible to varied interpretations. To



ensure the correct understanding and representation of this data, a consultation session was undertaken with an aligned supervisor to ensure the correct interpretation of the data process.

#### 4.9.2. Validity

Validity assesses whether a study accurately reflects the phenomenon it aims to explore. Bryman & Bell (2022) emphasise that validity concerns ensuring the research measures what it is intended to measure. Even with highly reliable data collection methods, the value of that data is compromised if it does not align with the research objectives. Previous studies have provided foundational insights and methodologies for evaluating the transparency of sustainability reporting and financial performance metrics. Incorporating variables from these studies into the current research enhances its validity. Furthermore, the authenticity of the data is bolstered by sourcing it from primary and highly credible sources. This practice ensures a solid foundation, confirming that the information collected is both relevant and authentic.

### 4.10. Limitations

#### 4.10.1. Data-related limitations

A key limitation of this study was its scope, as the analysis focused exclusively on the top 160 companies listed on the JSE. This approach excludes smaller and privately-owned companies, which could mean that certain vital insights were overlooked.

Another challenge was the varied nature of the companies included in the study. Especially among larger companies, there are differences in business models and the resources available to each company. These variations could have impacted the outcomes of the research.

#### 4.10.2. Methodology-related limitations

Besides data-related challenges, the research methodology introduced its own set of hurdles. One notable constraint was the use of stock returns as raw prices, unadjusted for bonuses, primarily due to the lack of access to global databases like Bloomberg and DataStream. Consequently, abnormal returns related to specific events might also reflect patterns tied to other financial activities, such as dividend and bonus announcements.

The research relied heavily on the investment style engine methodology, a quantitative technique with a wide range of applications. At the heart of this methodology lies the assumption of the efficient market hypothesis (EMH) (Yen & Lee, 2008). This hypothesis suggests that in an efficient market, a company's stock prices incorporate all available information and future projections. However, the validity of the EMH in this context remained debatable and could influence the research's conclusions.

Finally, as this study is quantitative, it did not explore in depth the nature, motivations, and subtleties of corporate reporting practices. Future studies employing a mixed-methods approach could provide a more holistic understanding of the relationship between transparency and financial performance.

## 5. Results

### 5.1. Introduction

This chapter focuses on examining the results from the investment style engine and the other statistical tests. The outcomes were derived from five portfolios that were created based on the ESG transparency levels. The performances of these quintiles alongside a benchmark are depicted through graphical representations. Additionally, this chapter elaborates on the descriptive statistics of the dataset and discusses the findings from the normality test conducted on the data.

### 5.2. Descriptive Statistics

Descriptive statistics play a crucial role in the initial analysis of data within a research study, as they provide a breakdown summary of the key characteristics of the dataset (Hayes et al., 2023). These statistics are fundamental to the process of quantitative data analysis and offer a concise overview that facilitates comparisons between different datasets. Serving as the preliminary step in data examination, descriptive statistics lay the groundwork for subsequent, more elaborate statistical analyses.

#### 5.2.1. Number of companies per month

Figure 4 shows a comprehensive view of the number of companies each month from 2010 to 2023 that were included in the sample which were available in the CSRHub database. This period saw a notable increase in the number of companies with ESG transparency scores, growing from 112 in December 2010 to 235 by December 2023. This growth reflects not only the expanding nature of the CSRHub database but also indicates a rising trend among South African companies to be evaluated for ESG transparency.

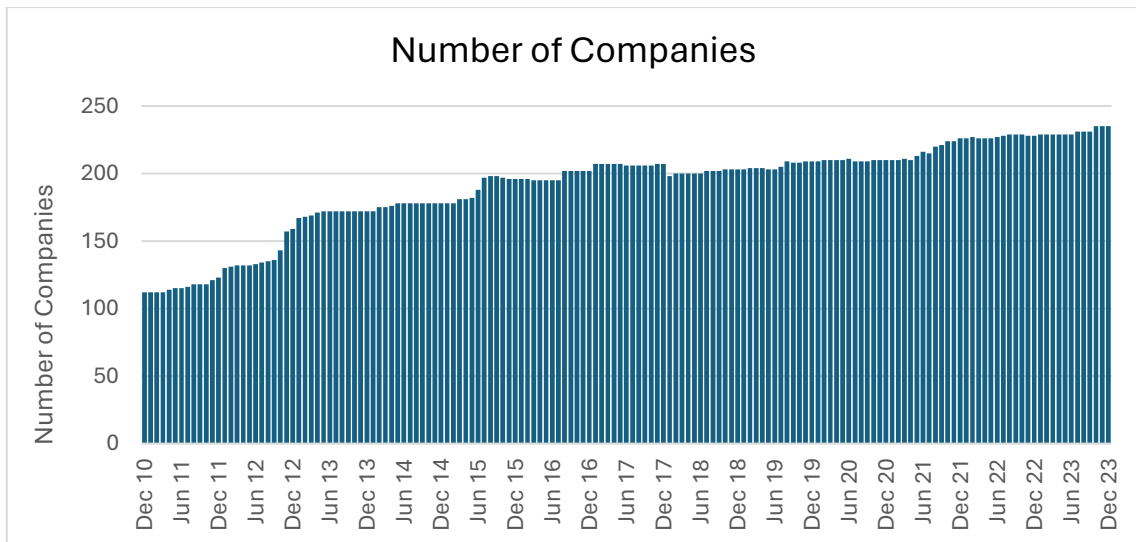


Figure 4: Number of All Share Index companies on the CSRHub database

### 5.2.2. Mean, Median, Lowest and Highest per month

High ESG transparency scores are indicative of a company's dedication to openly sharing information about its ESG initiatives. Conversely, low scores suggest less effective communication of these measures. The ESG transparency scores for each company in the sample were gathered monthly throughout the research period. Figure 5 illustrates the average and median ESG transparency scores per month for all sample companies with data available. From December 2010 to December 2023, the average ESG transparency score remained fairly consistent, fluctuating slightly from 40.41 to 56.98. This consistency suggests that the rating methodology employed by CSRHub has been stable over the study period.

However, there was a notable decline in the average ESG transparency scores between April 2012 and April 2014. This decrease may be attributed to the transition from the G3.1 GRI Guidelines to the G4 generation, launched in May 2013. This change in guidelines could have influenced how companies reported their ESG practices, thus impacting their transparency scores. Nevertheless, the exact cause of this dip in the average ESG transparency scores remains unclear.

Figure 5 also illustrates the range of ESG transparency scores among companies, showcasing both the lowest and highest scores each month. In early 2011, the lowest score was recorded at 20.98, with the highest reaching 82.73. While in 2023, the lowest score improved to 26.33, while the highest score slightly decreased to 81.60. Despite the average scores remaining relatively stable over the years, with a notable dip between April 2012 and April 2014, an increasing trend in the minimum and

maximum values from April 2014 to December 2023 is evident. This trend suggests an improvement in ESG transparency among the lower-performing companies, while the majority maintain their performance levels, indicating a gradual narrowing of the transparency gap.

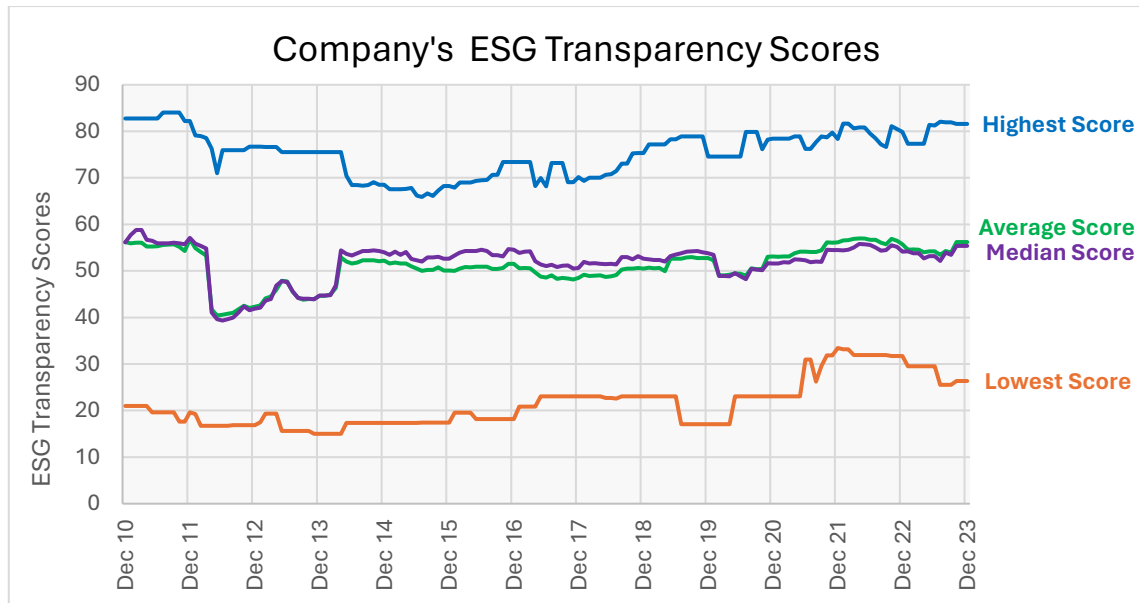


Figure 5: Mean, median, lowest and highest per month

### 5.3. Five portfolio investment style engine analysis

#### 5.3.1. Mean scores of each portfolio

As described in Section 4.7, five portfolios were established based on ESG transparency ratings, with each portfolio comprising an equal number of companies. The portfolios were arranged from the highest ESG transparency scores in the first quintile (EsgTransparencyScore-Q1) to the lowest in the fifth quintile (EsgTransparencyScore-Q5). Analysis of the mean ESG transparency scores for each portfolio, as illustrated in Figure 6, reveals that the scores were evenly spread over the research period. Notably, from April 2014 onwards, the mean scores for all portfolios showed an upward trend. Additionally, the gap between the highest (EsgTransparencyScore-Q1) and lowest (EsgTransparencyScore-Q5) scores narrowed over time. This indicates a convergence in the transparency levels across all sampled companies. This trend suggests a general improvement in ESG transparency among the companies, with the gap between the top and bottom performers diminishing. Therefore, highlighting an overall positive shift towards greater transparency in ESG reporting across the board.

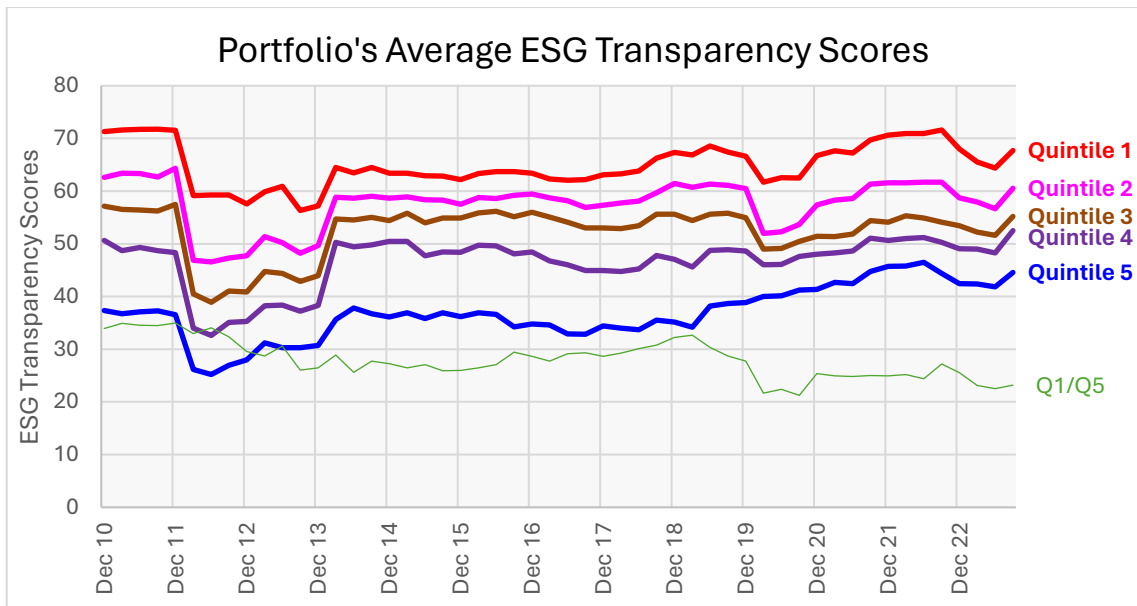


Figure 6: ESG transparency scores of each quintiles

### 5.3.2. Shapiro-Wilk Test for Normality

The Shapiro-Wilk test was performed to evaluate whether the sample data was normally distributed. This test is crucial for the integrity of subsequent statistical analyses. Conducted at a 95% confidence level, this test checks if the sample data aligns with a normal distribution curve. For the data to be deemed normally distributed, the significance value (Sig.) needs to be greater than 0.05, as detailed in Table 2.

Table 2: Shapiro-Wilk normality test results

	Shapiro Wilk test		
	Statistic	df	Sig.
EsgTransparencyScore-Q1	0.964	156	<0.001
EsgTransparencyScore-Q2	0.975	156	0.006
EsgTransparencyScore-Q3	0.962	156	<0.001
EsgTransparencyScore-Q4	0.946	156	<0.001
EsgTransparencyScore-Q5	0.903	156	<0.001

Upon analysing the monthly returns of each quintile, it was found that all portfolios deviated from a normal distribution. This is evidenced by their significance values falling below the 0.05 limit which leads to the rejection of the null hypothesis. As a

result, the study had to resort to non-parametric methods for analysing the data for statistical significance.

### 5.3.3. ESG Transparency vs Market Cap

To understand the impact of the market capitalisation on the different ESG transparency portfolios, a graph was created to investigate its influence. Therefore, Figure 7 illustrates the total market capitalisation of each portfolio throughout the study period. From April 2013 to April 2020, portfolios with higher ESG transparency scores predominantly consisted of companies with larger market capitalisations, while those with lower ESG transparency scores were made up of smaller companies. This trend shifted in 2019 when companies with smaller market capitalisations began to lead in higher ESG transparency scores. Typically, larger companies have more resources to produce high-quality sustainability reports and communicate their initiatives effectively. This is an important aspect when following GRI guidelines. However, the reversal in the trend of market capitalisation from 2019 could be attributed to changes in GRI's reporting practices, as it ceased maintaining a database of companies' application levels globally.

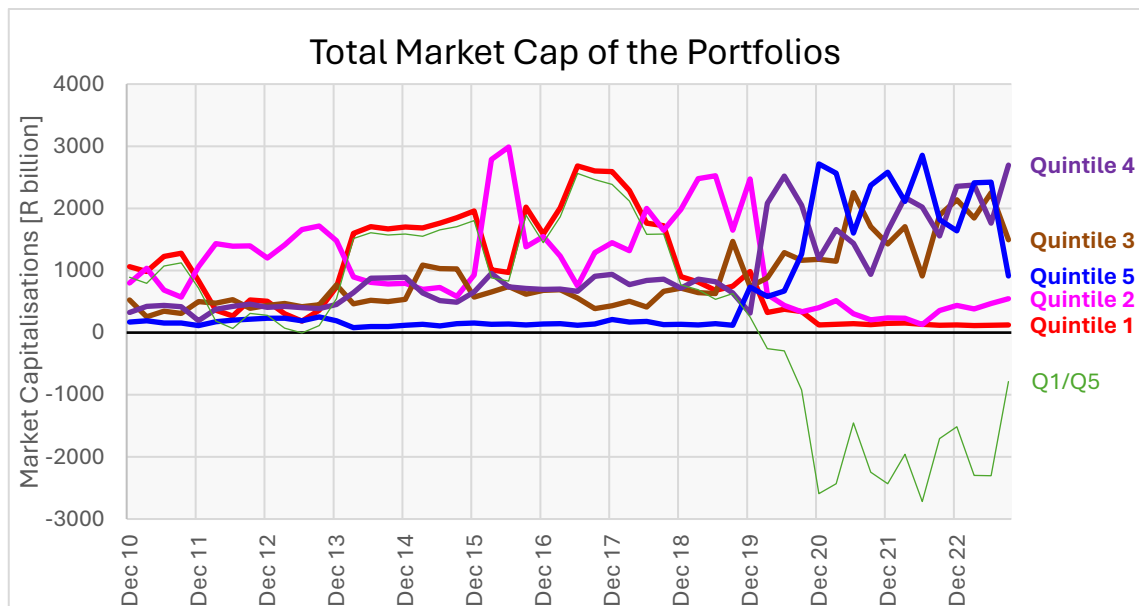


Figure 7: ESG transparency scores vs market capitalisations

## 5.4. ESG Transparency and company financial performance

Figure 8 shows the performance of different portfolios which are categorised according to their ESG transparency levels, as determined by the style engine. The time period under examination is depicted along the horizontal axis, while the vertical

axis illustrates the cumulative values of the portfolios throughout this period. To facilitate the comparison, all portfolios were normalised to a starting point of one at the beginning of the research period. This graph includes the performance data for all five quintiles, the benchmark J203T, All160, and one price relative (Q1/Q5). The price relative offers a comparison between the returns of the highest and lowest performing quintiles over the study period. Additionally, the CAGR for each quintile and the benchmark are presented on the right side of the graph for reference.

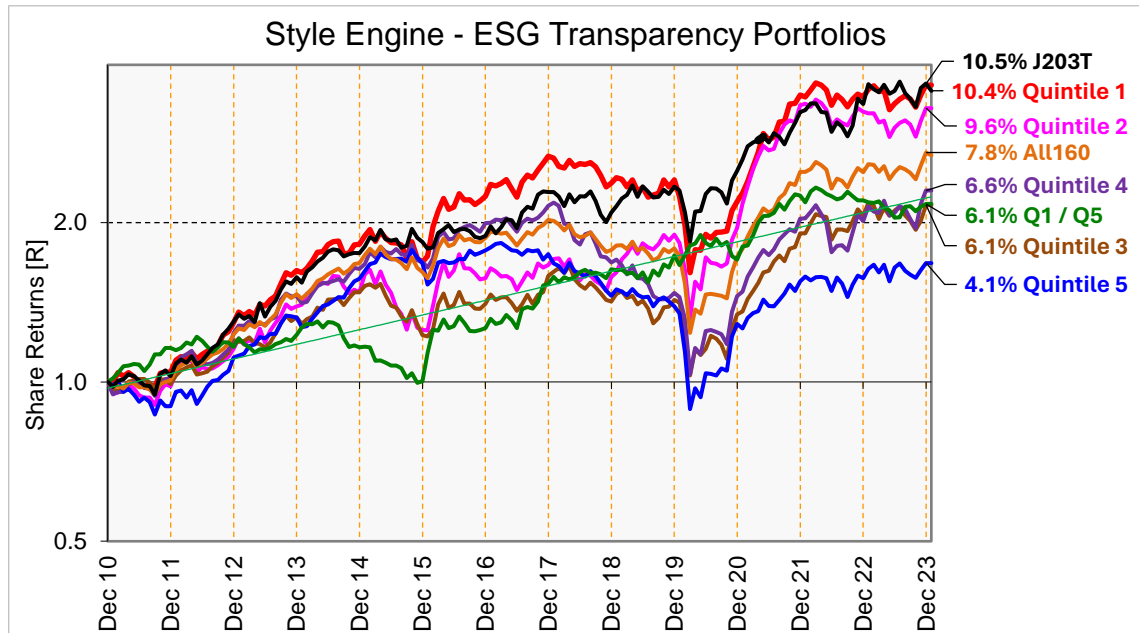


Figure 8: ESG transparency-based style engine

Interpretation of the graph involves a visual comparison between the portfolios and an examination of the performance order or ranking of the portfolios. For a clear association to be demonstrated, the performance ranking of the portfolios must align with their ESG transparency ranking. This implies that the first quintile, which represents the highest level of ESG transparency, should ideally show the best performance. This is then followed in order by the second, third, and subsequent quintiles.

Furthermore, the line graph 'Q1/Q5' highlights the price relative comparison when the performance of quintile one, the top performer, is measured against quintile five, the lowest performer. The price relative shows an upward trend throughout the research period. Quintile one emerges as the top performer with a CAGR of 10.37%, succeeded by quintiles two, four, three, and finally quintile five, which, having the lowest ESG transparency scores, recorded a CAGR of 4.03%. Figure 9 then



illustrates a summary of the CAGR for each quintile, revealing a general trend of a linear declining slope in performance.

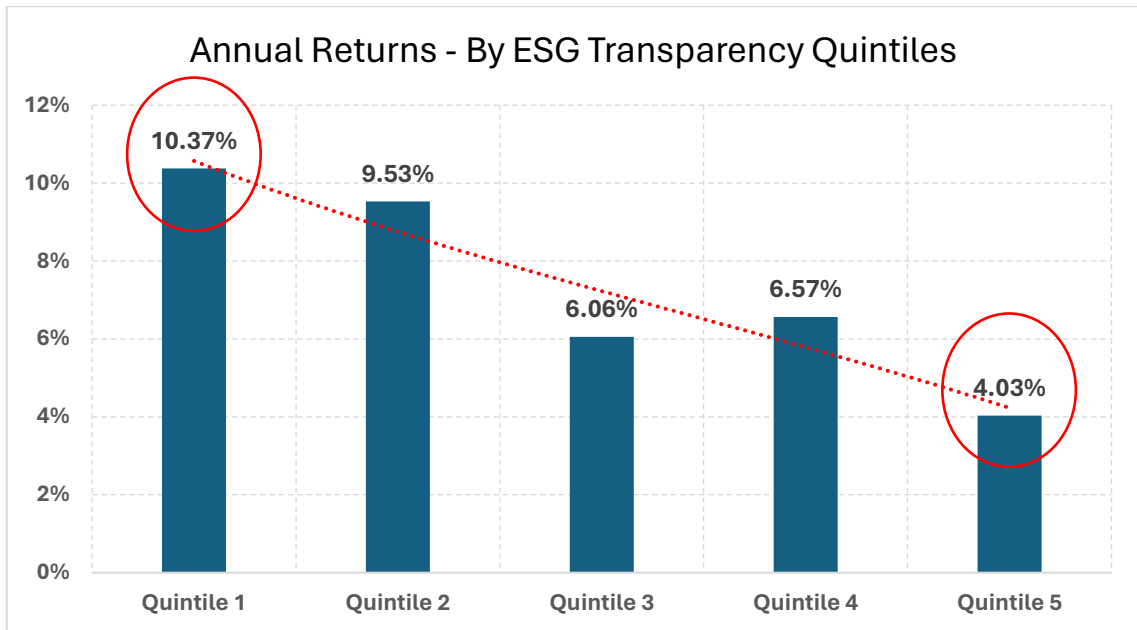


Figure 9: ESG transparency ranking and CAGR results

Despite an out-of-sequence position for quintiles three and four, there is a linear declining trend in the relationship between ESG transparency ranking and CAGR results. This observation reveals a clear relationship between ESG transparency levels and the portfolio's financial performance.

## 5.5. Hypotheses

### 5.5.1. Research Question One and Hypothesis One

Figure 8 showcases a graphical time-series analysis that illustrates the cumulative returns of portfolios over a 13-year period, arranged according to their ESG transparency scores. The ranking of the quintiles based on their performance is as follows: quintile one, followed by quintile two, four, three, and finally, quintile five. This arrangement reveals that the portfolio with the highest ESG transparency scores emerged as the top performer, with subsequent rankings for the remaining quintiles based on their descending transparency scores.

A noticeable trend emerged when comparing the performance of the highest-ranked portfolio against that of the lowest. Specifically, Figure 9 indicated a clear linearly declining performance trend across the portfolios in response to the first research question.

### 5.5.1.1. Friedman test

To verify these results a Friedman test analysis was performed on the data. The results of the analysis are shown in Table 3. The table presents the mean ranks of the 157 lognormal monthly returns spanning from December 2010 to December 2023. The Friedman test assesses the mean ranks of the five portfolios over time and reveals their differences. As an omnibus test, the Friedman test identifies overall distinctions but does not pinpoint the specific quintiles that differ.

Table 3: Friedman test mean rank for each quintile

	Mean Rank	Rank
EsgTransparencyScore-Q1	3.18	1 <sup>st</sup>
EsgTransparencyScore-Q2	2.99	2 <sup>nd</sup>
EsgTransparencyScore-Q3	2.91	4 <sup>th</sup>
EsgTransparencyScore-Q4	2.97	3 <sup>rd</sup>
EsgTransparencyScore-Q5	2.96	5 <sup>th</sup>

The choice of the Friedman test over a one-way ANOVA is due to its suitability for data not following a normal distribution and for instances where ANOVA assumptions are not met. The non-normal distribution of the sample was discussed in Section 5.3.2. The Friedman test required a confidence level above 5% to reject the null hypothesis when converted into a Chi-square p-value. This is due to research question one specifying that there were no significant differences in the performance of the portfolios at a 5% significance level.

Table 4: Results of the Friedman test

Test Statistics	
N	157
Chi-Square	2.713
Df	4
Asymp. Sig.	0.607
a. Friedman test	

According to Table 4 above, the resulting Chi-squared p-value was 2.71%. With a p-value of 0.607 exceeding 0.05, the null hypothesis for the first research question was

not rejected. Therefore, indicating no significant difference in the performance of the ESG transparency-styled portfolios.

#### 5.5.1.2. Wilcoxon Signed-Rank test

However, the Friedman test only identified overall differences, therefore, a subsequent Wilcoxon Signed-Rank test was performed to pinpoint specific differences between portfolios, if any. The results from the Wilcoxon Signed-Rank test are detailed in Table 5. A Bonferroni adjustment was required to account for the increased risk of Type 1 errors due to multiple comparisons. This adjustment set a new significance threshold at 0.005.

Table 5: Wilcoxon Signed-Rank test results comparing portfolio pairs

Pairs	Z	Asymp. Sig. (2-tailed)
Q2 and Q1	-0.593 <sup>b</sup>	0.553
Q3 and Q1	-1.674 <sup>b</sup>	0.094
Q4 and Q1	-1.279 <sup>b</sup>	0.201
Q5 and Q1	-1.630 <sup>b</sup>	0.103
Q3 and Q2	-0.711 <sup>b</sup>	0.477
Q4 and Q2	-0.794 <sup>b</sup>	0.427
Q5 and Q2	-1.097 <sup>b</sup>	0.273
Q4 and Q3	-0.159 <sup>b</sup>	0.873
Q5 and Q3	-0.494 <sup>b</sup>	0.622
Q5 and Q4	-0.701 <sup>b</sup>	0.484
a. Wilcoxon Signed Ranks test		
b. Based on positive ranks.		

Table 5 presents the outcomes of the Wilcoxon Signed-Rank test for comparisons between each pair of quintiles. Before evaluating the significance of each pair's p-values, Bonferroni correction was applied to mitigate the risk of Type 1 errors. Type 1 errors refer to false positives where results appear significant but are not (Weisstein, 2004). This correction involves dividing the initial significance level (0.05), by the number of conducted tests, which in this case is ten. Consequently, the adjusted significance level for these tests was set at 0.005 which indicates that any p-value exceeding this limit would not be considered statistically significant.

According to the p-values listed in Table 5, all pairs recorded p-values above the Bonferroni adjusted threshold of 0.005. Notably, the comparison between quintiles Q3 and Q1 yielded the p-value closest to this threshold at 0.094. This outcome led to the null hypothesis not being rejected, thereby aligning with the findings from the Friedman test. As a result, these tests concluded that there was no significant performance difference between the portfolios based on ESG transparency.

This finding seems to contradict the linear performance trend suggested in Figure 9 and Table 3 which showed a potential linear ranking based on ESG transparency. Despite the apparent linear order suggesting that ESG transparency had a meaningful impact, the Friedman and Wilcoxon Signed-Rank tests did not identify any statistically significant differences in performance among the portfolios.

### 5.5.1.3. Bootstrapping

Due to the conflicting results, an additional analysis was conducted using the Bootstrap method. This process involved generating 100 random portfolios from the dataset and then utilising the style engine to determine their performance during the same study period. During the creation of these portfolios, their ESG transparency scores were deliberately not considered and the portfolios were sampled with replacement.

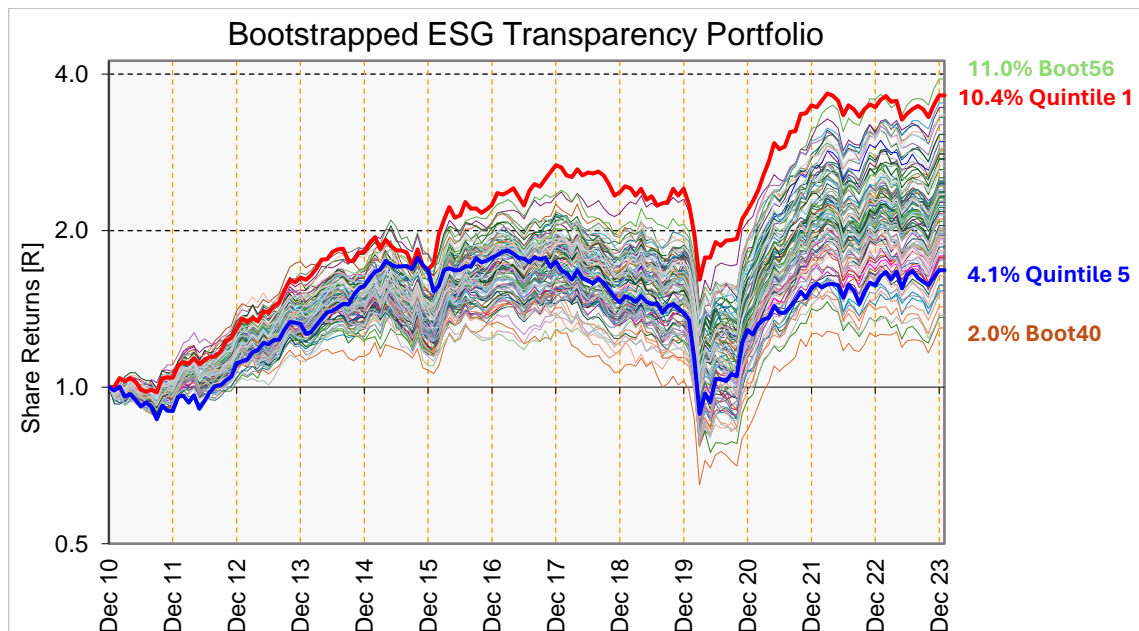


Figure 10: 100 Bootstrap portfolios

The performance of the bootstrap portfolios were simulated based on historical data, with each portfolio being assigned equal weight. The outcome of this analysis is

depicted in Figure 10. This figure reveals that only one of the randomly generated portfolios managed to surpass the highest CAGR achieved by quintile one of 10.37%.

*Table 6: Descriptive statistics from the bootstrap analysis*

Mean	6.36%
Median	6.46%
Minimum	2.02%
Maximum	11.00%
Standard deviation	1.82%

Table 6 shows the average performance of these portfolios was 6.36%, with the median performance slightly higher at 6.46%. Notably, the most successful portfolio among those generated through the bootstrap approach achieved a CAGR of 11.00%, marking it the sole portfolio to outperform the first quintile. Consequently, these findings led to reject the null hypothesis for the first research question with a 95% confidence level.

### 5.5.2. Research Question Two and Hypothesis Two

From the analysis depicted in Figure 8, it is noted that the first quintile emerged as the top-performing portfolio with a CAGR of 10.37%, slightly trailing behind the J203T benchmark, which posted a CAGR of 10.50%. This comparison between the two portfolios revealed a spread performance of 0.13%.

Despite the acknowledged limitations in the data used to compile these quintiles, the chosen sample and methodology were considered an accurate representation of the JSE All Share Index. The performance of the ESG Transparency quintiles includes the same constituents as the benchmark. Figure 8 indicates that the performance of the benchmark and the first quintile were closely matched throughout the study period from 2010 to 2023. Notably, the first quintile initially outperformed the benchmark in early 2015, only for the benchmark to match its performance by early 2018. Subsequently, a Wilcoxon Signed-Rank test was performed to test for differences between the two portfolios.

Table 7: Wilcoxon Signed-Rank test of best performing quintile compared to J203T

		N	Mean Rank	Sum of Ranks
J203T - EsgTrans Score-Q1	Negative Ranks	75 <sup>a</sup>	79.21	7941.00
	Positive Ranks	81 <sup>b</sup>	77.84	6305.00
	Ties	1 <sup>c</sup>		
	Total	157		
a. J203T < EsgTransparencyScore-Q1				
b. J203T > EsgTransparencyScore-Q1				
c. J203T = EsgTransparencyScore-Q1				

The Wilcoxon Signed-Rank test compared the performance of the first quintile against the benchmark to ascertain if the observed difference was statistically significant. These results are outlined in Table 7. Focusing on monthly lognormal returns, this comparison showed that the first quintile had higher returns in 75 months, while the benchmark surpassed the first quintile in 81 months.

Table 8: Wilcoxon Signed-Ranks test results – best performing quintile vs J203T

	J203T - EsgTrans Score-Q1	J203T - EsgTrans Score-Q2	J203T - EsgTrans Score-Q3	J203T - EsgTrans Score-Q4	J203T - EsgTrans Score-Q5
Z	-0.322 <sup>b</sup>	-0.283 <sup>b</sup>	-1.237 <sup>b</sup>	-1.010 <sup>b</sup>	-1.416 <sup>b</sup>
Asymp. Sig. (2-tailed)	0.747	0.777	0.216	0.312	0.157
a. Wilcoxon Signed-Ranks test					
b. Based on negative ranks.					

The application of a Bonferroni adjustment to the p-value, required due to multiple comparisons, adjusted the significance level to 0.01 for this analysis. Consequently, the two-tailed test's p-value, as presented in Table 8, necessitated halving. Despite this, the findings indicated no statistically significant difference between the performance of the first quintile and the benchmark, as the p-value of 0.374 exceeded the adjusted threshold of 0.01. Thus, the null hypothesis was not rejected.

This confirms no significant performance differences between the top-performing portfolio and the benchmark at a 5% significance level.

Although not directly related to the core hypotheses, an examination of the p-values for quintiles two, three, four, and five against the benchmark revealed values of 0.389, 0.108, 0.156, and 0.079, respectively. This analysis indicated that the performances of these quintiles did not significantly differ from that of the benchmark.

### 5.5.3. Research Question Three and Hypothesis Three

From the analysis presented in Figure 8, it was noted that the first quintile emerged as the highest performing portfolio with a CAGR of 10.37%, outperforming the fifth quintile, which had a CAGR of 4.03%. The spread between these two portfolios revealed a significant performance gap of 6.34%.

The price relative, a measure reflecting the comparative performance of the best and worst performing portfolios, as shown in Figure 8, indicated a consistent pattern of outperformance by the first quintile over the study period. Specifically, the first quintile notably outperformed the fifth in 2011 and from 2015 to 2021. The trend line suggested a sustained superior performance by the first quintile during these periods due to an upward slope. However, the performance between these two quintiles appeared to converge between 2012 and 2015, and again in 2022 and 2023.

As outlined in research question three, the Wilcoxon Signed-Rank test was conducted to compare the performance between the highest and lowest performing portfolios. These findings are detailed in Table 9.

*Table 9: Wilcoxon Signed-Rank test of best performing quintile compared to worst*

		<b>N</b>	<b>Mean Rank</b>	<b>Sum of Ranks</b>
EsgTrans Score-Q5 - EsgTrans Score-Q1	Negative Ranks	84 <sup>a</sup>	83.86	7044.00
	Positive Ranks	72 <sup>b</sup>	72.25	5202.00
	Ties	1 <sup>c</sup>		
	Total	157		
d. EsgTransparencyScore-Q5 < EsgTransparencyScore-Q1				
e. EsgTransparencyScore-Q5 > EsgTransparencyScore-Q1				
f. EsgTransparencyScore-Q5 = EsgTransparencyScore-Q1				

Table 9 shows the comparison of the monthly log-normal returns of quintiles one and five and indicates that the first quintile had higher returns in 84 months, while the fifth quintile led in 72 months, and in one instance, their monthly returns were equal.

Table 10: Wilcoxon Signed Ranks test results – best vs worst performing quintile

	EsgTransparencyScore-Q5 = EsgTransparencyScore-Q1
Z	-1.630 <sup>b</sup>
Asymp. Sig. (2-tailed)	0.103
a. Wilcoxon Signed-Ranks test	
b. Based on positive ranks.	

The results of the Wilcoxon Signed-Rank test are shown in Table 10. The p-value of 0.103 exceeded the Bonferroni adjusted significance level of 0.01. Therefore, the test revealed no significant difference between the performance of the first and fifth quintiles. Consequently, the null hypothesis was not rejected, indicating that there was no statistically significant difference in performance between the highest and lowest performing portfolios at a 5% significance level.

Similar to the first research question, this finding contradicts the trend of the price relative line in Figure 9. The Wilcoxon Signed-Rank test did not identify any statistically significant differences in performance among the portfolios despite the upward gradient of the price relative line.

## 5.6. Resourceness

Resourceness is a measure evaluating the influence of resource-based companies within the market, calculated by comparing the return of the stock against the return of the Resource index (J258). The average resourceness for each portfolio is shown in Figure 11 below. Over a span of five years, the gap between the resourceness of quintile one compared to quintile five was over 20%. This underscores the substantial impact of resource companies on portfolio composition. However, starting from 2017, this gap began to narrow, with the difference moving between 10% and -10%. This trend indicates the impact of resource companies reduced from 2018 onwards.



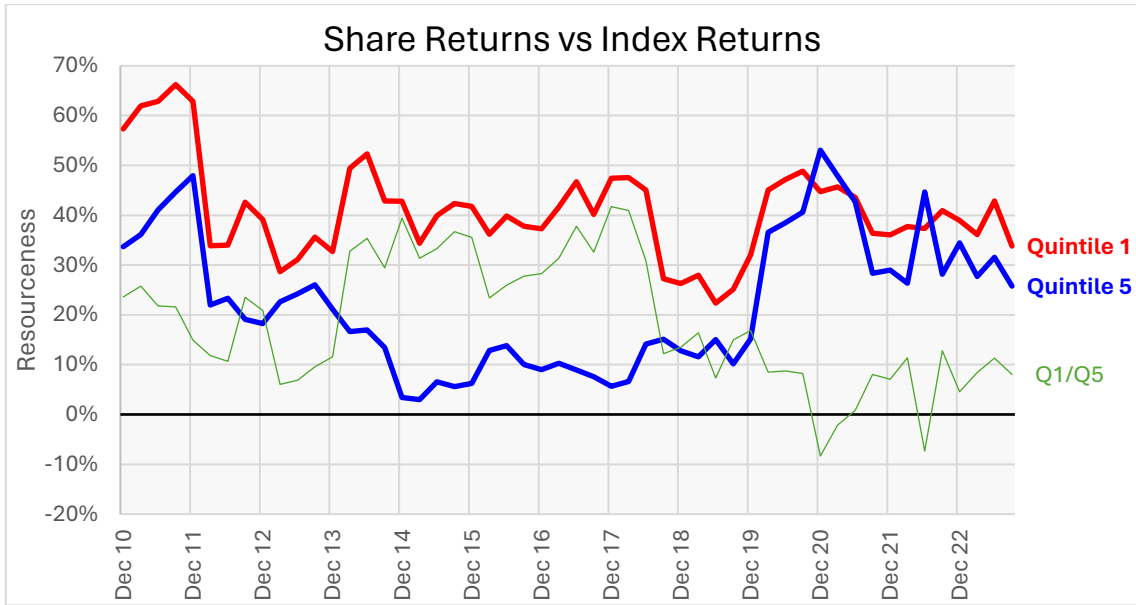


Figure 11: Resourceness mean over the study period

To understand the influence of resource-based companies on portfolio performance, the analysis was re-conducted only for companies listed on the Resource index (J258). The revised results, depicted in Figure 12, span a 13-year period. The analysis reveals that portfolio ResQuintile 1 led with an 18.14% return, outperforming others. It was followed by ResQuintile 2 at 10.52%, narrowly ahead of ResQuintile 3 at 10.22%, with ResQuintile 5 and ResQuintile 4 trailing at 3.70% and -0.79% returns, respectively. Notably, portfolio ResQuintile 1 saw its returns plateau after 2015, indicating that the majority of gains occurred between 2010 and 2015.

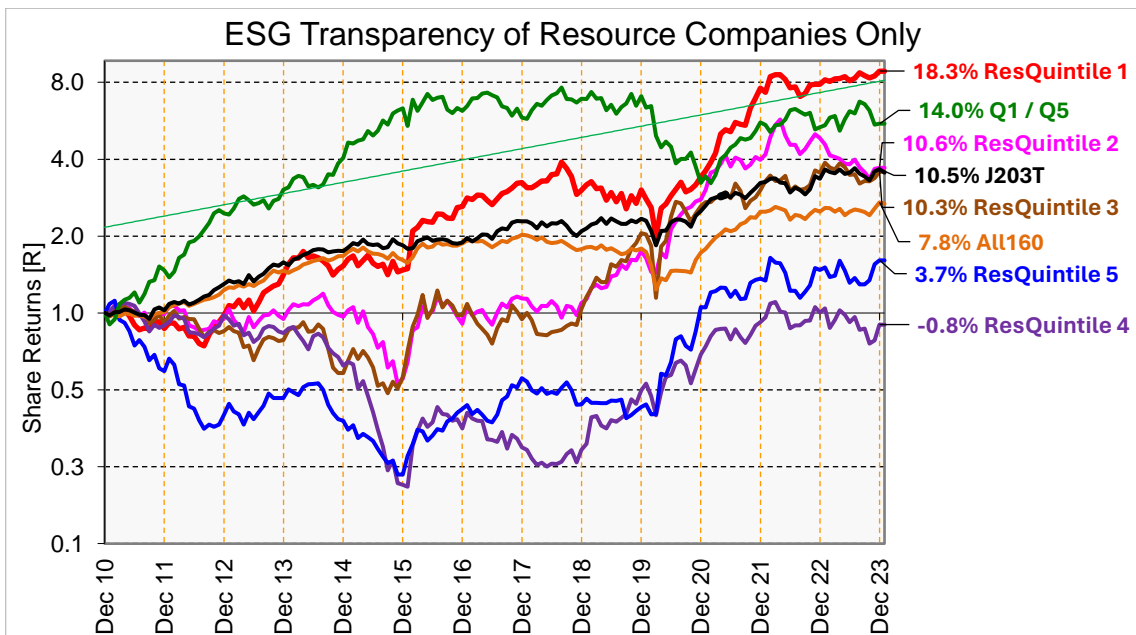


Figure 12: ESG transparency-based style engine of resource companies only

Figure 13, which details the returns for portfolios of only resource-based companies, highlights a significant disparity in returns between companies with higher versus lower ESG transparency. Despite the lack of a linear trend line, there is a declining trend in the relationship between ESG transparency ranking and CAGR results. This observation reveals a clear relationship between ESG transparency levels and the portfolio's financial performance even though quintiles four and five are out-of-sequence.

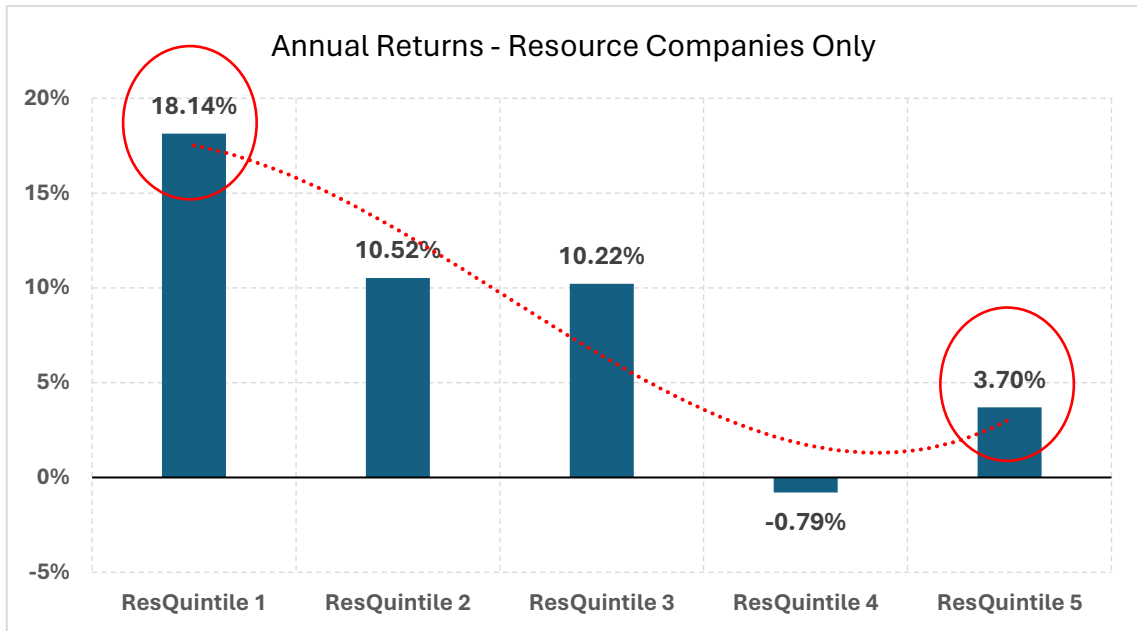


Figure 13: CAGR results of resource companies only

Although a linear relationship was absent, a downward trend in the relationship between ESG transparency rankings and CAGR outcomes remained evident.

## 6. Discussion of Results

This chapter provides a thorough examination of the results obtained from the analyses and assessments presented in Chapter 5. It offers a detailed analysis on the outcomes and situates them within the broader context established by the literature review and the research questions introduced at the beginning of this study. The discussion aims to bridge the gap between the current findings and previous studies.

### 6.1. Basic Descriptive Statistics Discussion

This research explored the relationship between the transparency of ESG reporting and share returns among companies in South Africa over a span of 13 years. The study specifically targeted companies listed on the JSE All Share Index as its sample, as this represents approximately 99% of the market capitalisation on the JSE.

Five quintiles were established, each consisting of 32 companies, resulting in a total of 258 companies being included in the analysis. However, 45 companies were excluded due to the absence of ESG transparency data within the CSRHub database. The investigation yielded 157 lognormal monthly returns for each quintile, including the benchmark J203T, across the review period from December 2010 to December 2023. The performance for each quintile, including the benchmark, is illustrated in Figure 8.

A company's ESG transparency score is a measure of its commitment to openly disclose information regarding its ESG initiatives. High scores indicate robust communication efforts, while lower scores suggest a poor approach to disclosing such measures. These transparency scores were systematically collected on a monthly basis throughout the study's timeframe. The first quintile, representing companies with the highest level of transparency, showed an average score of 64.9%, whereas the fifth quintile, embodying those with the lowest transparency, had an average score of 36.9%.

The study also highlighted the significant influence of market capitalisation on the composition of ESG transparency portfolios. Initially, portfolios with higher ESG transparency scores predominantly comprised companies boasting larger market capitalizations. However, this trend began to shift in 2019, with companies of smaller market capitalisations taking the lead in higher ESG transparency scores. Larger

companies typically possess more resources, which assist in producing comprehensive sustainability reports and effectively communicating their initiatives, a critical component when adhering to the GRI guidelines. Yet, the observed reversal in the trend concerning market capitalization from 2020 onwards could be linked to changes in the GRI's reporting practices, particularly its decision to discontinue maintaining a global database of companies' application levels.

## 6.2. Research Questions

This research explores whether an investment strategy centred around high ESG transparency in companies could outperform established benchmarks. This study is among the first to focus on ESG transparency as an investment criterion, thereby offering fresh perspectives to academic debates. Employing a graphical time series approach allows for a visual representation of the study's outcomes. The analysis delves into the research questions and hypotheses, providing an in-depth examination of how ESG transparency impacts companies' financial performance. This marks a significant contribution to understanding the financial implications of ESG practices.

### 6.2.1. Research Question One and Hypothesis One

The first research question and hypothesis of this study aimed to investigate whether companies with high ESG transparency scores achieved better share returns than those with lower scores and to examine the persistence of these returns over time. The analysis, conducted over a 13-year period using the investment style engine methodology, yielded nuanced results. Despite the Friedman and Wilcoxon Signed-Rank tests suggesting no significant differences in financial performance across the quintiles, the CAGR and the bootstrapping model contradicted those findings.

The use of the Friedman and Wilcoxon Signed-Rank tests serves as a robust method to cross-verify the initial findings derived from the style engine analysis. These non-parametric tests are particularly useful for comparing portfolio returns without requiring the data to adhere to a normal distribution (Saunders & Lewis, 2012). Despite their utility, these methods have limitations, particularly in their statistical strength compared to parametric counterparts like T-tests and one-way ANOVA (Fagerland, 2012). Moreover, they do not capture the cumulative returns of portfolios over time. In contrast, the investment style engine and bootstrapping model are better suited for this application.

The style engine analysis revealed that the first quintile emerges as the top performer with a CAGR of 10.37%, followed by quintiles two, four, three, and finally quintile five, which, having the lowest ESG transparency scores, recorded a CAGR of 4.03%. Given that the CAGR of each quintile was arranged in a nearly linear fashion according to their ESG ranking and the bootstrap portfolios all exceeded the 95% confidence level, this suggests a significant relationship between ESG transparency scores and financial performance. The trend appears consistent throughout the research period, indicating that management teams should indeed consider their ESG transparency scores as a strategy to enhance financial performance.

This result aligns with McWilliams and Siegel (2000), who cautioned against oversimplifying the assumption of an exclusively positive correlation between ESG practices and financial performance. Furthermore, Aggarwal (2013) highlighted that the complex relationship between ESG factors and financial performance is influenced by various elements, including chosen methodologies, criteria for measuring sustainability, financial metrics, and the specific sample and timeframe of the study. The variance in outcomes from different statistical tests in this research demonstrates the complex nature of this relationship.

An interesting revelation from the study was a bias in the composition of style-engine quintiles, where portfolios with the highest ESG transparency scores predominantly consisted of companies with larger market capitalisations. These larger companies are typically better equipped to generate comprehensive sustainability reports and engage more effectively with stakeholders, given their ample resources. Their size further influences the study's results due to their significant market presence and the widespread availability of their shares.

### 6.2.2. Research Question Two and Hypothesis Two

The second research question of this study aimed to evaluate the performance differential between the highest-performing portfolio and the benchmark index, J203T. This comparison sought to determine whether a significant difference in performance existed between them. Quintile one emerged as the superior portfolio, with a CAGR of 10.37%, narrowly surpassed by the benchmark's CAGR of 10.50%. The CAGR spread between these two portfolios was just 0.13%.

The investigation into the hypothesis employed the Wilcoxon Signed-Rank test as an additional method to assess whether a statistically significant difference existed

in the performance outcomes of the best-performing quintile compared to the benchmark. The resulting p-value for the comparison between quintile one and J203T was 0.374, which was greater than the Bonferroni adjusted significance limit of 0.01. Consequently, the null hypothesis was not rejected, indicating no statistically significant difference in performance between quintile one and the benchmark at a 5% significance level. Therefore, any observed differences in performance between the portfolios were deemed coincidental and do not indicate a consistent trend.

It is important to note the distinction in weighting between the J203T benchmark and all the ESG quintiles. J203T is market capitalization-weighted, whereas all of the ESG transparency quintiles are equal-weighted. As discussed in research question one, large market cap companies significantly influence the results of the first quintile. These results are attributed to the recent strong performance of large market capitalisation companies on the JSE. Therefore, the benchmark's superior performance is due to the influence of these companies.

The objective of this research question was to ascertain whether the performance achievements of quintile one were replicable or merely the result of random variation. The findings confirmed no significant performance difference between quintile one and the J203T. Hence, possessing a higher ESG transparency score did not necessarily result in a superior performance outcome compared to the market cap-weighted benchmark.

### 6.2.3. Research Question Three and Hypothesis Three

The third research question of this study aimed to analyse the performance disparity between the highest-performing portfolio, quintile one, and the lowest-performing portfolio, quintile five. This examination sought to determine if a significant difference in returns existed between these two extremes. To establish the presence of any persistent outperformance or excess returns, the price relative method was employed. The analysis revealed that quintile one achieved a CAGR of 10.37%, which outperformed quintile five, which achieved a CAGR of 4.03%, leading to a notable CAGR spread of 6.34% between them.

A Wilcoxon Signed-Rank test was applied to evaluate the hypothesis. The resulting p-value for the comparison between quintile one and quintile five was 0.103, exceeding the Bonferroni adjusted significance level of 0.01. Consequently, the null hypothesis was not rejected. This outcome indicates that the performance

differences observed between quintile one and quintile five were not statistically significant enough to warrant rejection of the null hypothesis. However, the use of the price relative method, which assesses the performance of the best-performing portfolio against the worst, indicated a persistent trend of outperformance by quintile one across the study period. Since the Wilcoxon Signed-Rank test does not account for cumulative share returns, the results from the style engine were deemed more appropriate, suggesting a positive potential relationship between ESG transparency scores and financial performance.

### 6.3. ESG transparency and financial performance

As highlighted in the literature review, numerous scholars have recognised the increasing importance of transparency in CSR reporting. This trend is seen as a response to the broader challenges faced by contemporary society (Dubbink et al., 2008). Over time, transparency has evolved from being a secondary concept to becoming a key aspect of modern societal expectations (Mol, 2015). An organisation can only be deemed transparent if it provides its stakeholders with clear, insightful information about issues of shared concern (Kaptein & Van Tulder, 2017). Furthermore, Lozano (2013) elaborated on how sustainability reporting enables organisations to benchmark their performance against peers and showcase their responsiveness to stakeholder expectations regarding sustainable development. These insights helped shape the direction of this research and formulate the research questions for investigation.

In recent times, there has been a growing demand among organisations for more comprehensive indicators and standardised reporting procedures. Efforts were made to develop industry-specific indicators and adopt a common reporting framework, such as the GRI framework, to streamline these processes (Boiral & Henri, 2017). The aspirations for better comparability and the ability to gauge influence were expressed by Lozano (2013). Utilising the CSRHub database, this research compared organisations across various sectors using a unified rating system and employed Muller and Ward's (2013) investment style engine to analyse the impact of ESG transparency on investors.

Upon analysing the outcomes from the statistical review, the study decisively rejected the null hypotheses for the first and third research questions, while not rejecting the second. This analysis unveils a significant link between the transparency of ESG

disclosures and the financial performance of companies, consistently demonstrated throughout the duration of the research, indicating a discernible pattern. The investigation revealed that investors in South Africa tend to favour companies that maintain a higher standard of transparency in their ESG reporting over those that do not.

This study confirms earlier research by Zhang and Niu (2015), Barth et al. (2017), and Beck et al. (2018), who all noted a significant relationship between a company's engagement in ESG initiatives and its financial success. This demonstrates the importance of transparency in these efforts, showing that companies that clearly communicate their ESG activities to investors gain a competitive edge. This approach not only sets them apart from less transparent companies but also boosts their financial position, profitability, and brand reputation. Clear communication of ESG initiatives is crucial, as it positions a company favourably in the eyes of investors, enhancing its market value.

#### 6.4. Influence of Resource Based Companies

In this study, the effect of company size on ESG transparency scores and their associated financial performance was closely investigated. The analysis identified a notable bias in the findings, primarily attributed to the significant impact of large market capitalisation companies. Large market capitalisation companies tend to have the finances and resources necessary to produce high-quality and transparent sustainability reports. Consequently, it was observed that investment portfolios with higher ESG transparency scores typically consisted of larger corporations. In the South African market, these companies are predominantly resource companies, due to the market's strong reliance on natural resources.

Upon refining the analysis to focus exclusively on resource-based companies, the observed trend persisted. Although a linear relationship was absent, a downward trend in the relationship between ESG transparency rankings and CAGR outcomes remained evident. This pattern underscores a distinct relationship between the levels of ESG transparency and a portfolio's financial performance, even though the data for the fourth and fifth quintiles deviate from the expected sequence.



## 6.5. The concept of ESG transparency

The concept of transparency in sustainability reporting has been extensively examined and defined in various ways by scholars. In their research, Dando and Swift (2003) examined organisations that claim to be transparent and discovered that merely increasing the volume of disclosure does not necessarily equate to enhanced transparency. Furthermore, they argued that reports perceived as more transparent could indicate a greater degree of confidence in an organisation's commitment to sustainability.

In this analysis, transparency is regarded as a crucial element in promoting sustainable practices and deepening the understanding of their impact on investors. This perspective aligns with the viewpoints put forth by Kaptein and Van Tulder (2017), who highlighted the importance of adopting objective measures to assess the effectiveness of corporate sustainability reporting. They argued that strengthening transparency in sustainability reports is vital for the success of sustainability efforts.

While transparency is universally recognised as beneficial for promoting trust and accountability, it presents challenges in quantification. The results from this study established a link between the transparency of ESG initiatives and the financial outcomes of companies, thereby confirming the findings of Kaptein and Van Tulder (2017). Given the broad range of methods for assessing transparency in sustainability reporting, using the CSRHub database was deemed advantageous, as it enabled the study to draw comparisons across companies from different sectors.

## 6.6. Theoretical Case

During the review of existing literature for this research, it became apparent that stakeholder and legitimacy theories provided the most suitable frameworks for understanding the connection between ESG transparency and corporate financial performance. These theories suggest that practices of transparent disclosure could enhance a company's financial standing by improving its legitimacy and relationships with stakeholders. The results of this investigation support these theories, demonstrating that companies with higher ESG transparency scores tend to exhibit better financial performance.

However, a third theory, referred to as stewardship theory, also emerged as relevant for future research. This theory suggests that managers are morally obligated to act in the best interest of the company and its stakeholders, prioritising long-term benefits over short-term financial gains. The conclusions drawn from this study resonate with stewardship theory, indicating that companies may commit to high levels of ESG transparency as part of their ethical duties and should not solely focus on the immediate financial outcomes.

## 7. Conclusion

### 7.1. Principal Findings

This research explored the intricate relationship between sustainability reporting transparency and its influence on the share returns of South African companies listed on the JSE. Initiated against the backdrop of an evolving corporate environment where CSR has become a focal point of both academic inquiry and public discussion, the study reflects on the shift businesses are making from prioritising shareholder profits towards broader engagement with various stakeholder interests. This evolution underscores the increasing importance for businesses to adopt transparent and ethical governance practices as a means to sustain public trust and achieve long-term sustainability.

The research specifically focused on companies listed on the JSE All Share Index over a period of 13 years. The methodology employed an investment style analysis, which produced a graphical time-series graph displaying the cumulative share returns as the dependent variable over time. The investment portfolios were ranked by ESG transparency scores as the independent variable. Further statistical analyses were conducted on each hypothesis to ascertain the presence of any statistically significant disparities.

The analysis revealed that companies with the highest ESG transparency scores typically demonstrated superior financial performance, attributed to a nearly perfect linear downslope trend in CAGR across the different transparency quintiles. However, follow-up assessments, using Friedman and Wilcoxon Signed-Rank tests, did not reveal significant financial differences across the portfolios. Subsequent analysis through bootstrapping techniques confirmed the style engine analysis and led to the rejection of the null hypothesis for the first research question. This affirms a clear link between ESG transparency and financial performance and suggests that prioritising ESG transparency could be a viable strategy for enhancing a company's stock performance.

The second research question of this study aimed to evaluate the performance differential between the highest-performing portfolio and the benchmark index, J203T. Quintile one, with the highest ESG transparency scores, emerged as the best-performing portfolio; however, it was narrowly surpassed by the benchmark's CAGR.

The Wilcoxon Signed-Rank test determined that there was no statistically significant difference in performance between quintile one and the benchmark at a 5% significance level. It is essential to note that the best-performing portfolio was equally weighted, whereas the benchmark was market capitalisation-weighted. Nevertheless, this outcome implied that any performance discrepancies observed were incidental and did not establish a consistent trend.

The third research question set out to analyse the performance disparity between the highest-performing portfolio, quintile one, and the lowest-performing portfolio, quintile five. The Wilcoxon Signed-Rank test found no significant difference between the portfolios to necessitate the rejection of the null hypothesis. However, the use of price relative, which assesses the performance of the best-performing portfolio against the worst, revealed consistent outperformance by the highest ESG transparency portfolio throughout the study period. As the Wilcoxon Signed-Rank test does not account for cumulative share returns, the results from the style engine were deemed more appropriate. This, in turn, recommends that management teams should consider enhancing their ESG transparency as a strategic move to significantly improve financial share performance.

An interesting aspect observed during the study was the pronounced influence of large-cap companies, particularly those in the resource sector, on the research outcomes. These companies significantly shaped the results due to their size and market dominance and underscore the need to consider sector-specific dynamics in such analyses. Even when focusing solely on resource companies, a similar positive relationship between ESG transparency and financial performance was identified. This suggests that the observed relationship holds true across different market segments.

While the direct financial benefits of ESG transparency remain challenging to quantify due to the complexity of the factors involved, this research successfully established a relationship between ESG reporting clarity and stock returns among South African companies. The results emphasise the importance for corporate management teams to prioritise ESG transparency, not just as a compliance or ethical imperative but as a strategic approach to enhancing financial performance.

## 7.2. Research Limitations

This study encountered several limitations that may have influenced its outcomes and interpretations. These limitations are outlined below:

- A key limitation was the reliance on CSRHub's algorithm for calculating the ESG transparency scores. While CSRHub's methodology is widely regarded as both reliable and comprehensive, the lack of clarity regarding its exact formula means the researcher was unable to account for specific elements prioritised by CSRHub that could influence the study's results. This reliance on an external algorithm introduces an element of uncertainty regarding the scoring process and its impact on the findings.
- Additionally, the study's conclusions might have been different if the portfolios were structured using weighting methodologies other than equal weighting. The choice of equal weighting for portfolio construction was a deliberate methodological decision; however, it is acknowledged that alternative weighting approaches could significantly alter the research outcomes.
- Lastly, the scarcity of information on some companies in the CSRHub database represented a challenge. Although it was determined that the exclusion of these 45 companies did not materially affect the study's overall findings, it remains a limitation.

## 7.3. Suggestions for Future Research

Based on the study's findings and the limitations outlined above, several recommendations are proposed for future research:

- An expansion of the research timeframe is recommended to incorporate a broader historical period. Thus, the dataset would need to be expanded to include additional years of data not currently available on CSRHub's database. Future research could potentially uncover trends and patterns not observable within the limited scope of the current study.
- Given the complex nature of transparency and its challenges, the concept of sustainability reporting transparency warrants further exploration. While this study adopted a specific approach to gauge transparency, its accuracy remains uncertain. Future research could benefit from incorporating methodologies from previous studies dedicated to evaluating the quality of

transparency. This would enrich the analysis and provide a better understanding of transparency in sustainability reporting.

- There is an opportunity to employ qualitative research methods as a complement or alternative to the quantitative approach used in this research. Conducting interviews with individuals involved in sustainability reporting could yield deeper insights into how transparency is perceived and its impact on investor behaviour.
- The research conducted was confined to companies listed on the JSE All Share Index. Extending the scope of research to include international markets could significantly contribute to the academic body of knowledge and enhance the robustness of the findings. Undertaking additional studies across different countries, regions, and economic contexts could reveal how varying factors influence the transparency of sustainability reporting and company financial performance.

The recommendations listed above aim to enhance the groundwork laid by this study. This study encourages future research to delve deeper into the subject, promising to uncover insights that could benefit companies, investors, and society as a whole by promoting a more sustainable and transparent business environment.

#### 7.4. Concluding Remarks

This study provides valuable insights for business leaders, stakeholders, investors, and regulatory authorities, emphasising the importance of transparency in sustainability reporting. By demonstrating that clear and open reporting can influence investment decisions, the study advocates for the significance of transparency in sustainability efforts. The benefits should not be viewed as purely financial but as part of a broader ethical commitment. The study suggests that businesses should not only embrace but also celebrate high levels of ESG transparency. This approach is beneficial for encouraging long-term growth and sustainability within organisations, pointing to a future where ethical considerations are paramount in business operations and investment strategies.

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## Appendix A

Table 11: Companies included from the study

No.	Ticker	Company	No.	Ticker	Company
1	ABG	Absa	130	KGM	KG Media
2	ABL	Abil	131	KIO	Kumba
3	ACL	Arcelormittal	132	KRO	Karoo
4	ACT	Afro-c	133	KST	PSG Konsult
5	ADH	Advtech	134	L4L	Long4Life
6	ADR	Adcorp	135	LAF	Lonafric
7	AEG	Aveng	136	LBH	Liberty
8	AEL	Altron	137	LBR	Libstar
9	AEN	Altron Pref	138	LEW	Lewis
10	AFE	AECI	139	LHC	LifeHC
11	AFH	AlexForbes	140	LON	Lonmin
12	AFP	Aforbes Pref	141	LTE	LightCap
13	AFR	Afgri	142	MCG	Multichoice
14	AFT	Afrimat	143	MCZ	MC Mining
15	AFX	Afrox	144	MEI	Mediclinic
16	AGL	Anglo	145	MIX	MixTel
17	AHB	Arrowhead A	146	MND	Mondi
18	AIL	ArclInvest	147	MNP	Mondi Plc
19	AIP	Adcock	148	MPT	MPact
20	ALT	Altech	149	MRF	Merafe
21	AMS	Amplats	150	MRP	Mr Price
22	ANG	Anglogold Ashanti	151	MSM	Massmart
23	ANH	AbInBev	152	MSP	MAS
24	APF	Accelerate	153	MTA	Metair
25	APH	Alphamin	154	MTH	Motus
26	APK	Astrapak	155	MTM	MomMet
27	APN	Aspen	156	MTN	MTN Group
28	AQP	Aquarius	157	MTX	Metorex
29	ARI	African Rainbow	158	MUR	M&R
30	ARL	Astral	159	N91	NinetyOne Plc
31	ASC	Ascendis	160	NED	Nedbank
32	ASR	Assore	161	NIV	Niveus
33	ATT	Attacq	162	NPH	Northam
34	AVI	AVI	163	NPK	Nampak
35	AVV	Alviva	164	NPN	Naspers
36	AWA	Arrowhead A	165	NRP	NepiRock
37	AWB	Arrowhead B	166	NT1	Net 1 UEPS Tech
38	BAT	Brait	167	NTC	Netcare
39	BAW	Barworld	168	NVS	Novus
40	BCX	Business Connexion	169	NY1	NinetyOne Ltd
41	BEL	Bell	170	OAO	Oando
42	BFS	Blue	171	OCE	Oceana



43	BHG	BHP	172	OCT	Octodec
44	BHP	BHP	173	OML	Old Mutual
45	BID	BidCorp	174	OMN	Omnia
46	BLU	Blue Label	175	OMU	Old Mutual
47	BRN	Brimstone-N	176	OPT	Optimum
48	BSR	Basil Read	177	OUT	Outsurance
49	BTI	BATS	178	PAM	Palamin
50	BVT	Bidvest	179	PAN	Pan African
51	BWN	Balwin	180	PBG	PBT Group
52	BYI	Bytes	181	PFG	Pioneer Foods
53	CAT	Cat	182	PGR	Peregrine
54	CCO	Capital & Counties	183	PIK	Pick 'n Pay
55	CFR	Richemont	184	PMM	Premium
56	CHP	Choppies	185	PPC	PPC
57	CIL	CIL	186	PPE	Purple Capital
58	CLH	City Lodge	187	PPH	Pepkor
59	CLI	Clientele	188	PRX	Prosus
60	CLR	Clover	189	PSG	PSGI
61	CLS	Clicks	190	QLT	Quilter
62	CMH	CMH	191	RAV	Raven
63	CML	Coronation	192	RBP	RBPlats
64	COH	Curro	193	RBX	Raubex
65	CPF	CapProp	194	RCL	RCL
66	CPI	Capitec	195	RDF	Redefine
67	CRM	Ceramic	196	REB	Rebosis
68	CRP	Capreg	197	REM	Remgro
69	CSB	Cashbuild	198	REN	Reenergy
70	DCP	Dis-Chem	199	RES	Resilient
71	DDT	Didata	200	RFG	Rhodes Food
72	DGH	Distell	201	RIN	Redefintl
73	DIB	Dipula B	202	RLO	Reunert
74	DKR	Deutsche Konsum	203	RMH	RMBH
75	DLT	Delprop	204	RMI	Rand Merchant Inv
76	DRD	Drdgold	205	RNI	Reinet Inv
77	DSY	Discovery	206	RPL	Redefine
78	DTC	Datatec	207	S32	South32
79	EHS	EHSV	208	SAB	SABMiller
80	ELI	Ellies	209	SAC	SA Corp
81	EMI	Emira	210	SAP	Sappi
82	EOH	EOH	211	SBK	Stanbank
83	EPS	EastPlats	212	SBP	Sabcap
84	EQS	Eqstra	213	SCD	Sereit
85	EQU	Equites	214	SDO	Stadio
86	ERN	Erin	215	SGL	Sibanye
87	EXX	Exxaro	216	SHC	Shaftesbury
88	FBR	FamBrands	217	SHG	Sea Harvest
89	FFA	Fortress A	218	SHP	Shoprite

90	FFB	Fortress B	219	SLM	Sanlam
91	FGL	Finbond	220	SNH	Steinhoff
92	FPT	Fountainhead	221	SNT	Santam
93	FSR	Firststrand	222	SOL	Sasol
94	GBG	GBGold	223	SPG	Super Group
95	GDO	GoldOne	224	SPP	Spar
96	GFI	Gold Fields	225	SRE	Sirius
97	GLN	Glencore	226	SSK	StefStock
98	GML	Gemfields	227	SSS	Stor-Age
99	GND	Grindrod	228	SSU	Southern Sun
100	GPL	Grand Parade	229	SSW	SibanyeStillwater
101	GRF	Group 5	230	SUI	Sun International
102	GRT	Growthpoint	231	SUR	Spurcorp
103	GSH	Grinship	232	TBG	Blackstar
104	GTC	Globe Trade	233	TBS	Tigerbrands
105	GTR	Grit	234	TCP	Transcap
106	HAR	Harmony	235	TDH	Tradehold Limited
107	HCI	HCI	236	TFG	TFG
108	HDC	Hudaco	237	TGA	Thungela
109	HIL	HomeChoice	238	TGO	Tsogo Sun Hotels
110	HLM	Hulamin	239	THA	Tharisa
111	HMN	Hammerson	240	TKG	Telkom
112	HPB	Hospitality-B	241	TMG	TimesG
113	HWN	Howden	242	TON	Tongaat
114	HYP	Hyprop	243	TRE	Trencor
115	IAP	IAP	244	TRU	Truworths
116	ILV	Illovo	245	TSG	TsogoSun Gaming
117	IMP	Implats	246	TTO	Trustco
118	INL	Investec	247	TXT	Textainer
119	INP	Investec Plc	248	UCP	Unicorn
120	IPF	Investec Property	249	UUU	Uranium One
121	IPL	Imperial	250	VKE	Vukile
122	ITE	Ittite	251	VOD	Vodacom
123	ITU	Intuprop	252	VVO	Vivo
124	IVT	Invicta	253	WBO	WBHO
125	JBL	Jubilee	254	WEZ	Wesizwe
126	JDG	JD Group	255	WGR	Witsgold
127	JSE	JSE	256	WHL	Woolworths
128	KAL	KaapAgri	257	ZED	Zeder
129	KAP	KAP	258	ZZD	Zeda

## Appendix B

Table 12: Companies excluded from the study due to missing data

No.	Ticker	Company	No.	Ticker	Company
1	ACS	Acsion	24	MLI	Industrial REIT
2	ACP	Acucap	25	LSK	Lesaka
3	ATL	Atlatsa	26	L2D	Liberty2D
4	ALP	Atleaf	27	LHG	Litha
5	AVU	Avusa	28	MKL	Makalani
6	AYO	Ayo Tech	29	MOB	Mobile
7	BTN	Burstone	30	MKR	Montauk Renew
8	CAA	CA Sales	31	MVL	Mvela
9	CVI	Capevin	32	NFP	New Frontier
10	CVH	Capevinh	33	NBC	NewBond
11	CTK	Cartrack	34	ORL	Oakbay
12	CVW	CastleView	35	PLD	Palcap
13	CMP	Ciplamed	36	PAP	Panprop
14	CPR	Copper360	37	PWK	Pikwik
15	DAW	Dawn	38	PIV	Pivotal
16	EMN	E Media	39	PLN	Platmin
17	EPP	Echo Polska	40	PMR	Premier
18	EXP	Exemplar	41	ROC	Rockcastle
19	FUU	First Uranium	42	SYC	Sycom
20	FWD	Freeworld	43	SYG	Sygnia
21	HSI	Health	44	TEX	Texton
22	HET	Heriot	45	ZSA	Zurich
23	HSP	Holdsport			

## Appendix C



### CSRHub Factsheet

CSRHub is a leading independent, global Environment, Social, and Governance (ESG) ratings and information database. CSRHub's business intelligence system measures the ESG business impact that drives corporate and investor sustainability decisions. We cover 50,000 companies and provide ESG performance scores on 30,000 companies from 134 industries in 154 countries. Our Big Data platform uses algorithms to aggregate, normalize and weight ESG metrics from 800 sources to produce a strong consensus signal on corporate sustainability performance.

#### **Data Structure**

We cover 12 subcategories of ratings and rankings across the categories of environment, employees, community and governance. Our twelve subcategories are defined here:

<https://www.csrhub.com/csrhub-esg-data-schema>

Over 12,000 indicators have been mapped to our 12 subcategories: <https://www.csrhub.com/csrhub-esg-ratings-methodology>

We tag companies for their involvement in 16 Special Issues. Our special issues are listed here:

<https://www.csrhub.com/csrhub-special-issues-list>

#### **Entity and Company Coverage**

We cover over 50,000 entities. We have full or partial ratings on 30,000 companies and information on the available ESG sources and data on another 22,000 companies. CSRHub covers public companies, private companies, government organizations, and not-for-profits. You can see a full list here:

<https://www.csrhub.com/csrhub/>

We rate 186 National Governments - see <https://www.csrhub.com/search/industry/National-Government>. We rate 117 State/Provincial/City Governments – see

<https://www.csrhub.com/search/industry/StateProvincial-Government>

#### **Data Sources**

We aggregate 350 million data points from 800 data sources including many leading ESG financial analyst firms, crowd sources, government databases, not-for-profits, and publications. You can see all of our sources here: [https://www.csrhub.com/our\\_data\\_sources/](https://www.csrhub.com/our_data_sources/)

#### **Geographic Coverage**

We cover companies in 154 countries. You can see our geographic coverage here:

[https://www.csrhub.com/CSR\\_ratings\\_by\\_region\\_and\\_country/](https://www.csrhub.com/CSR_ratings_by_region_and_country/)

#### **Industry Classification**

CSRHub classifies companies into one or more of 134 industries based on the North American Industry Classification System (NAICS) with some additions. You can see our industries here:

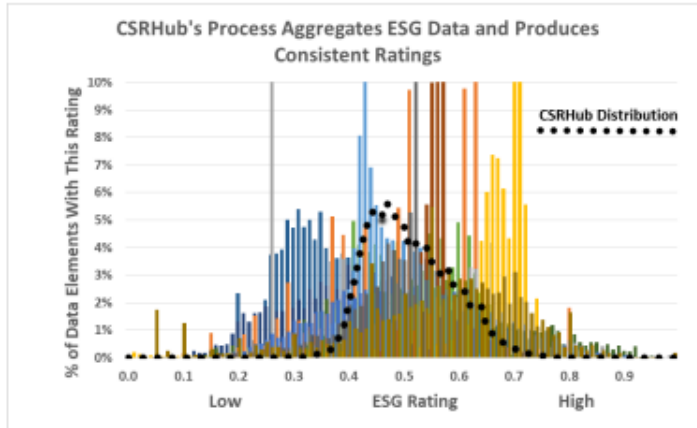
[https://www.csrhub.com/CSR\\_industry\\_ratings/](https://www.csrhub.com/CSR_industry_ratings/)

#### **Rating Rules**

CSRHub follows a well-defined set of rules that determine when we can rate any part of a company's performance and also when we can offer an overall rating. Here is a summary of the steps in our rating process: <https://www.csrhub.com/csrhub-esg-rating-rules>



The diagram below shows the ratings distribution curve of 12 ESG financial analyst data sources. Some raters are skewed far to the left and some to the right. The overall distribution of company performance ratings becomes smooth after CSRHub processes this and other input data sets.



#### **Data Access**

We provide access to our data via CSRHub web based company pages, Advanced Boolean search tool. We provide Macro-enabled Excel dashboards - templates for Competitor, Stakeholder, SDG Rating, and Supply Chain analysis. Partners access data using our RESTful (XML/JSON based) application program interface (API): <https://www.csrhub.com/csrhub-restful-api>. We also provide a secure data feed through strategic partners.

#### **Updating of Data**

We update our data monthly. We add new data sources as they emerge.

#### **Data History**

Our monthly data history extends back to December, 2008.

#### **Licensed ESG Sources**

CSRHub's 800 data sources include licensed ESG analyst data including Act Analytics, Arabesque ESG Book, Covalence, FTSE Russell, Ideal Ratings, ISS, MSCI (ESG Scores, ESG Controversies, Governance Metrics, and Carbon Metrics now integrated into their core data set), RAEX, S&P Global ESG (SAM), S&P Global Trucost, Moody's ESG (previously V.E Vigeo Eiris), Sigwatch, and Urgentem (ICE). To these sources we add indexes, publications, government data and crowd sourced information. We can pass through public data and some data from select licensed sources.

#### **About CSRHub**

Managers, professionals, academics, financial analysts, and API partners use CSRHub to benchmark company performance, learn how stakeholders evaluate company CSR practices, uncover new ways of understanding how ESG factors influence portfolio performance, and seek ways to create a more sustainable economy.

CSRHub is a privately held B Corporation. Its mission is to use transparent access to ESG data to improve corporate ESG performance and global sustainability. CSRHub is an Organizational Stakeholder (OS) of the Global Reporting Initiative (GRI).