ESG Integration Strategies – A Look At the Investment Implications for the Coal Industry in South Africa

DBA Thesis

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Submitted by:

LINDIWE EVARISTA MTHIMUNYE

Geneva, Switzerland

Submission for examination confirmed on the application of:

The DBA Program Manager, Dr Oliver Elliott

And

The Research Study Supervisor, Dr Victor Almeida Yerris

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In fond memory of my loving and supportive mom, Dorothy Mthimunye!

Email: lindiwe@me.com

TABLE OF ABBREVIATIONS

Assets Under Management	AUM
Carbon Dioxide	CO2
Climate Action 100+	CA100+
Conference of the Parties	COP
Corporate Social Responsibility	CSR
Cumulative Abnormal Returns	CAR
Discounted Cash Flow	DCF
Dividend per Share	DPS
Earnings before Interest, Tax, Dividends and Amortization	EBITDA
Earnings per Share	EPS
Environmental, Social and Governance	ESG
Gigawatt	GW
Glasgow Financial Alliance for Net Zero	GFANZ
Global Stocktake	GST
Global Reporting Initiative	GRI
Greenhouse Gas	GHG
International Finance Corporation	IFC
International Financial Reporting Standards	IFRS
International Sustainability Standards Board	ISSB
Johannesburg Stock Exchange	JSE
Just Energy Transition Investment Plan	JET IP
Net Zero Asset Managers Initiative	NZAM
Non-Governmental Organization	NGO
Principles for Responsible Investment	PRI
Return on Assets	ROA
Return on Equity	ROE
Return on Invested Capital	ROIC
Socially Responsible Investing	SRI

TABLE OF ABBREVIATIONS – cont.

Sustainable Development Goals	SDG
Task Force on Climate-Related Financial Disclosures	TCFD
World Economic Forum	WEF

ABSTRACT

Background: An increasing number of asset managers have embraced the principles for responsible investing and are incorporating environmental, social and governance (ESG) factors in their asset allocation decisions. However, not much is known about how ESG issues are factored into the investment process. The study seeks to investigate both how asset managers of active listed equity funds integrate ESG, in particular climate change, into the investment process, and how they are decarbonizing their portfolios. The objective of this study is to inform the hypothesis on why institutional equity investors who are signatories to the PRI and integrate ESG in the investment process remain invested in the unsustainable coal industry in South Africa.

Design: The study follows a qualitative method and uses interviews with a purposive sample of nine (9) investment management firms involved in the management of active listed equity funds. The firms are represented by professionals in investment and sustainability roles. Using interviews, the study explores practices and considerations of asset managers about ESG issues and decarbonization pathways.

Findings: The results show that asset managers integrate ESG issues into their fundamental investment approach and adjust for ESG factors in their stock valuation models. The preferred ESG integration strategies are integration and engagement, to influence real world outcomes. The South African listed investments universe is too small to allow for the exclusion of high emitters.

Conclusions: The findings add to knowledge about how ESG is integrated into the investment process and strategies being employed to improve ESG performance and reduce greenhouse gas emissions.

Keywords: ESG integration, engagement, decarbonization, just transition.

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

This research study seeks to investigate how investment managers of active listed equity funds integrate ESG, in particular climate change, into the investment process, and how they are decarbonizing their portfolios. The objective of this study is to inform the hypothesis on why institutional equity investors remain invested in the unsustainable coal industry in South Africa. The study is important in the context of increasing awareness of climate change risks and increasing pressure on high emitters to mitigate the economic and social impact thereof.

1.1.1 RESEARCH STUDY STRUCTURE

This research study consists of five chapters. Chapter 1 details the problem statement and research question, the initial literature that informed the problem statement and research question, and why South Africa has been chosen as a country of interest for the purposes of this study. Chapter 2 presents the review of literature relevant to the research question and the hypothesis. Chapter 3 describes the research methodology, research approach, data collection mechanism, and ethical considerations. Chapter 4 presents the research setting, data analysis process and findings of the study. The last chapter, Chapter 5, provides an interpretation of the findings, connects the findings to existing literature, outlines the implications of this research study and related limitations, and makes recommendations for future research.

The first section of this chapter details the problem statement and research question, followed by the background information on ESG integration and climate change commitments made by investors. The second section of the chapter entails a summary review of literature on: why investors use ESG data, how they use ESG data, and barriers to ESG integration. The third section of the chapter introduces just transitions and the status of South Africa on the global emissions spectrum, followed by the research methodology overview, and study content outline.

1.1.2 PROBLEM STATEMENT

Studies have found that little is known about how investors use ESG information. Amel-Zadeh & Serafeim (2018) found that there is inconclusive evidence about how investors incorporate ESG information into investment selection, analysis and decision. In addition, they found that portfolio allocation is likely driven by factors such as investment styles, integration into stock valuation models and portfolio screening. True ESG integration means that ESG factors are incorporated into valuation models and investment decisions of portfolio managers and analysts. However, most ESG approaches focus on screening and engagement, and fail to perform this task (Schramade, 2016).

The most common motives for incorporating climate change risk into the investment process are to protect reputation, moral or legal considerations, and the belief that climate risks affect portfolio risk and returns. This implies that institutional investors consider climate risk for both financial and non-financial reasons (Krueger et al., 2020).

Most institutional investors prefer to engage with companies in which they are invested rather than to divest, since the former can potentially influence change in strategy and ESG performance. Osofsky et al. (2019) argue that divestment strategy alone is insufficient to influence a transition to a low carbon economy. In contrast, engagement has to date achieved some modest results.

1.1.3 RESEARCH QUESTION

There is limited research on investor action for or against fossil fuel producers in South Africa, a country which is the 12th largest emitter of greenhouse gases. It is also the 6th largest in installed coal capacity with approximately 85% of its electricity produced from coal (www.iea.org).

This research study aims to inform the premise of institutional equity investors' continued involvement in South Africa's unsustainable coal industry. This phenomenon is answered through the study's three-part research question:-

- How institutional investors in active listed equities incorporate ESG, in particular climate change, into their investment decision-making process.

- What ESG strategies are preferred and why, and effectiveness thereof in influencing change in ESG performance.
- How investors are decarbonizing their portfolios and related barriers.

This research has a dual objective. Firstly, it is intended to contribute to knowledge on how investors incorporate ESG, in particular climate change, into their investment decision-making process. It also considers whether active engagement as an investment strategy can influence change in ESG performance. Secondly, it examines why financial institutions remain invested in coal mining companies in South Africa, given climate change risks and potential adverse impact on returns, and how they are decarbonizing their portfolios. This is in light of the commitments investors have made to the principles for responsible investing and to work towards limiting temperature rise to below 1.5°C by 2050.

1.1.4 ESG INTEGRATION - WHY DO INVESTORS CARE?

A large number of investors believe that investing is not only about financial returns but must also incorporate non-financial factors which could negatively impact returns. There are three investment styles that fulfil this: Environmental, Social and Governance (ESG), Socially Responsible Investing (SRI) and Impact Investing.

ESG considers a company's environmental, social and governance practices alongside traditional financial measures. SRI involves a selection of investments by positive or negative screening based on ethical guidelines while still targeting financial performance. Impact investing, on the other hand, favours companies or projects that do good for the society and environment, and create employment while meeting financial performance requirements. Impact investing seeks to advance non-financial goals, and financial returns tend to be moderate. ESG integration, on the other hand, considers ESG risks with focus on the impact on returns. There is also Corporate Social Responsibility (CSR), which is not an investment style, but a commitment by a company to serve the society in which the company operates, including charitable acts.

This paper focuses on ESG integration, in particular climate change. The term ESG is used interchangeably with sustainable investing. In this paper investor or financial institution refers to

institutional investors, which are entities that invest funds on behalf of their clients or members, for example, pension funds and fund/asset managers.

In 2006, the United Nations launched the Principles for Responsible Investment (PRI), "a voluntary set of investment principles that offer possible actions for incorporating ESG factors into the investment process. The six PRI advocate for the incorporation of ESG issues into: investment analysis and decision-making processes, ownership policies and practices, also to promote appropriate disclosure on ESG issues by the investees" (UNPRI, n.d.). In 2012, the United Nations developed the 17 interconnected Sustainable Development Goals (SDGs) with the aim "to address the urgent environmental, political and economic challenges facing the world" (UNPRI, n.d.). The goals are integrated, for example, inaction on climate change will have a catastrophic impact on infrastructure, supply chains, business continuity and livelihoods. In 2016, the Global Reporting Initiative ("GRI") launched standards for sustainability reporting to help companies "identify, gather and report information in a clear and comparable manner" (Global Reporting Initiative, n.d.).

Shareholder activism is accelerating the drive for companies to be more transparent about their material ESG risks. Institutional investors recognize their influence in that capital allocation decisions can help change corporate behaviour, and ESG analysis provides insights about risks and opportunities that can affect the financial performance of a company and therefore better inform investment decisions (Janus Henderson, 2019). Improving company ESG profile is believed to lead to a lower cost of capital, thus increasing the potential to outperform. Conversely, if a company has material ESG risks and is neither actively mitigating them nor improving their ESG profile, it is very likely that its cost of capital will rise and returns decline (Janus Henderson, 2019). Investors are of the view that failing to integrate ESG issues is a governance failure. Some research concluded that there is a positive relationship between ESG and company financial performance based on ROE, ROA, share price, and portfolio performance. However, some results are mixed (Whelan et al., 2020).

In 2015, at the 15th United Nations Conference of Parties (COP), 196 countries entered into a binding agreement on climate change, which is popularly known as the Paris Agreement. The objective of this agreement is to limit global warming to less than 2°C above pre-industrial levels (UNPRI, n.d.). The agreement also urges developed countries to provide financial assistance to

developing and emerging countries, to mitigate against the climate change risk by reducing carbon emissions, and to adapt to the impact of rising temperatures. This agreement stimulated change and growth in clean energy investments such as solar and wind energy, green building and waste reduction solutions. According to the International Finance Corporation (IFC) there is $23 trillion investment potential in climate change related projects, up to 2030 (ifc.org). In 2021, at COP 26 held in Glasgow, global leaders comprising governments, financial institutions, corporates, multilateral institutions and others, concluded commitments and agreements on reducing greenhouse gas emissions (UNCCC, 2022). The quantum agreed was the 50% reduction required by 2030 to contain temperature increase to 1.5°C above pre-industrial levels, in order to minimize the risk of climate hazards. Examples are hurricanes, flash floods, wildfires, drought, water stress and heat stress, which destroy livelihoods. This confirmed the shift in momentum, thus making net-zero commitments the norm.

Financial institutions have been at the forefront of the initiative to net zero. At COP 26 various coalitions were formed such as the Glasgow Financial Alliance for Net Zero ("GFANZ"). It brought together more than 450 financial institutions that aim to align their portfolios with net-zero goals and accelerate the decarbonization of the global economy, and as at November 2021 the GFANZ group represented $130 trillion in financial assets under management, approximately 40% of the global total (GFANZ, 2021). In 2021, it was estimated that a net-zero transition would require $150 trillion in capital spend, two thirds of it in developing economies (Bowcott et al., 2021).

The financial industry is a critical enabler of decarbonization. It will have to channel funding to decarbonization projects to enable carbon intensive companies to transition orderly to a low carbon economy by retrofitting and/or retiring assets. There are several levers available to the financial industry including directing new financings and investments to emission reduction initiatives, and aligning lending decisions to their own carbon emission strategies and plans. This can be reflected in the cost of capital and security requirements. Credit rating agencies also committed to incorporate ESG into credit ratings and analysis in a systematic and transparent manner. They state that ESG factors are important in assessing creditworthiness since they can affect the borrower's cash flows and probability of default (UNPRI, n.d.).

1.2 LITERATURE SUMMARY

1.2.1 WHAT MOTIVATES INVESTORS TO CONSIDER ESG DATA?

The two greatest reasons for ESG integration are said to be fostering a long-term mindset and cultivating better investment practices. Other reasons include demand from beneficiaries and the personal beliefs of senior leadership or members of the investment committee (Eccles et al., 2017). Recent studies have documented that disclosure of material ESG information results in lower capital constraints and lower cost of capital. It is still not well understood as to why and how investors use ESG information and the challenges in using this information.

To answer this question Amel-Zadeh and Serafeim (2018) conducted a survey of investment firms with $31 trillion in assets under management (AUM), which represents 43% of global institutional AUM. The majority of respondents (82%) advised that they use ESG information because it is financially material to investment performance. Other reasons for using ESG information are: it is important for investment risk assessment and to identify opportunities growing client/stakeholder demand; effectiveness in bringing about change at firms; it is part of the investment product strategy/offering, and ethical responsibility.

Krueger et al. (2020) report on the survey of global institutional investors - whether, why and how they consider climate change in their investment decisions. The sample included forty-eight participants from institutions holding more than $100 billion in assets under management, located in the US, UK, Canada, Germany and other European countries. Their AUM ranged from less than $1 billion to more than $100 billion. Krueger et al. (2020) state that the most common motives for incorporating climate change risk into the investment process are “to protect reputation, moral or legal considerations, and the belief that climate risks affect portfolio risk and returns”. Climate risk ranked fifth in the survey, with other top of mind risks being financial, operational, corporate governance and social. This implies that institutional investors consider climate risk for both financial and non-financial reasons.

The survey study of Paredes-Gazquez et al. (2014) covered four pension funds, three asset managers, four analysts and five listed companies in different sectors in Spain. They established that participants consider ESG issues for risk management, retaining profitability, cost saving and fulfilling fiduciary obligations. For asset managers, integrating ESG factors into the

investment process aims to either better assess long-term risks or to identify risks that have high impact but a lower probability of occurrence, as well as to manage key drivers of risks and returns (Briand, 2011). Other research studies suggest that long-term investors care more about ESG issues than short-term investors since they are more likely to suffer the adverse consequences. In contrast to prevalent studies, Przychodzen et al. (2016) found that ESG issues are important for long-term performance valuation and decision making. However, they are increasingly important in the short term, in response to low probability but high impact risk events. Investors expect a significant increase in global temperature; hence the concern about climate risk and the effect on their portfolios.

Blackrock's CEO, Larry Fink, believes that climate risk is an investment risk. Investors seek to understand the risks associated with climate change and impact on prices, costs and demand, and this, in turn, drives a reassessment of risk and asset values, and results in significant capital reallocation (Fink, 2020). ESG performance - social and governance issues in particular - is positively associated with higher credit ratings (Devalle et al., 2017). Managing ESG issues mitigates risks and consequently reduces the probability of default.

1.2.2 HOW INVESTORS USE ESG DATA – INVESTMENT STRATEGIES

The core objective of traditional investing is to generate and maximize returns. Gupta et al. (2016) found that dividend yield, which can also be expressed as return on equity and dividend growth, accounts for most of the long-term total return and risk. However, in the short term, stock price appreciation and initial dividend constitute the return. Studies have found that ESG integration improves company and investment portfolio performance and reduces downside risk.

It is said that there is little known about how investors use ESG information. Amel-Zadeh and Serafeim (2018) found that there is inconclusive evidence about how investors incorporate ESG information in investment selection, analysis and decision. Consequently, capital allocation is likely driven by investment styles such as engagement/active ownership, as well as integration into stock valuation models and portfolio screening.

True ESG integration means that ESG factors are incorporated into valuation models as well as the investment decisions of portfolio managers and analysts. However, most ESG approaches focus on screening and engagement, and fail to do this (Schramade, 2016).

In a survey conducted by Krueger et al. (2020), investors reported that they do act on climate change risk, and further that their approaches include:-

- risk management - analysis of carbon footprint, analysis of stranded asset risk, general portfolio diversification, and ESG integration.
- engagement with firms in which they are invested by discussing the financial implications of climate risk, proposing specific actions, and voting either for or against proposed resolutions at annual general meetings etc.

A small number of investors (20%) indicated divestment as an option, but this is not the majority's preferred option (Krueger et al., 2020).

BlackRock, the largest asset management company in the world with more than $5 trillion in AUM, is considered to be a long-term investor focused on governance and board oversight (Wicox, 2018). This means that it proactively seeks to understand the portfolio company strategy, ESG policies and potential impact on long-term financial performance. It prefers to engage with invested companies privately on: governance - board composition, effectiveness and accountability; corporate strategy - goals, milestones, potential challenges and opportunities, and capital allocation priorities; remuneration policies - long-term performance alignment including measurement criteria; disclosure of climate risks; and human capital management (Wicox, 2018).

Sjåfjell et al. (2017) found that Norway's Government Pension Fund Global, which is one of the world's largest funds with $1 trillion in AUM, incorporates ESG factors and risks into its investment process. Some of its strategies include:-

- engagement to persuade companies to respond to ESG issues.
- best in class selection, which allows for investment in "dirty" industries where those companies that have ESG plans.
- negative screening for harmful products, violation of humanitarian principles and severe environmental damage.

- exercising ownership voting rights at shareholder meetings

As a consequence of these investment strategies, mining and power producers who generate 30% or more of their income from thermal coal are now excluded (Sjåfjell et al., 2017). The divestment strategy also resulted in the disposal of $13billion worth of investments in fossil fuels including $6 billion in thermal coal, and $7 billion in oil exploration and production companies. The fund will, however, retain stakes in oil companies which are limiting their exposure to fossil fuels by investing in clean energy technologies (Ambrose, 2019). Briand et al. (2011) state that global asset owners tend to hold large positions in multiple markets and jurisdictions and implement ESG integration strategies such as:-

- integrated ESG or tilting, which involves being overweight in high ESG rated companies and underweight in low ESG rated companies, financial considerations being equal. Negative screening can also be used to eliminate companies whose business activities are incompatible with the fund values.
- active ownership - engaging with companies to influence ESG consciousness. This approach is said to produce beta enhancement.
- targeted or thematic investment in companies that produce positive externalities that mitigate against climate change. These include clean technology and renewable energy.
- collaboration with a wide range of stakeholders (NGOs, regulators, multilateral agencies and other interest groups) to effect change.

These strategies enhance portfolio construction considerations and active ownership and engagement increase awareness and influence change.

Eccles et al. (2017) state the current trends and strategies for investing are: exclusionary screening or value based exclusions, best in class selection, thematic investing, full ESG integration, active ownership and impact investing. However, ESG integration strategy is said to outperform negative screening (Whelan et al., 2021).

Christophers (2019) investigated how institutional investors think about climate change and fossil fuel risk. This was done in a study based on interviews with twenty-one institutional investors located in the USA, Canada, UK and Australia. Their AUM ranged between $10 billion

and $1 trillion and they employed active and passive strategies and multi-asset classes. Most of the participants were doubtful of the effectiveness of approaches such as engagement and divestment. They stated that to be successful, the former requires collective action while the latter transfers the problem to climate agnostic investors. Others stated that the exit from coal is economic and not climate related, because it is driven by low prices of oil and gas, for which demand is expected to remain strong. The participants believed that climate change was a long-term risk, which was unlikely to materialize in the short to medium-term.

Schramade (2016) proposes the Value-Driver Adjustment approach. This entails identifying material business issues and measuring how a company performs on these issues as well as against peers. The measurement would be based on indicators, policies, strategy as well as other agreed metrics. Analysing the impact of the material ESG issues on the company would then help determine whether a company derives a competitive advantage or disadvantage from these issues. This should reflect on key drivers such as sales growth, higher margins, more efficient use of capital, or lower risk (weighted average cost of capital). These value drivers have an impact on the return on invested capital ("ROIC") and valuation of the company or stock. This enables quantification of the impact of material ESG issues on the value drivers in the valuation models such as a discounted cash flow ("DCF") analysis.

According to Schramade (2016) portfolio construction entails initial screening for material ESG issues and management thereof, which can then determine whether a stock is considered or not. Stocks that have a negative ESG value driver are not recommended. The study found that from February 2014 to February 2015 its most diverse fund had 178 portfolio changes - 90 additions, 88 reductions in positions. ESG affected more Buy than Sell decisions. Most institutional investors prefer engagement rather than divestment since the former can influence change in strategy and operating plans.

The focus on material ESG issues can change investment decisions and significantly affect the company's value drivers and valuation (Schramade , 2016). High carbon intensity industries such as coal mining, oil and gas exploration and production, are likely to be impacted by carbon tax, reduced demand, and higher cost of capital, thus reducing future earnings. ESG integration should consider both risks as well as opportunities such as climate friendly and energy efficient solutions (Briand et al., 2011).

From the above literature it appears that investment strategies influence how stocks are picked, and that returns and risk management remain fundamental to the investment decisions. Some investors believe that climate risk is a long-term risk and unlikely to materialise in the short to medium-term. This provides some indication as to why investors hold certain stocks including those in fossil fuel companies, which are considered to be high emitters. The proposed adjustments to valuations models seem to be based on investor discretion, and not informed by quantitative analysis or science. These issues were investigated further in the interviews with investment managers and reported on in Chapters 4 and 5.

1.2.3 ESG IMPACT ON FINANCIAL PERFORMANCE

A study by Whelan et al. (2021) reviewed more than 1,000 research papers from 2015 to 2020 on companies and investors employing ESG strategies. It found a "positive correlation" between ESG and corporate financial performance measured in ROE, ROA or stock performance. From an investor perspective there was alpha or higher Sharpe ratio on a portfolio of stocks, which was evident in 58% and 59% of corporate and investor studies, respectively. Giese and Lee (2019) reviewed findings from various research studies and observed that companies with high ESG ratings have more robust risk management practices. They showed lower levels of systematic risk and consequently had a lower tail risk. They were also more profitable with a higher dividend yield, and had superior governance and business practices.

Eccles and Klimenko (2019) also concluded that companies with strong ESG performance have demonstrated higher returns on their investments, lower risks and better resilience during a crisis. Schramade (2016) presents the Value-Driver Adjustment approach, which feeds into traditional valuations approaches by linking material ESG factors to business value drivers. The results find an average target price impact of ESG factors is 5%.

In the study by Krueger et al. (2020), most respondents believed that risk was under-priced in that equity valuations did not fully reflect the risk in sectors such as oil and gas, traditional car manufacturing and electric utilities. For example, the investment impairment incurred by BP shareholders following the April 2010 Deepwater Horizon oil spill in the Gulf of Mexico is a good indication of this mispricing of risk. The stock price quoted on the New York stock

exchange fell by 54% over 65 days and over $70 billion of costs were incurred in settlements of fines and lawsuits (Pistilli, 2021).

Benedetti et al. (2016) studied the impact of carbon tax on fossil fuel companies in exploration and production, concluding that industries with weak pricing and high emission intensity were likely to be significantly impacted. Evidence suggested that climate risk was not adequately priced into stock market valuations. The study used Bayesian and Black-Litterman type portfolio construction methodologies to create Smart Carbon Portfolios. The findings demonstrate that portfolio risk can be reduced by scaling down the weightings of some fossil fuel stocks and increasing weightings in lower risk fossil fuels stocks and/or companies in energy efficiency. A survey by Krüger et al. (2018) found that equity valuations did not fully capture the risks of climate change, with the oil and gas sector perceived as most overvalued, and only 25% of the respondents considered stranded asset risk to be high for coal producers.

The study of Byrd and Cooperman (2017) examined market reaction to investor and social activists' 2011 to 2015 campaign against unburnable fossil fuel reserves - stranded asset risk - to avoid global warming greater than 2°C. The study collected reports on research announcements, divestments and shareholder resolution activities concerning stranded fossil fuel assets and carbon asset risk events. The research outcome shows significant cumulative abnormal returns ("CAR") resulting from all three types of activities, with larger negative CAR for coal company shares in response to research reports on stranded asset risk. The mean CAR for the entire sample was a negative -1.72% , with a -1.90% and -1.63% mean CAR for the coal, and oil and gas samples, respectively.

The above mentioned results confirm that new material information to shareholders results in reassessment of company valuations. Natural gas is considered to be cleaner than thermal coal; the large negative response to coal companies probably reflects that thermal coal is the largest emitter of greenhouse gases and is likely to be targeted first by environmental groups and regulators, thus resulting in a greater stranded asset risk.

The above mentioned studies posit that fossil fuel stocks do not fully capture climate change risk in the valuations, and further that companies with poor ESG performance have a higher tail risk. This research study investigated the risk profile (beta) of select coal companies in South Africa, and earnings multiple, to assess whether pricing reflects potential or perceived sector risks.

1.2.4 DISCLOSURE - BARRIERS TO ESG INTEGRATION

Amel-Zadeh and Serafeim (2018)'s study reveals that the challenge to integrating ESG data into the investment process is availability of standardized and comparable data. The most significant obstacle to ESG integration is cited as lack of common standards in both ESG reporting and data utilization. The progress made on the development of sustainability reporting standards is expected to facilitate and accelerate better integration of ESG factors (Eccles et al., 2017).

BlackRock's CEO has also called for adoption of standardized disclosure to help ascertain whether companies are managing ESG risks effectively and adequately planning for the future. He states that companies and countries that are responsive to stakeholder needs will attract investment more effectively and at a lower cost compared to those that are not responsive to sustainability risks (Fink, 2020).

Inadequate disclosure of climate change risks to the business can mislead investors. In 2016 investors instituted a class action against Exxon Mobil related to inadequate climate change disclosure. The disclosure was said to be materially false and misleading since it failed to disclose that some reserves were stranded and should have been impaired. The investors alleged that disclosure omission kept the stock at artificially inflated prices (Osofsky et al., 2019).

Disclosure of climate risks and management thereof can potentially drive divestment or support reinvestment. Inadequate disclosure of climate change risks to the business can mislead investors. Transparent, consistent and timely disclosure is crucial for efficient, stable and resilient financial markets and institutional investors therefore favour a well-considered transition to a clean energy economy (Osofsky et al., 2019).

Giese et al. (2019) state that the reason existing literature is ambiguous on the correlation between ESG and financial performance arises from the use of different ESG data and methodologies. The majority of literature found a positive correlation with some neutral and negative results.

There is some progress towards standardized ESG disclosure, led by the Sustainability Accounting Standards Board in response to a call by investors, regulators and civil society. This research enquired from investors about the type of ESG data or ratings used, and examined whether there was consistency in ESG data usage and methodologies. Thereafter, it examined

how it was applied in investment decision making in relation to coal mining companies in South Africa.

1.2.5 SUMMARY

The aforementioned literature concludes that a large number of investors consider ESG factors. However, little is known about how ESG data is used in the investment decision-making process.

The literature provides limited assessment on how ESG risks are quantified, weighted and priced into valuation models. Amel-Zadeh and Serafeim (2018) found that investors believe that ESG information is material to investment performance, however, they did not indicate what the respondents to their survey considered to be material ESG issues, and how they were priced in. It is unclear if, and the extent to which, ESG opportunities are considered in investment decisions, and whether this influences the decision to remain invested.

There are various investment styles or strategies used in portfolio construction and investment management. These include active ownership/engagement, screening, thematic and divestment. A large number of investors seem to prefer engagement rather than divestment, however, the effectiveness thereof has not been adequately articulated.

The studies also find that equity valuations do not fully reflect climate change risks, particularly for fossil fuel companies. The studies call for improved disclosure of ESG factors in a transparent and consistent manner to better inform capital allocation decisions.

Further gaps identified in the literature were as follows:-

- how material ESG risks are assessed and priced into valuation models.
- the effectiveness of ESG strategies or approaches used to influence better ESG risk management.
- studies focused on fossil fuels discussed more on oil and gas, and little on thermal coal companies.
- the literature cited above is based on evidence from countries in Europe, North America, and Australia, with little or no mention of South Africa.

This research study seeks to address the above-mentioned deficiencies through interviews with a sample of investment managers who remain shareholders in coal companies in South Africa, and also a comparative case study of two companies who derive a significant share of earnings from thermal coal and related activities.

1.3 INVESTMENT IMPLICATIONS FOR COAL MINING COMPANIES IN SOUTH AFRICA

1.3.1 JUST TRANSITION

Just transition is defined as an orderly move to an environmentally sustainable economy, taking into consideration the need for decent work, social inclusion and eradication of poverty (ILO, 2015).

The International Energy Agency (2021) predicted that the global power sector investment was set to increase by approximately 5% in 2021 to more than USD 820 billion, driven by increased renewable energy investment in new generation capacity and battery energy storage solutions. The growth in renewable energy investment was mainly in the USA, China and Europe, with emerging economies lagging mainly due to financial constraints. Whilst there was growth in clean energy investment, it had to be accelerated further in order to meet the below 2°C target by 2050 (IEA, World Report 2021).

Investment in new thermal coal-fired power plants is declining below the levels seen in 2015. And oil and gas companies are being pressured to improve their investment strategies to invest in clean electricity and sustainable fuels (IEA, World Report 2021).

Covington and Thamotheram (2014) propose three approaches for investors to accelerate. Firstly, penalize companies or projects that increase greenhouse emissions by raising the cost of capital; secondly, reduce the cost of capital for environmentally friendly projects, and thirdly, engage regulators to expedite the transition to a low-emissions economy.

The Guide For Investor Action (2018) outlines areas for investor action to incorporate just transition into their operating practises, it says investors should: (i) integrate just transition factors into investment policies, and corporate engagement, to be done by requesting transparent

and consistent disclosure; (ii) in capital allocation incorporate social dimension into strategies for climate investment across all asset classes, and reallocate capital from high to low carbon assets; and (iii) promote policy advocacy and partnerships. Investing in a just transition is the optimal way to manage strategic risks and opportunities that arise from the shift to a low carbon economy, and if poorly managed this could lead to stranded assets and communities (Robins et al., 2018).

The transition to a low-carbon economy poses significant challenges for coal-dependent economies, with pronounced impacts on diversity and inclusion. The phase-out of coal will disproportionately affect coal-reliant communities, leading to job losses and exacerbating inequalities. Gender disparities are particularly acute, as mining is traditionally male-dominated, leaving women, often in informal support roles, more vulnerable to financial instability. Additionally, marginalized groups such as previously disadvantaged people (Africans) and rural communities in coal-producing regions are at heightened risk due to limited access to alternative opportunities. However, this transition also presents opportunities, such as creating inclusive reskilling programs, diversifying the energy workforce to include underrepresented groups, and fostering economic diversification through industries like sustainable agriculture and tourism.

To mitigate these impacts and leverage opportunities, proactive climate change related policies are essential. Just transition frameworks emphasizing equity and social inclusion can support vulnerable groups. Initiatives like targeted reskilling programs, and incentivizing women's participation in technology and engineering opportunities are critical. While the risks are significant, the transition can foster a more inclusive and sustainable economy if managed equitably, requiring coordinated efforts from government, business, and civil society.

Osofsky et al. (2019) argue that divestment strategy alone is insufficient to influence a transition to a low carbon economy; however, coupled with investment in clean energy companies and engagement, it can achieve results. There is growth in clean energy projects and investment; however this is a nascent industry and does not appears to offer adequate scale for a substantial shift away from fossil fuels. This research study will also examine how investment managers incorporate just transition factors in their investment management processes.

1.3.2 THE SOUTH AFRICAN CASE

South Africa is the 12th largest emitter of carbon dioxide and has the 6th largest installed coal capacity at 42GW, with approximately 85% of its electricity produced from coal, and if South Africa is to meet below 2°C climate warming commitment it will have to decommission all its power plants by 2040 (CTI, 2021). In September 2021, as part of the nationally determined contributions commitment, the South African government approved an updated climate change mitigation target range to year 2030 of 350 to 420 MtCO2e, with the upper range consistent with the below 2°C and lower end of the range aligned to the 1.5°C global warming target, which then requires the retirement of up to 9.2 gigawatts of coal capacity, to be replaced with renewable energy, gas and battery (Tyler & Steyn, 2021).

Following COP 26, it was announced that South Africa would be granted $8.5 billion in concessional finance over a five-year period commencing in 2021, from the USA, the UK, France, Germany and the EU (JET IP, 2022). South Africa needed more than this amount to transition to clean energy and decommission its coal-fired plants. The CEO of Eskom, the only power utility in South Africa, announced that $30-35 billion was required to transition to renewable energy over 15 years (Ray, 2021), whereas the JET IP (2022) mentioned a figure of $90 billion to meet the country's net zero goal by 2050. The Carbon Tracker analysis estimated that by 2020, 53% of operating coal capacity was cash flow negative, and increasing renewable energy build would reduce demand for coal and increase operating costs, making coal-fired power generation uneconomic (CTI, 2021). This would result in asset impairments and other costs such as decommissioning and environmental rehabilitation.

Byrd and Cooperman (2017) conducted a study on market reaction to investor and social activists' campaigns seeking greater transparency on disclosure related to stranded assets risk and diversification from fossil fuels, the study found that there were large negative cumulative abnormal returns for coal company shares in response to publications of reports on stranded asset risk, announcements of divestment, and shareholder action. Oil and gas companies also showed negative cumulative abnormal returns but much less than thermal coal companies. This reflects the role of thermal coal as the largest carbon emitter and with a greater stranded asset risk expedited by the move towards installation and use of clean energy sources. The question of the

sustainability of the thermal coal industry amidst the move towards a lower carbon world, requires attention, in particular the impact it is likely to have on investment returns.

1.4 METHODOLOGY OUTLINE

This study follows a qualitative research approach, which is the most suitable approach for answering the research question, which requires obtaining an understanding of practices, perspectives and considerations of institutional active equity investors in relation to integration of ESG risk and opportunities in the investment process. This approach is in line with Aspers and Corte (2019) objective of the qualitative research method which is used to answer questions about the experience and perspective of others, with meaning and interpretation being the essence of qualitative research.

This study seeks to answer the question of, how institutional equity investors integrate ESG, in particular climate change, in their investment process, and how they are decarbonizing their portfolios. This research study aims to inform the hypothesis of institutional equity investors' continued involvement in South Africa's unsustainable coal industry. This phenomenon is answered through the study's three-part research question: -

- how institutional investors in active listed equities incorporate ESG, in particular climate change, into their investment decision-making process.
- what ESG strategies are preferred and why, and effectiveness thereof in influencing change in ESG performance?
- how investors are decarbonizing their portfolios and related barriers.

A case study strategy is followed, by comparing and analysing financial and ESG performance of two coal mining companies (advanced and less advanced in ESG performance) listed on the Johannesburg Stock Exchange ("JSE") and represented in the Top 40 index, who generate a significant portion of more than 50% of their income from thermal coal and related activities. The analysis was conducted over a period of two to three years from 2022 to 2024 (three years where 2024 data is published). Yin (2003) defines a case study as a research strategy that seeks: i) to answer the how and why questions, ii) where the researcher has little control over events, and iii)

where the focus is on a contemporary phenomenon. This aligns well with the research question, and the current and topical nature of responsible investing and ESG integration.

To obtain an understanding of the practices and perspective of investment managers in integrating ESG issue, interviews were held with a sample of investors, chosen by following a purposive sampling approach. This approach was used to identify a sample of investment managers who are signatories to the PRI and other climate initiatives such as Climate Action 100+, and have equity portfolios with exposure to high carbon intensive companies in South Africa.

To ensure validity and reliability, the findings from interviews were checked against what was reported in the sustainability/stewardship reports of the select equity investors and also corroborated against the outcomes of the case study analysis of two selected coal companies.

1.5 CONCLUSION

Why do institutional investors remain invested in the unsustainable thermal coal industry in South Africa?

The following gaps were identified in the literature:-

- how material ESG risks are assessed and priced into valuation models.
- the effectiveness of ESG strategies or approaches used to influence better ESG performance.
- studies focused on fossil fuels discussed more on oil and gas, and little on thermal coal companies.
- while there is growth in clean energy projects and investment, there does not appear to be a substantial shift away from fossil fuels.
- the literature cited above is based on evidence from countries in Europe, North America, and Australia, with little or no mention of South Africa.

First, this research study intends to contribute to knowledge on what are the material ESG issues of concern to investors; how investors incorporate these factors, in particular climate change, into their investment decision-making process; how ESG risk is assessed and factored in valuation models; and how it is balanced against target financial returns. The objective is also to

obtain deeper insight on the engagement strategy employed by investors and its effectiveness in influencing investment decisions, including other actions such as exclusion and divestments.

Second, the case study on investment in thermal coal companies in South Africa seeks to provide insight into why investors remain shareholders in this unsustainable industry given that investors are concerned about ESG risks, including climate related risks and the impact thereof on financial returns. Also, how investors are decarbonizing their portfolios in light of the commitment to responsible investing, and management of ESG risks and opportunities. It is plausible that they remain invested in these companies because of attractive financial returns - dividends and stock growth, and sound ESG practices, or other reasons.

Third, the study highlights investors' expectations of corporates in relation to ESG considerations to be integrated into the company strategy, risk management and remuneration practices. For high emitters, it should assist with better understanding of investors' requirements and expectations in relation to:

- development of strategies, realistic plans, and targets to manage climate change related risks and disclosures.
- action and pace of decarbonization, and how that in turn impacts equity portfolios and decarbonization plans of equity investors.

1.6 STUDY CONTENT PREVIEW

The remainder of this paper is presented as follows:

Chapter 2: Further literature review on ESG integration

Chapter 3: Research methodology, strategy and data collection approach

Chapter 4: Data analysis and presentation

Chapter 5: Interpretation of findings, connection to literature, recommendations and conclusion.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This review of literature presents the motivations for ESG consideration, use of ESG data, ESG integration strategies and benefits thereof, decarbonization and just transitions consideration for South Africa.

2.1.1 BACKGROUND

A large and growing number of institutional investors have adopted the United Nations' Principles for Responsible Investing (PRI) and also committed to incorporate environmental, social and governance (ESG) factors into their investment processes and decision making. The PRI advocates for the incorporation into investment decision making of non-financial factors related to the environment, social and governance (pri.org). These non-pecuniary factors, if not well managed, can have a detrimental effect on financial returns and the sustainability of businesses, environment and communities.

Regulators and society expect institutional investors to use their economic power and influence to propel the transition towards a low carbon economy. This can be done by employing strategies that inform the pricing of ESG risks, and reallocating capital away from carbon intensive industries and companies. Despite the adoption of these principles, investors remain shareholders in industries with elevated ESG risks such as the fossil fuel industry. This is comprised of oil and gas as well as coal, an industry which poses the gravest threat to the environment.

Numerous research publications have reported on the benefits of ESG integration. These include improved risk management, lower cost of capital and higher returns of companies with strong ESG profiles, as well as the positive effect on investment portfolio risks and returns (Krueger et al., 2020; Briand et al., 2011; Eccles et al., 2017; Przychodzen et al., 2016; Whelan et al., 2021; Giese & Lee, 2019; Devalle et al., 2017; Bennani et al., 2018; Giese et al., 2019; Schramade, 2016). However, there is no substantial evidence of a fundamental shift in equity investments away from high carbon emitters such as fossil fuel companies.

In response to this problem, this paper conducts a review of literature which follows from an analysis of recent (2021 to 2023) global surveys of institutional investors on their perspectives, considerations, concerns about ESG issues, and related trends. This review of literature seeks to focus on the issues relevant to investors such as ESG integration and active ownership, just transition, and decarbonization considerations, as well as finding pathways that maintain and/or enhance returns.

2.1.2 PURPOSE

The objective of this review is to inform the hypothesis on why institutional equity investors remain invested in the unsustainable coal industry in South Africa. Background context is that South Africa is a developing economy which is the 12th largest emitter of carbon dioxide and with the 6th largest in installed coal capacity of 42GW (CTI, 2021). Approximately 85% of its electricity is produced from coal (CTI, 2021). South Africa is a significant economy in Africa, with the largest stock exchange on the continent - the Johannesburg Stock Exchange (JSE). The JSE ranks 17th in the world by market capitalization (https://sseinitiative.org/stock-exchange/jse/). South Africa is highly dependent on coal as a source of energy and will have to develop a decarbonization pathway that is inclusive and growth oriented (Manley et al., 2017).

This literature review is intended to contribute to knowledge on how material ESG issues of concern to investors, and in particular climate change, are integrated pre and post investment. It is also intended to provide insight into why investors remain shareholders in the unsustainable fossil fuels industry.

2.1.3 INTEGRATIVE REVIEW

This integrative review of literature follows from an analysis of eleven recent global surveys of institutional investors by financial institutions (7), accounting firms (3), and professional associations (1) on investors' perspectives, considerations, concerns and trends about ESG issues. Some of the common themes which arose from the survey reviews were:-

- Investors are concerned about two forms of climate risk - physical and transition risk, and intend to evaluate the implications of these risks when they make

investment decisions. Investors support a just transition to ensure socio-economic and energy security. However, climate finance to support developing economies remains scarce (EY, 2021; HSBC, 2021; ROBECO, 2022; Bain, 2023).

- Investors prefer engagement rather than divestment, which is the last resort if there is no action to address concerns raised. For the majority of participant investors, active ownership and engagement is a core factor in investment policy and decision making. This is mainly driven by the need to influence good governance, maximize shareholder value and ESG performance, and align interests (EY, 2021; ROBECO, 2022; Chalmers et al., 2021; BNP Paribas, 2021; CFA Institute, 2021; Russell Investments, 2021).
- Methods of ESG integration are changing, with negative screening surpassed by ESG integration; and thematic investing is gaining momentum (ROBECO, 2022; BNP Paribas, 2021).
- Some financiers mentioned that they do not provide financing to companies who derive more than 25% of revenue from thermal coal, and no financing for new thermal coal projects (EY, 2021).
- In another survey, 26% of investors in oil and gas said they engage and are influencing change, and would be prepared to divest if there is insufficient progress, despite strong market performance. 18% said they continue to invest in oil and gas for good returns, irrespective of emissions (ROBECO, 2022).
- The majority of investors said companies should address ESG issues even if it reduces short-term profitability because the risk of inaction is significant and could materially diminish company value over time. However almost 50% were not willing to sacrifice any returns (Chalmers et al., 2021; Müller et al., 2023).
- Investors are concerned about ESG disclosure - quality, transparency consistency and standardization. They want clear reporting on carbon emissions and to understand the impact of double materiality, ESG strategy and drivers for long-term value creation and tangible action (EY, 2021; Chalmers et al., 2021; BNP

Paribas, 2021; CFA Institute, 2021; HSBC, 2021; Russell Investments, 2021; Morgan Stanley, 2023; PWC, 2023).

- Regulations including carbon tax and financial sustainability disclosure requirements are accelerating the focus on ESG. They are also driving demand for new sustainable investment options and investment in clean technologies such as carbon capture, utilization and storage (CCUS), green hydrogen and sustainable building materials (Müller et al., 2023; Morgan Stanley, 2023; MSCI, 2023).
- There is increased focus on supply chain sustainability, with emphasis on transparency, ethical sourcing, resilience, cyber security and level of Scope 3 emissions (Morgan Stanley, 2023; PWC, 2023; MSCI, 2023).
- Artificial Intelligence - the adoption of AI is moulding how business is conducted and ways of delivering value. Consequently, companies must be transparent about their risk management practices; compliance to data privacy laws and ethical use of AI; the impact of AI on productivity, job redundancies, skills shortages and training (MSCI, 2023; Morgan Stanley, 2023; PWC, 2023).
- There is increased attention on social issues related to the wellbeing of workers and communities. This includes diversity, equity and inclusion, employee safety and wellness, social implications of climate events and just transition. These factors are important for investment decision making (Morgan Stanley, 2023; PWC, 2023).

The above indicates that climate change remains a critical issue and investors want investments to have a positive impact on the environment and society.

This review of literature took into consideration the above listed views. The relevant papers for review were sourced from academic and professional publications and identified by a keyword search of the concepts of: ESG, responsible investing, investment drivers, transition risks, ESG and fossil fuels, ESG metrics; and context of: ESG and financial performance, ESG integration strategies, sustainability disclosure, just transition and decarbonization.

2.2 MOTIVES FOR ESG CONSIDERATION

2.2.1 THE EVOLUTION OF SUSTAINABLE INVESTING

Friedman (1970) introduced the Shareholder Theory that says "the social responsibility of business is to increase profits", implying that spending money on social causes reduces profits attributable to shareholders. This has been criticized by the proponents of Freeman's (1984) Stakeholder Theory, which argues that business must consider and create value for all stakeholders affected by its decisions – these include employees, suppliers, communities, creditors and others.

The PRI urge investors to: (i) incorporate ESG issues into the investment analysis and decision-making process, (ii) be active owners and incorporate ESG issues into ownership policies and practices, (iii) endeavour to obtain from investees appropriate disclosure on ESG issues, (iv) promote the acceptance and implementation of the principles in the investment industry, (v) work together to effectively implement the principles and (vi) report on progress towards implementing the principles (UNPRI, n.d.). The PRI appear to align with the Stakeholder Theory in advocating for shareholder wealth creation to be based on sustainable business models that consider the impact on all stakeholders to ensure long-term value creation. This is supported by the study of Eccles et al. (2014), which shows that companies that adopt sustainability policies by incorporating environmental and social issues into their business models, in the long term outperform in both earnings and share price growth.

A large number of investors believe that investing is not only about financial returns but must also incorporate non-financial factors which could negatively impact returns. There are three types of investment styles that fulfil this: ESG Integration, Socially Responsible Investing ("SRI") and Impact Investing (https://theimpactinvestor.com). ESG integration, SRI and impact investing share some commonalities but have distinct differences. Due to lack of standardized terminology there is lack of clarity on the differences between ESG integration and other strategies (S&P Global, 2020).

(i) Impact Investing

Foroughi (2022) states that impact investing is a strategy whose investments tend to be ESG compliant, whereas ESG integration is a framework and not all investments that incorporate ESG

have an explicit impact. Impact investing is a forward-looking investment strategy that clearly defines the target investment focus, which is typically aligned to some Sustainable Development Goals (SDGs) and intended to achieve social and/or environmental impact that is measurable, whilst achieving some financial return (Foroughi, 2022). Impact investing favours companies or projects that do good for the society, environment and create employment in addition to financial performance. Impact investing seeks to advance non-financial goals and financial returns tend to be moderate, whereas ESG integration considers ESG risks with focus on either improving or maintaining returns.

(ii) Socially Responsible Investing

SRI involves a selection of investments by positive or negative screening based on ethical guidelines while still targeting financial performance. As an example, companies whose products have an adverse effect on health, environment, peace and similar considerations may be excluded. Conversely, companies with positive impact such as health, education, consumer protection, environmental and social sustainability initiatives may be included in the defined investment universe (S&P Global, 2020). SRI prioritizes moral values and principle driven investment decisions ahead of financial returns (S&P Global, 2020).

(iii) Corporate Social Responsibility

Corporate Social Responsibility (CSR) is defined as the "continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families and as well as of the local community and society at large" (https://www.wbcsd.org). CSR is not an investment style, but a commitment by a company to serve the society in which a company operates including charitable acts. CSR mainly refers to corporate "responsibilities and obligations" (Park et al., 2023).

(iv) Sustainable Investing

This paper focuses on ESG integration, in particular climate change. The term ESG integration is used interchangeably with responsible or sustainable investing. ESG incorporation considers the material financial impact of both risks and opportunities, arising from environment, social and governance issues.

In this paper, investor or financial institution refers to institutional listed equity investors, the entities who invest funds on behalf of their clients or members, namely, asset owners/asset

allocators, and asset managers. Sustainable investing has evolved from socially responsible investing, which has religious roots that extended to investing based on moral values by excluding companies and sectors considered to be unethical. For example, this form of investing helped in the 1980s accelerate the end of apartheid in South Africa, where investors divested from companies operating in South Africa. In recent years sustainable investing has transformed to integrating material environmental, social and governance factors in investment decision making, to manage risks (Anderson & Singhal, 2020).

Responsible investing has gained popularity over the years as evidenced by the large number of investors globally who have adopted the PRI. The United Nations Principles for Responsible Investing states that in 2023 the number of PRI signatories had grown to over 5,300 investors and service providers, with approximately $121 trillion in assets under management (UNPRI, n.d.).

Environmentally focused investing has gained momentum and is increasingly becoming an area of focus, following the 2015 Paris Agreement on climate change and the adoption of the 2030 Agenda for Sustainable Development, which comprises a set of 17 SDGs (un.org). The SDGs are interconnected objectives for investment to ensure sustainability and prosperity of people and the planet, as well as peace and justice (Sachs et al., 2023).

Subsequently, at the Conference of Parties (COP) 26 in 2021, global leaders comprised of governments, financial institutions, corporates, multilateral institution and others, concluded commitments and agreements on reducing greenhouse gas emissions. The quantum agreed was a 50% reduction in global carbon emissions by 2030 to contain temperature increase to 1.5°C above pre-industrial levels (ipcc.ch). The ultimate goal is to minimize the risk of climate hazards such as flash floods, wildfires, water stress or heat stress, which destroy livelihoods (ipcc.ch). This confirmed the shift in sustainable investing momentum thus making net-zero commitments the norm. Financial institutions have been at the forefront of the initiative to net zero (climatepolicyinitiative.org). It is estimated that a net-zero transition will require $150 trillion in capital spend, two thirds of it in developing economies (Bowcott et al., 2021).

2.2.2 STATUS OF THE SUSTAINABLE DEVELOPMENT AGENDA

The 2023 SDG Summit, which was a midway review of the implementation of the 2030 sustainable development agenda, concluded that on a global average basis all of the SDGs are off track and unlikely to be met by 2030 (Sachs et al., 2023; Fernandez et al., 2023). Low to middle income countries are lagging behind high income countries, with European countries leading the pack. The delay in achieving the SDGs is said to be exacerbated by: lack of funding from wealthy countries, climate change, the effect of the Covid-19 pandemic, geopolitical issues and conflicts (Sachs et al., 2023; Fernandez et al., 2023). Nerini et al. (2019) review connections and governance of SDG commitments and find that managing the impact of climate change can support the achievement of all 17 SDGs.

2.2.3 GLOBAL STOCKTAKE 2023

The first Global Stocktake (GST) was launched at COP 28 in 2023 and highlighted a 2.1°C to 2.8°C global warming path, way beyond the target of 1.5°C (Bain, 2023). This necessitates more ambitious targets and actions to reduce emissions and reach net zero by 2050 (Hashendra & Laia, 2023; Bain, 2023). Clearer commitments were made around just transition pillars of mitigation, adaptation and, loss and damage. However, the funding required to support energy transition in emerging economies remains scarce (Bain, 2023). A key achievement of COP 28 was the first ever agreement to transition away from fossil fuels in a "just, orderly and equitable manner" (Hashendra & Laia, 2023; Bain, 2023). Corporates are expected to lead the climate charge while governments are expected to expedite policy development to accelerate and strengthen climate action.

2.3 ESG MEASURES, BARRIERS AND REPORTING

2.3.1 ESG RATINGS

ESG ratings are intended to assist investors understand ESG risks and opportunities of companies, countries and funds, and in relation to their peers, and to integrate these into their

investment processes (MSCI, 2022; Poukchanski, 2021). ESG factors can be measured, but it is often difficult to measure them in monetary terms (cfainstitute.org).

Amel-Zadeh and Serafeim (2018), Fink (2020) and Eccles et al. (2017) submit that the challenge to integrating ESG data into the investment process and to better assess risk, is the availability of standardized and comparable data. Pagano et al. (2018) contends that ESG ratings and indexes are constantly changing and expanding thus creating a problem of comparability for long-term users. Quality and consistency of ESG data is central to ESG integration into a portfolio. The range used to define good or bad ESG performance differs between ESG data providers (Fan et al., 2022; Poukchanski, 2021). Bender et al. (2018) mention that ESG data from various providers can vary significantly resulting in different ratings for the same company. Variations can be found in definition of materiality, normalization and aggregation of ESG scores. There is also no standard list of ESG factors and measures (cfainstitute.org).

In response to the challenge of lack of standardized ESG metrics and disclosure, the World Economic Forum ("WEF"), in collaboration with the four largest global accounting firms, proposed a set of ESG metrics and disclosures. These are measurable and verifiable, to help improve transparency and alignment among all stakeholders in the transition towards a low carbon economy (weforum.org). The proposed metrics are aligned to the SDGs and ESG principles. See *Table A1*. The themes are aligned with those of ESG data providers and asset managers (MSCI, 2022; Poukchanski, 2021; Schroders, 2022). Companies are measured against the relevant metrics to determine their ESG score relative to industry peers. These metrics are expected to be refined further following the work of the International Sustainability Standards Board ("ISSB") on global sustainability standards.

2.3.2 SUSTAINABILITY STANDARDS

In 2023, the ISSB launched the sustainability standards related to the disclosure of financial information (IFRS S1) and climate related disclosures (IFRS S2). These standards build on the TCFD framework, and provide a standard framework for disclosure of material sustainability financial information and climate risks and opportunities for sectors. The following metrics and disclosure are recommended and for the coal industry:-

- GHG emissions - Scope 1 emissions measured in tCO2e, plans and targets to reduce emissions and performance against those targets.
- water management - measured in m3 of water withdrawn, recycled and percentage in stressed regions, and number of incidents of non-compliance.
- reserve valuation and capital expenditure - sensitivity of coal reserves to future prices including price on carbon emissions (Mt), estimated carbon dioxide emissions of proven reserves (tCO2e) and how price, demand and climate regulation influence capital expenditure strategy.

2.3.3 ESG REPORTING

KPMG (2022) reported that Global Reporting Initiative (GRI), TCFD and SDGs are the most commonly used frameworks for sustainability reporting. However, there is still a need for standardization and consistency in ESG reporting. This should be solved by the introduction of IFRS Sustainability Disclosure Standards.

KPMG (2022) analyzed the reporting of 5,800 companies in 58 countries, and found that sustainability reporting is growing. A large majority reported on ESG matters, with 71% identifying material ESG issues linked to climate goals. GRI (2022) analyzed corporate disclosure on SDGs and current trends based on a sample of 206 companies who report in line with GRI standards. It found that the majority of companies (83%) disclosed support for SDGs, and 69% identified and reported on SDGs most relevant to them. The most commonly supported goals by business are SDGs 8 (decent work and economic growth), 12 (responsible consumption and production) and 13 (climate action) (GRI, 2022; KPMG, 2022).

SDG reporting was found to be insufficiently comprehensive and not linked to measurable targets. The majority of companies reported on positive measures and few reported on both positive and negative impacts (GRI, 2022; KPMG, 2022). Reporting on both social and climate risks remains largely qualitative, with few companies (13%) modelling the impact of climate change (KPMG, 2022).

The development of sustainability reporting standards is expected to facilitate and accelerate better integration of ESG factors (Eccles et al., 2017). The drive to standardize ESG disclosure is

meant to enable investors to understand and price ESG risk appropriately. Giese et al. (2019) argue that the disclosure of material ESG issues reduces the volatility of stock returns and consequently investment portfolio risk. However, ESG disclosure on its own does not drive financial performance (Whelan et al., 2021).

ESG integration and reporting encourages responsible behaviour for companies to address risks and not shift externalities to society (Pagano et al., 2018). Transparency and accurate disclosure can protect companies from greenwashing accusations (PWC, 2023). Although there are still disclosure discrepancies, ESG integration continues to gain momentum and become mainstream as evidenced by the large number of investors now integrating ESG factors into their investment processes (EY, 2021; ROBECO, 2022; Chalmers et al., 2021; BNP Paribas, 2021; CFA Institute, 2021; Russell Investments, 2021).

Utilization of automated data collection and analysis tools will assist organizations to plan better and reduce emissions (EnergyCap, 2023). The use of AI and integration into predictive modelling could assist investors analyze large volumes of ESG data and trends, to better inform investment decisions (Morgan Stanley, 2023; PWC, 2023).

2.4 MOTIVES FOR ESG INTEGRATION

The PRI defines responsible investing as a "strategy and practice to incorporate environmental, social and governance factors in investment decisions and active ownership" (UNPRI, n.d.). Accordingly, the PRI commits institutional investors to the following six principles:-

1. Incorporate ESG issues into investment analysis and decision-making processes
2. Be active owners and incorporate ESG issues into ownership policies and practices
3. Seek appropriate disclosure on ESG issues by the entities in which they are invested
4. Promote acceptance and implementation of the Principles within the investment industry
5. Work together to enhance effectiveness in implementing the Principles
6. Report on activities and progress towards implementing the Principles.

Institutional investors recognize their influence in that capital allocation decisions can help change corporate behaviour and have a real impact on the world. Consequently, ESG has become the bedrock of sustainable investing. The most common motives for incorporating ESG factors into the capital allocation process are: investment risk and opportunity assessment, reputation risk management, moral or legal considerations, demand from asset owners, and the belief that climate risks affect portfolio risk and returns (Krueger et al., 2020; Amel-Zadeh & Serafeim, 2018; Briand et al., 2011; Paredes-Gazquez et al., 2014; Bennani 2018).

Morais and De Villiers V. (2024) conducted a survey of JSE listed companies to ascertain the state and levels of ESG integration, with 63 companies participating in the survey, and reported the following:-

- Motivations for ESG integration are to: mitigate and manage risks, reduce costs (utility expenses), and improve financial performance.
- Adoption of ESG initiatives is influenced by: regulatory requirements, social groups and engagement by large investors.
- The most financially material issues were listed as: health and safety, tax transparency and social issues.
- The barriers to investing in ESG initiatives were found to be: limited financial resources, regulatory demands, short term financial reporting expectations and impact.

Overall, the study of Morais and De Villiers (2024) found that South African listed entities are making significant progress towards adopting and implementing ESG initiatives.

The findings regarding health and safety, and social issues, are consistent with challenges facing mining companies, in relation to: mining injuries and fatalities which require investment in safe mining mechanisms, the social license to operate, and required corporate and social investment in communities in which the mining operations are located. Companies should engage with shareholders in a transparent manner on their ESG investment aspirations, and demonstrate long-term value creation or protection, which should enlist investment support from shareholders. Also, companies should proactively respond, comment, and engage on proposed regulatory changes, so that new regulations are not detrimental to economic growth and job creation.

2.4.1 ESG INTEGRATION

The integration of ESG factors into the investment process aims to better assess either long-term risks or risks that have high impact but lower probability of occurrence, and to manage key drivers of risks and returns (Briand et al., 2011). ESG analysis provides valuable insights about risks and opportunities - factors that can have a significant impact on the financial performance of a company and therefore better inform investment decisions (Janus Henderson, 2019). However, Przychodzen et al. (2016) found that fund managers adopt ESG strategies to mitigate risk and less to leverage for incremental value creation.

Katsantonis et al. (2016) posit that investors should focus on material issues with large potential impact on the value of a company, both in profits and stock returns. In the sustainability context, materiality refers to any issue (environmental, social, governance, human capital and business model) that can have a significant negative or positive financial or non-financial impact on the company (https://www.stern.nyu.edu).

Friede et al. (2015) conclude that sustainable investing should be important for all rational investors. Cappucci (2018) states that investment managers need to carefully consider the cost and benefit of ESG integration since the costs are incurred upfront whereas the potential benefits are realizable in the long term. Van Duuren et al. (2016) posit that ESG investing is similar to fundamental investing, which has a strong emphasis on long-term financial performance, and quality of the management team - which is equivalent to governance and strategic focus; but also includes environmental and social considerations. ESG considerations, while non-financial, provide a screen for stock selection. Müller et al. (2023) find that while ESG investing is on the rise, there remain questions on the investment process as well as the value and impact on portfolio performance.

2.4.2 ESG INTEGRATION STRATEGIES

An increasing number of asset managers are using ESG data in their capital allocation decisions, however not much is known about how ESG issues are factored into the investment process (Amel-Zadeh & Serafeim, 2018).

The Global Sustainable Investment Alliance ("GSIA") provides a definition of seven sustainable investing approaches or strategies as per **Table A2** (GSIA, 2020). The GSIA report (2020) found that the most common sustainable investing strategy is ESG integration followed by negative screening, corporate engagement, positive screening and thematic investing. ESG integration has surpassed negative screening as the most common investment strategy in most regions (GSIA, 2020; ROBECO, 2022; BNP Paribas, 2021). This literature review focuses on the three most popular ESG strategies, which are integration, corporate engagement, and negative screening. Integration has two phases, pre-investment, and post-investment, which is corporate engagement.

(i) Integration

The CFA Institute (Institute for Chartered Financial Analysts) and PRI (2018) state that ESG integration is conducted in three phases: i) research - which entails information gathering, materiality analysis and active ownership assessment; ii) security and portfolio analysis which includes assessment of the impact of material financial and ESG issues (using proprietary and third-party data) on the company, which can be supplemented by portfolio performance leading to the adjustment of cash flow forecasts, valuation models variable, valuation multiples, financial ratios and/or portfolio weightings; and iii) investment decision - the results of the assessment of material financial and ESG issues determines which securities are bought, held or sold and the weighting thereof.

Bennani et al. (2018) state that traditional factor investing portfolios are constructed around five risk factors: "size, value, momentum, low-volatility and quality, and ESG has now become a new risk factor to be integrated into the factor investing framework". ESG integration should consider how risks and opportunities are integrated into a company's business strategy and plans, to enable better informed decision making.

To incorporate ESG into portfolio construction, ESG factors must be assessed and weighed, and potential risk to earnings evaluated. True ESG integration means that ESG risks are factored into a valuation model to quantify the potential financial impact (Giese & Lee, 2019; Schramade, 2016). The focus on materiality implies that ESG issues can change investment decisions and significantly affect the company's valuation. ESG integration does not forbid investment in any company, sector or country, but evaluates the impact of material financial and ESG issues which

may lead to investment, adjusting the size of the investment or not investing at all (CFA Institute & UNPRI, 2018; Sireklove, 2021).

Cappucci (2018) advises that the focus of ESG integration should be on long-term performance. Schramade (2016) finds that the focus on material ESG issues improves investment decision making with long-term focus on value creation. The study of Kaiser (2019) provides empirical evidence of the positive effect of ESG integration into three mainstream equity investment styles; value, growth and momentum. This demonstrates that investors can integrate ESG factors in their investment process and improve the ESG rating of a portfolio without sacrificing performance.

(ii) Stewardship

Corporate engagement, which is also known as active ownership or stewardship is another popular strategy used by investors to influence positive change, as per principle 2 of the PRI. Engagement is a tool to understand investee companies, their actions, strategy and plans, and to influence long-term sustainable action (BNP Paribas, 2021; Wicox, 2018; Briand, 2011; Osofsky, 2019; Hoepner et al., 2021). The objective of ESG engagement is to inculcate higher standards of ESG practices that will mitigate against material idiosyncratic and systemic risks (Hoepner et al., 2021). Active ownership involves trying to improve the ESG performance of companies already in the portfolio (Sireklove, 2021). Blitz and Swinkels (2019) state that engagement may be more effective in convincing a company to improve its sustainability profile.

Several studies (Krueger et al., 2020; Wicox 2018; Hoepner et al., 2021) reported that investors engaged mainly on four themes: (i) corporate governance - executive pay, board independence, board diversity and succession planning, (ii) environmental - mainly climate change - carbon risk strategy and risk management, carbon disclosure, decarbonization and stranded assets risk, (iii) social - human rights, bribery and corruption, and (iv) strategy - improving business strategy, risk management, accounting and audit issues. These themes are aligned with those of the third-party ESG data providers and the proposed sustainability accounting standards.

Gordon (2022) likens his theory of stewardship engagement to the *Modern Portfolio Theory*, which according to Fabozzi et al. (2002) details a "framework to construct and select portfolios based on the expected performance of the investment and risk appetite of the investor", referred

to as the “mean-variance analysis”. Gordon (2022) says that investors pay close attention to both portfolio systemic risks and expected returns, in order to maximize risk-adjusted returns.

Systematic stewardship advocates for a holistic portfolio engagement approach that is not company specific, but focuses on material risks that may affect the performance of the portfolio as a whole, the portfolio of which is constructed based on the principles of risk diversification (Gordon, 2022). The systematic stewardship approach of Gordon (2022) implies that investors should apply the principle of materiality and focus on “systemically important” holdings.

Blitz and Swinkels (2021) argue that instead of exclusion, investors should remain invested and rather opt for active ownership and engage accordingly. Investment decisions are discretionary and incorporating ESG considerations into valuations requires application of own judgement. Consequently, engagement with company leadership can provide better insight about the management of risk and potential opportunities (CFA Institute & UNPRI, 2018). Azar et al. (2020) examined the role of The Big Three universal fund managers (namely, BlackRock, Vanguard, and State Street Global Advisors), in reducing global corporate emissions and found that corporate engagement by significant investors is effective in reducing carbon emissions and influencing change.

Most studies conclude that ESG shareholder engagements reduce risk. Hoepner et al. (2021) found that risk reduction results from the target company acknowledging the issue raised by investors and acting to address it. This supports other arguments that successful engagements can reduce downside risk and create long-term value for shareholders.

(iii) Negative Screening

Negative screening means excluding certain companies or sectors from the investable universe based on defined criteria or values, and before the investment analysis phase (CFA Institute & UNPRI, 2018; Pegano et al., 2018). The difference between integration and screening is that integration attempts to incorporate ESG characteristics alongside other factors in the weighting decisions. Screening, however, adds ESG criteria to determine good and investable companies before the investment analysis phase, and does not have any bearing on the weight (Sireklove, 2021; CFA Institute & UNPRI, 2018).

Pagano et al. (2018) argue that negative screening reduces the investable universe which results in a less-diversified and volatile portfolio. Sireklove (2021) contends that screening is one of the most commonly used investment tools which allows investors to focus on investments with preferred qualities. These are typically based on criteria such as “minimum yield, country of incorporation or maximum price multiples", and adds ESG factors to the screening criteria thus eliminating non-qualifying companies.

Katsantonis et al. (2016) states that negative screening is a minimal and insufficient form of ESG integration in that it is not integrated into models that inform decision making. Investors use a combination of strategies and negative screening remains highly popular in Europe (GSIA, 2020). The exclusionary approach may leave out firms that are making progress in transitioning their business models and can have unforeseen effects. For example, the Russia-Ukraine war boosted the stock levels and profitability of hydrocarbon companies, which resulted in underperformance of some ESG portfolios (Müller et al., 2023). Poukchanski (2021) argues that to ensure understanding of risk-return trade-offs, it is more favourable to construct a portfolio based on ESG scores rather than exclusion based on sector preference.

Blitz and Swinkels (2019) argue that it is questionable if exclusion has any meaningful impact since it transfers ownership of companies with inferior sustainability profiles to investors who are less concerned with sustainability. Cappucci (2018) argues that exclusion strategies limit the investable universe, thereby reducing portfolio diversification. This, in turn, impairs the potential risk-adjusted performance of the portfolio. Blitz and Swinkels (2021) find that exclusion leads to a tracking error which results in loss of expected returns. The amount of tracking error depends on which stocks are excluded, factor exposure and the types of stocks that are replaced.

Blitz et al. (2020) analyzed equity and bond issuances from 2010 to 2019, and did not find any evidence to support that fresh capital/primary issuance is flowing more to sustainable than unsustainable companies. This implies that exclusion has not yet reached adequate scale to starve unsustainable companies of fresh capital. Bennani et al. (2018) found that ESG screening does not necessarily improve downside risk. Whelan et al. (2021) contend that ESG integration strategy outperforms negative screening.

As detailed above, ESG integration (pre and post investment) is considered to be the most popular strategy, followed by negative screening. It appears that both strategies can be effective depending on the investment style, horizon, level of diversification and liquidity.

2.5 RISK MANAGEMENT AND FINANCIAL PERFORMANCE

Investment value creation is the core driver for investing, and is applicable to both traditional and ESG focused investors. The relationship between ESG and value creation has been analyzed extensively but evidence is still not unidirectional (Przychodzen et al., 2016). Giese and Lee (2019) found that the reason there is no consensus on ESG and improved financial performance is due to studies not differentiating between ESG investment strategies and material versus non material sustainability issues (Khan et al., 2015).

2.5.1 CORPORATE FINANCIAL PERFORMANCE

ESG integration has been associated with positive Corporate Financial Performance (CFP). More convincing evidence of the positive relationship between ESG and CFP is drawn from the study of Friede et al. (2015), which is based on an analysis of more than 2000 academic studies on ESG and CFP, and finds a positive relationship in the majority of studies with approximately 90% of total findings “nonnegative”. Khan et al. (2015) found that companies with good performance on material ESG issues outperform those with inferior performance on these issues. This implies that investment in sustainability enhances shareholder value.

Giese and Lee (2019) and Whelan et al. (2021) posit that companies with high ESG ratings are better positioned to mitigate major ESG risks and loss of value in the event of a catastrophe. Giese et al. (2019) argue that a company with a high ESG rating has low systematic risk/lower beta, which translates to lower cost of capital and higher valuation (measured in price to earnings (P/E) and price to book (P/B) ratios). They further state that it is important to differentiate between systematic and idiosyncratic risk in analyzing the effect of ESG factors on company valuation. This is because the former is expressed in the form of the cost of capital and the latter is in future cash flows in a DCF model. Managing ESG issues mitigates risks and consequently reduces the probability of default. ESG performance, in particular social and governance issues,

is positively associated with higher credit ratings (Devalle et al., 2017). If a company has material ESG risks and is not actively mitigating them and improving its ESG profile, it is very likely that its cost of capital will rise and returns decline (Janus Henderson, 2019).

CFP is said to be often measured in accounting and/or market based indicators. Accounting based indicators are: earning per share (EPS), return on equity (ROE), return on assets (ROA), return on sales (ROS) and return on investment (ROI), (Gentry & Shen, 2010). Market based indicators often used to measure economic performance are: price to earnings ratio (P/E), price per share, and share price growth (Albertini, 2013). Whelan et al. (2021) reviewed more than 1,000 research papers from 2015 to 2020 on companies and investors that employ ESG strategies, and found a positive correlation between ESG and CFP measured in either ROE, ROA or share performance. From an investor perspective there was alpha or higher Sharpe ratio on a portfolio of stocks.

Giese and Lee (2019) found that companies with high ESG ratings were more profitable with a higher dividend yield, and had superior governance and business practices. In addition, the contribution of dividends to portfolio returns exceeded stock price growth in the long term. Gupta et al. (2016) found that dividend yield, which can also be expressed as return on equity and dividend growth, accounts for most of the total return and risk in the long term. Katsantonis et al. (2016) argue that in the absence of innovation and/or efficiency improvements, strong ESG performance may not sustain financial performance.

In the first ever study of ESG and corporate financial performance in South Africa, focused on 40 companies listed on FTSE/JSE Responsible Investment Index between 2015 and 2019, Chininga et al. (2023) found that investment in ESG initiatives improved financial performance, reported in both accounting and market related indicators, with the significant contributor being the environmental pillar stemming largely from efficient use of utilities and lower GHG emissions, and less financial impact from the governance and social pillars. The corporations listed on the JSE Responsible Investment Index on average had higher earnings which translated into higher ROA, ROE and dividend payout ratio (Chininga et al., 2023).

In a first of its kind study in South Africa, Nyakurukwa and Seetharam (2023) examine the impact of ESG news sentiment on stock price reaction and stock returns of 20 companies listed

on the JSE. Nyakurukwa and Seetharam (2023) found that positive ESG news resulted in positive statistically significant (5%) stock price movement, and negative ESG news had minimal impact on the stock price. The majority of the companies in the sample were large mining companies who are deemed to have strong ESG ratings, and the results of insignificant stock price impact from negative ESG news could be because large listed companies in South Africa tend to have strong ESG awareness and performance.

International Accounting Standard (IAS) 33 requires companies to disclose both basic and diluted EPS.

Basic EPS = (Net Income - Preferred Dividend) / Outstanding shares

DEPS = (Net Income - Preferred Dividend) / (Weighted average number of shares outstanding + conversion of dilutive securities)

Basic EPS are a standard measure of profitability. However, investors use DEPS to measure performance given the potential risk of dilution and effect on valuation measures such as price-to earnings ratio (Bens, 2003). Corporate executives who are compensated partially in shares have an interest in minimizing dilution and use, amongst other tools, share buy backs to minimize the dilution effect of share options (Huang et al., 2013; Voss, 2012; Bens, 2003). Therefore, in most instances the difference between EPS and DEPS tends to be insignificant.

2.5.2 INVESTMENT PORTFOLIO PERFORMANCE AND MEASURES

Modern Portfolio Theory is applied in many disciplines of finance with four major areas being: "asset allocation implementation, factor models and portfolio construction, risk management and managing active risk", the purpose of which is to construct an optimal portfolio that achieves expected risk-adjusted returns, taking into account expected returns, volatility, diversification and correlations of stock movements (Fabozzi et al., 2002).

Müller et al. (2023) state that ESG investments can achieve long-term returns based on strategic asset allocation instead of tactical allocation. Given the long-term focus of strategic asset allocation, portfolio construction should consider macroeconomic issues, potential risks as well

as individual security selection to help identify and understand temporary effects on performance. Increased understanding of the global value chain and the concept of double materiality should enhance the process of incorporating strategic allocation into ESG investment portfolios (Müller et al., 2023).

Asset allocation is the process of creating a diversified, multi-asset class portfolio. Portfolio optimisation follows from asset allocation to determine the most efficient mix of asset classes, with the aim to minimize portfolio risk and maximise returns, usually by adopting a mean-variance approach (cfainstitute.org).

Portfolio performance depends on which securities are eliminated and not the elimination process itself (Sireklove, 2021). Bennani et al. (2018) state that a portfolio needs to be balanced between best-in-class, average and worst-in-class stocks. Van Duuren et al. (2016) and Bender et al. (2018) report that an improvement in portfolio ESG rating results in some reduction in returns in the short term and positive returns in the long term.

Investors commonly use the Sharpe ratio to measure portfolio risk-adjusted returns and the extended Fama-French multifactor model using three, five or seven factors - market, value, size, momentum, low volatility, high profitability and low investment (Marhfor, 2016; Cogneau & Hübner, 2009; Brandon et al., 2017; Bruno et al., 2021; Weber & Ang, 2016; Cheema-Fox et al., 2021). Sherwood and Pollard (2018) and Weber and Ang (2016) determined that integrating ESG into indices such as the MSCI Emerging Markets resulted in lower downside volatility (beta) and higher risk-adjusted returns, measured in Sharpe, Sortino and Omega ratios, and the extended Fama-French model.

Verheyden et al. (2016) examined the impact of ESG screening on two investment universes representing approximately 85% of both global investable equities and developed market equities, and with low levels of exclusion (10% to 25% of the conventional investment universe). They concluded that ESG screening results in marginally higher risk-adjusted returns as measured by the Sharpe ratio, and marginally lower risk measured by volatility of returns, maximum drawdown and Conditional Value at Risk (CVaR).

Using the Fama-French three factor model coupled with ESG as an additional factor, Lööf and Stephan (2019) did not identify any distinct and statistically significant relationship between high

ESG ratings and the level of risk-adjusted returns. De Spiegeleer et al. (2020) studied the effect of ESG integration in the equity portfolio allocation process using the mean-variance allocation framework, and did not find any distinct relationship between ESG scores (high or low) and enhanced portfolio performance. Prol and Kim's (2022) study applied the Markovitz mean-variance framework to the NYSE to optimise equity portfolios according to their ESG scores; it found that portfolios with high ESG scores have lower volatility and returns, thus resulting in lower Sharpe ratios when compared to portfolios with lower ESG scores.

Brandon et al. (2021) found that stocks with good ESG profiles have, in recent years, experienced demand driven price pressure resulting in a positive relationship between portfolio environmental footprint and risk-adjusted returns. However, Bruno et al. (2021) state that ESG strategies do not generate excess returns, and that there is no outperformance when applying standard risk adjustments. ESG stocks have outperformed because of increased demand.

Overall literature findings concur on the ESG integration effect on portfolio risk reduction. However, there is no consensus on enhanced performance. The latter can be dependent on the time period under analysis, ESG integration strategy used, geographical location etc.

2.6 DECARBONIZATION CONSIDERATIONS

This part of the study reviews literature on climate change and related potential impact on investment performance. It seeks to establish considerations that should be applied to mitigate the impact of climate change on financial performance, while limiting downside risk. Downside risk is the risk that the investment's actual return is lower than the expected return, and is the risk associated with loss of value. Sortino, value at risk (VaR), and maximum drawdown ratios are useful in measuring the downside risk of investments. Sherwood and Pollard (2018) examined ESG integration and performance in emerging markets equities, and reported that ESG integration results in lower downside risk measured by the Sortino ratio and CVaR (in the worst 5% of market conditions) when compared to non-ESG equity investments.

2.6.1 CLIMATE RISKS

Several papers (Benedetti et al., 2016; EY, 2021; HSBC, 2021; ROBECO, 2022) state that investors are concerned about two forms of climate risk - physical and transition risks - and tend to evaluate the implications of these risks when they make investment decisions.

(i) Physical risk results from changing and extreme weather patterns, which cause damage to infrastructure, impact supply chains, food security, employee wellness and productivity (TCFD, 2017).

(ii) Transition risk is driven by "policy, legal, technology and market changes to address mitigation and adaptation requirements related to climate change" (TCFD, 2017).

- Policy changes seek to introduce regulations that restrict and penalize emissions, such as carbon tax, and encourage adaptation such as clean energy solutions together with efficient use of natural resources.
- Legal risks relate to litigation for failure by a company to reduce emissions, misleading climate related disclosure, and similar transgressions.
- Technology, market and reputational risks may affect the competitiveness and demand for products and services of companies that have high carbon intensity.

Transition risk is expected to affect mainly companies with high carbon intensity (Sturkenboom et al., 2020). Physical and transition risks can negatively impact company profitability and valuation due to declining revenues, increasing operating and compliance costs, and stranded assets (TCFD, 2017).

Investors support a just transition to ensure socio-economic and energy security (EY, 2021; HSBC, 2021; ROBECO, 2022). Just transition is defined as an orderly move to an environmentally sustainable economy, taking into consideration the need for decent work, social inclusion and eradication of poverty (ILO, 2015). Investing in a just transition is the optimal way to manage strategic risks and opportunities that arise from the shift to a low carbon economy, and if poorly managed, it could adversely affect industries and communities dependent on fossil fuels, thus propelling poverty and inequality (Robins et al., 2018; Nerini et al., 2019). The transition to a low carbon economy will disrupt workforces and communities, particularly in the

mining and energy sectors. Consequently, reskilling and upskilling of workers and those affected by the transition away from fossil fuels is necessary (PWC, 2023).

Transparent, consistent and timely disclosure is crucial for efficient, stable and resilient financial markets (Osofsky, 2019). Climate change is a threat to the effectiveness of the risk management mechanism of institutional investors in evaluating, selecting and constructing portfolios (Benedetti et al., 2016). Christophers (2019) and Krueger et al. (2020) contend that investors deem climate change to be a financial risk and a threat to investment performance. Furthermore, some of these risks have begun to materialize, in particular regulatory risk.

One of the major risks arising from decarbonization is stranding of assets. This is the early end of an asset's economic life when it is no longer able to generate the required rate of return, as a result of changes associated with the transition to a low carbon economy (https://carbontracker.org). Krueger et al. (2020) reported that the most common approaches used by investors to assess and manage climate change risks are the analysis of carbon footprint and stranded asset risk. Several studies (Krueger et al., 2020; Wicox, 2018; Hoepner et al., 2021; Schroders, 2022) reported that investors engage portfolio companies on environmental issues, with focus on: climate change; carbon risk strategy and risk management; disclosure of material climate risks and mitigation plans; decarbonization - developing a sound and inclusive transition plan to net zero; and carbon capture solutions where the business model and nature of operations do not allow for accelerated decarbonization.

Faccini et al. (2021) contend that investors hedge against climate policy risk by investing in companies which have intentions to improve their environmental management performance. Furthermore, the market recognizes the disconnect between current environmental scores and the plans and actions to improve these scores, at least in relation to climate regulatory risk. Investors take interest in forward-looking emissions targets which signal a commitment to decarbonization, and when coupled with a track record of achieving the set targets, this will impact on valuations, particularly in carbon intensive sectors (Morgan Stanley, 2020).

Gordon (2022) identifies climate change as a systematic risk, given the potential economic and portfolio wide impact, arising from physical and transitional risks, therefore engaging on climate change as a theme will likely reduce the systemic risk and improve portfolio risk-adjusted returns, along with company specific engagements, where material. The study of Azar et al.

(2020) found that the large universal investment managers focus their corporate engagement efforts on their sizable holdings with significant GHG emissions, the outcome of which is a negative correlation between their ownership and the level of corporate carbon emissions following their investment, that is, high emitting corporates with large asset managers as equity investors are likely to reduce their carbon emissions when engaged on climate change risks. Given that there is no globally standardized climate change mitigation regulatory framework, with each country or region having their own unique mechanisms, corporate engagement is therefore considered one of the best strategies to address climate change related risks (Azar et al., 2020).

Energy transition presents numerous risks which are changing the appetite and preferences of investors (Fattouh et al., 2019). WEF (2020) caution that in a delayed transition scenario, investors should expect "greater volatility, continued uncertainty, heightened transition and physical risks, and disruptive change". There is no certain way of predicting how climate risks will evolve. Consequently, scenario planning and analysis is necessary to manage the impact of climate related risks to ensure portfolio resilience (WEF, 2020). Applying ESG criteria in evaluating potential investments can assist investors to mitigate long-term climate risks that cannot yet be quantified (Sturkenboom et al., 2020).

2.6.2 DECARBONIZATION AND INVESTMENT PERFORMANCE

Investment in low carbon energy is growing. Regulatory compliance requirements and business viability risks are driving decarbonization efforts. Consequently, companies are committing to decarbonization, tracking and reporting on Scope 1 and 2 GHG emissions, with few reporting on Scope 3 emissions (EnergyCap, 2023).

Investors are faced with the challenge of understanding the impact of decarbonization on their portfolios. Whilst 82% of the world's energy production is still derived from fossil fuels, investment in clean energy and infrastructure has surpassed investment in coal, oil and gas ($1.8 trillion vs $1 trillion), and consumption of all fossil fuels is expected to peak in 2030, with coal demand declining rapidly thereafter (IEA, 2023). Some investment choices available include investing in growth companies involved in clean technology, renewable energy, green hydrogen,

carbon capture - utilization and storage, low carbon indices. Investors can also remain invested in carbon intensive businesses with the objective of influencing change in behaviour through engagement (CFA Institute & UNPRI, 2018; Osofsky et al., 2019; Morgan Stanley, 2020; KPMG, 2023).

Decarbonization, which aims to achieve the global net-zero goal by 2050, will require investors to continuously adjust their holdings to manage risk and allocate capital to companies that meet both financial and ESG performance requirements. ESG integration requires a holistic consideration of all three elements; and in the process of transitioning to a low carbon economy, investors should consider the impact of socio-economic erosion on economies dependent on fossil fuels, such as: liquidation of businesses in the coal value chain, job losses, cash flow stranded municipalities who cannot provide basic services to residents, and the multiplier effect on poverty, which is already a factor in South Africa.

Investors will also need to consider relevant metrics such as the level of carbon emissions, carbon intensity, future earnings at risk, carbon reduction targets, and revenue from green initiatives (Morgan Stanley, 2020). Giese et al. (2021) suggest that decarbonization can be implemented in three ways by: (i) tilting towards low carbon emitters, (ii) tilting towards decarbonization leaders, and (iii) combining both approaches. The study of Atta-Darkua et al. (2023) examines how institutional investors who belong to climate initiatives, are decarbonizing their equity portfolios, and proposes two ways of decarbonizing equity portfolios; (i) tilting towards low carbon emitters or (ii) engaging with high emitters in the investment portfolio. Re-weighting towards low emitters was found to be the most popular decarbonization strategy in jurisdictions with climate regulations and carbon taxes, such as the European Union (Atta-Darkua et al., 2023).

Smith et al. (2016), Morgan Stanely (2020), Giese et al. (2021), and Bolton (2022) state that extraordinary carbon footprints are found in a few companies in three sectors - energy, materials and utilities. This is demonstrated in the MSCI All Country World Index, where 20% of companies are responsible for 80% of the benchmark's carbon footprint. To reduce a portfolio's carbon footprint while achieving benchmark-like returns, Smith et al. (2016) advise that the

active - return, risk and share exposure, should be low. This is in order to match benchmark returns, reduce volatility and have a portfolio holding very similar to the benchmark.

The study of Bolton et al. (2022) proposes two approaches to decarbonization, once a carbon reduction target is set, based on the carbon footprint: (i) eliminate stock that detract from achieving the carbon target, (ii) optimize the portfolio to minimize the tracking error by re-weighing some of the high emitting stocks. Considering the MSCI AWI, in the case of emerging markets, net zero may be achieved by initially curtailing 50% of stocks with a high carbon footprint, followed by a reduction of 12% per annum over 29 years, from 2021 to 2050, with a low tracking error of below 2%. The simulated portfolio of Bolton et al. (2022) ends up underweight in sectors such as energy, utilities, materials and consumer staples.

Decarbonization strategies can lead to large underweights in sectors with intense emissions and result in high tracking error and active share. Consequently, decarbonization can be best done by maintaining benchmark-like portfolio characteristics and returns (Smith et al., 2016). Giese et al. (2021) and Morgan Stanley (2020) advise that both active and passive portfolio managers will need to reassess and rebalance their portfolios periodically to achieve decarbonization objectives.

Corporate decarbonization is an emerging and developing concept where plans and targets are untested thus making it uncertain to project how decarbonization is going to unfold and be realised (Bolton et al., 2022). As a result, institutional investors should plan for decarbonization even if the portfolio companies are not decarbonizing at the expected pace (Bolton et al., 2022).

Christophers (2019) contends that investors will remain invested in fossil fuel companies for as long as it is financially rewarding, and did not find sufficient evidence to support the notion that, in the short to medium-term, investors are acting against climate change and managing climate risk gradually towards a low carbon economy. Stocks with a high carbon footprint are found to yield higher returns compared to those less vulnerable to climate risk.

Atta-Darkua et al. (2023) found that there was no demonstrable evidence of the effectiveness of engagement as a decarbonization strategy, possibly due to corporate engagement being a nascent initiative, which is a multi-year process that can only show results in the medium to long-

term. Atta-Darkua et al. (2023) also found that investors are tilting towards companies with increasing revenue from green initiatives, albeit still immaterial at 0.3% to 0.5% of total revenue.

Investors can manage climate risk by investing in companies with climate risk management strategies and plans. Based on the above mentioned literature, investors can decarbonize investment portfolios and still achieve the required returns in the long term by constructing portfolios that closely resemble the relevant benchmarks, but excluding stocks with the highest carbon intensity. Alternatively, investors can develop their own decarbonization pathways, using forward-looking data, based on the SBTi commitments of portfolio companies by identifying carbon footprint reduction opportunities and engaging with the high emitters and informing them in advance that if carbon emission reduction targets are not met, the investment holding will be reduced, which will incentivize corporates to focus and deliver on their own decarbonization plans (Bolton et al., 2022).

Re-weighting towards low carbon emitters helps accelerate the reduction of portfolio emissions, but does not achieve any real-world impact, which can only be achieved if underlying portfolio companies reduce their emissions (Atta-Darkua et al., 2023). Portfolio decarbonization should be considered more holistically at a firm-wide level, consolidating all asset classes including fixed income, private debt and alternative investments (Atta-Darkua et al., 2023).

Investors have multiple objectives that include achieving required returns and managing financial and other risks including climate change, and Morgan et al. (2022) state that these objectives may not be realized concurrently but a focus on assets that are well positioned for decarbonization may achieve higher returns in the long term. An aggressive and ill-planned decarbonization is likely to incur higher transition costs and have a negative impact on returns. Investors need to support the financing of decarbonization projects and investment in clean technologies. Following the GST, investors are expected to demand better reporting and transparency, and also demonstrate more proactive stewardship (Reynolds, 2023).

2.7 HOW IS SOUTH AFRICA RESPONDING TO ESG TRENDS?

South Africa (SA) is the largest greenhouse gas emitter in Africa, with the energy sector accounting for the majority of the emissions (Qu et al., 2023). SA's Just Energy Transition Investment Plan ("JET IP") outlines the investment requirements to support SA's decarbonization commitments to reduce emissions to a target range of 350 to 420 megatons of carbon dioxide equivalent (MtCO2e) by 2030, to achieve the target of limiting global warming to 1.5°C to 2°C above pre-industrial levels. The just energy transition plan seeks to "accelerate decarbonization of the electricity system, protect vulnerable workers and communities in the coal value chain, create an enabling environment through policy reform in the electricity sector, and enable innovation and investment in the green economy" (JET IP, 2022). The JET IP lists priority sectors for investment as: electricity (renewable energy), new energy vehicles and green hydrogen.

The SA government received pledges of $8.5 billion from international partners comprising the USA, UK, France, Germany and the EU, to support the just transition initiative. It is, nevertheless, estimated that SA requires $98.9 billion to fund the JET (JET IP, 2022). The decarbonization plan is largely unfunded, with a staggering shortfall of approximately $90 billion. This supports what is widely reported regarding the lack of support from wealthy countries to provide climate finance to developing economies. Goel et al. (2022) analyzed the evolution of sustainable finance markets in emerging economies over the period 2015 to 2021, and reported that two of the challenges to developing sustainable finance markets in emerging economies are lack of capital and sustainability policies. Overall, in emerging markets sustainable debt funding (bonds, private market debt), China was leading, followed by South Africa with close to 80% of debt funding directed towards sustainability projects over the period.

To achieve net zero by 2050, SA requires other climate change mitigation policies to complement the carbon tax instrument that is being phased in, of which the effective rate is too low and likely to fall short of achieving the Nationally Determined Contribution (NDC) (Qu et al., 2023). Climate Action Tracker (2023) and KPMG (2023) reported that SA's policies and actions are insufficient to meet NDC targets, citing the slow pace of procuring renewable energy and other low carbon energy. In addition, the existential power supply shortage points to a delay in retiring some of the coal-fired power plants. The NBI (2022) study states that, to achieve net

zero by 2050, South Africa must phase out coal by mid-2040, ban conventional vehicle sales by 2035 and rapidly ramp up the deployment of renewable energy at 6 to 7GW per annum (10x faster than current). However, at COP 28 it was resolved that countries should triple investment in renewable energy capacity and double energy efficiency improvement.

According to the SDG Global Index 2023, SA scores 64% towards the achievement of SDGs and ranks number 110 out of 166 countries, with the top 18 being European countries with scores of more than 80% (Sachs et al., 2023). SA is making some progress on SDGs: 5 (gender equality),13 (climate change), 12 (responsible consumption) and 17 (partnerships). However, it still faces major social challenges such as poverty, hunger, health, affordable and clean energy, decent work and economic growth, inequality, biodiversity and corruption (Sachs et al., 2023). SA's decarbonization pathway is expected to be led by the private sector, driven by investor demand for transparent reporting.

The GRI, TCFD and SDGs are quoted as the most commonly used frameworks for sustainability reporting, and KPMG (2022) reported that there is increased adoption of in-country stock exchange guidelines, such as in SA, where companies report in line with Sustainability and Climate Disclosure Guidance issued by the JSE, which is aligned with GRI and TCFD standards. Following the launch of the IFRS sustainability standards, companies are expected to adopt the standards on a voluntary basis. SA is among the top 20 countries globally with a sustainability reporting rate in excess of 90%; other countries include Singapore, Japan, USA, Germany, UK, France, and Canada (KPMG, 2022). Globally there is more reporting on the E than the S; however, South Africa and the UK are two countries found to consistently report on all 3 elements of ESG (KPMG, 2022).

Arun et al. (2021) examined ESG trends of large banks in emerging markets, within the BRICS countries (Brazil, Russia, India, China and South Africa), and related CSR regulations in the period 2009 to 2020. They observed higher ESG scores in banks of Brazil, followed by South Africa, India, Russian and then China. The introduction of voluntary global sustainability frameworks such as the GRI and UN Global Compact has contributed to ESG awareness and improvement; however, mandatory sustainability disclosure can further improve ESG performance.

In South Africa, there are numerous climate related regulations, strategies and plans in place to enforce sustainable practices and facilitate a just transition process, amongst others: the National Environmental Management Act of 1998 as amended, the Carbon Tax Act of 2019, the Nationally Determined Contribution of 2021, and the Integrated Resources Plan (an annual electricity generation plan, from various sources including renewable energy, as amended), (JET IP, 2022). With all the various regulations, South Africa is criticized for low carbon tax rates (Qu et al., 2023) and not finalizing and adopting other important climate risk management policies, such as the climate change response policy. Whilst sustainability reporting is not yet mandatory, listed companies do report on sustainability in their integrated annual reports; others such as mining companies produce separate sustainability reports given the significance of environmental and social risks.

South Africa is well known for strong corporate governance as required in terms of the Companies Act of 2008 and the code of corporate governance (King IV) which requires listed companies to disclose their governance practices in line with the 17 principles of codes such as ethical leadership, strategy, risk management, responsible corporate citizenship, and others - compliance of which is mandatory for all JSE listed companies. JSE listed companies are also required to disclose their compliance to the Broad Based Black Economic Empowerment Act, which seeks to drive responsible corporate citizenship, and diversity, equity and inclusion.

In 2024 country ESG rankings, South Africa was ranked second in Africa with a B rating and score of 63.8, followed by Brazil with a C rating and a score 54.2 and India with a C rating and score of 49, with Belgium leading the world with an A rating and score of 87.1 (statistica.com). These rankings are in line with the observations of Arun et al. (2021) who found that ESG performance of banks within the BRICS countries is improving but trailing the European counterparts. South Africa's B rating shows that the country is making progress on ESG implementation and more advanced than most emerging countries. There is limited literature on ESG models applied in emerging economies, therefore limiting a more detailed analysis of ESG trends.

SA has a long history of quality reporting in both accounting and sustainability. However, institutional investors are now demanding clear climate mitigation action plans, particularly from

carbon intensive companies. The extent of ESG integration and decarbonization strategies is documented in Chapter 4 of this study.

2.8 CONCLUSION

Recent research reports that investment in clean energy and technologies is increasing and now outweighs annual investment in fossil fuels. This growth is driven largely by regulation and sustainability disclosure requirements, with investors looking for quality, accurate and consistent disclosure, and action. Supply chain sustainability and resilience is becoming an area of focus, together with the requirement for disclosure of Scope 3 emissions. The GST study conducted in 2023 highlighted that the world is off-track to reach net zero by 2050. Therefore, there is an urgent need to accelerate investment in climate mitigation and adaptation. However, access to funding by emerging economies remains a challenge.

Investors have multiple objectives that include achieving required returns and managing financial and other risks including climate change. This literature review found that ESG integration is a growth phenomenon, and that the two most popular ESG strategies are: integration and engagement, and negative screening. Negative screening is criticized for reducing portfolio diversification and increasing active risk. Integration and engagement are favoured by most investors as tools to incorporate material risk and opportunities in the investment process, and thereafter engage to influence ESG performance of companies.

ESG integration is associated with positive financial performance measured in EPS and ROE. Its other benefits are said to be lower systematic risk, lower cost of capital, higher valuation, higher credit rating, higher dividend yield relative to companies with poor ESG performance. Not much is said about the dividend payout ratio (DPS/EPS), which is an important indicator of sustainability, and of whether a company is conserving cash to invest in growth to support earnings into the future. There is still no outright consensus that ESG results in higher risk-adjusted returns. Based on literature findings, there seems to be a common understanding that ESG integration contributes favourably to mitigating downside risk.

This review of literature found that investors use ESG ratings based on defined metrics and disclosure of material risks to understand ESG risks and opportunities of companies. This is also

done in relation to their peers, and to integrate these into their investment processes. Although the metrics differ, the ESG themes being evaluated are similar. Some of the common measures of climate risk are: level of carbon emissions, carbon footprint, stranded asset risk and future earnings at risk, carbon reduction strategy and targets, and revenue from green initiatives. While ESG integration is expanding, there needs to be better understanding of the relationship between differentiated risks (climate, financial etc.) and impact on returns (Müller et al., 2023).

Climate change has been identified as a systematic risk given the potential devastating impact of physical and transition risks. Corporate engagement with large emitters can potentially influence corporate action to address climate related risks and reduce greenhouse gas emissions. Portfolio decarbonization strategies such as tilting towards low emitters and/or companies with increasing revenue from green initiatives, result in reduction of portfolio emissions, but with no impact on reducing global emissions, and thus do not have real-world impact.

This integrative review of literature is based on academic and professional publications, whose findings are derived mainly from research of investors and investments in North America and Europe. There is limited consideration of emerging markets, in particular South Africa. The reviewed literature evaluates investments in fossil fuel companies, mainly in oil and gas, with little reference to the thermal coal industry, which is significant for power generation and fuel energy production. Thermal coal is also regarded as one of the largest contributors to greenhouse gas emissions and a threat to global economic and social sustainability.

2.8.1 SHORTCOMINGS

Amel-Zadeh and Serafeim (2018) found that an increasing number of asset managers are using ESG data in their capital allocation decisions, however not much is known about how ESG issues are incorporated into the investment process.

ESG integration has surpassed negative screening as the most common investment strategy in most regions (GSIA, 2020; ROBECO, 2022; BNP Paribas, 2021). However, there is limited literature on ESG integration strategies suitable for and being used in South Africa.

Energy transition presents numerous risks which are changing the appetite and preferences of investors (Fattouh et al., 2019). Literature details that investors are faced with the challenge of understanding the impact of decarbonization on their portfolios. They are therefore evaluating options such as investing in climate friendly solutions, and remaining invested in carbon intensive businesses with the objective of influencing change in behaviour through engagement (CFA Institute & UNPRI, 2018; Osofsky et al., 2019; Morgan Stanley, 2020; KPMG, 2023). The literature fails to recognize that (i) while the green market is growing, it is not yet sufficiently large (ii) emerging economies such as South Africa are highly dependent on coal for electricity generation and fuel production, and also have very distinct structural challenges such as high levels of inequality and unemployment. It is therefore key to understand how such economies can transition to a low carbon future in a just and inclusive manner, and still achieve sustainable investment returns.

This research, which focuses on South Africa, intends to address this gap by conducting a study on:

(i) how investors incorporate ESG, in particular climate change, into their investment decision-making process.

(ii) what ESG strategies are preferred and why, and effectiveness thereof in influencing change in ESG performance.

(iii) how investors are decarbonizing their portfolios and related barriers.

These three questions were answered by conducting qualitative research through interviews with investment managers and a comparative case study of two high emitting companies. The study intended to add to existing knowledge, but from a perspective of an emerging economy.

CHAPTER 3: RESEARCH METHODOLOGY

This chapter discusses the research methodology and strategy, the rationale for the selection of the case study approach as the research strategy, data collection, ethical considerations, validity and reliability.

3.1 INTRODUCTION

The purpose of research is to find new answers and evidence to problems using a scientific approach (Kothari, 2004). For the purposes of this research the chosen research methodology informed the process of studying the research problem.

Research methodology is defined as the science of studying the research problem and related logic, and deciding as to why a particular method is more suitable than alternatives to answer the research question (Kothari, 2004). After defining the research question, the researcher must identify and justify suitable methods of finding answers to the research question.

This study follows a qualitative research approach. Qualitative research entails "systematic collection, ordering, description and interpretation of textual data generated from talk observation or documentation" (Kitto et al., 2008; Hammerberg et al, 2016). Qualitative research is a method of collecting and analysing data that are interpretative or explanatory in nature (Noble & Smith, 2014). Aspers and Corte (2019) define qualitative research as an "iterative process in which improved understanding is achieved by making new significant distinctions resulting from getting closer to the phenomenon studied". Qualitative methods are used to answer questions about the experience and perspective of others, with meaning and interpretation being the essence of qualitative research (Aspers & Corte, 2019).

3.2 CONTEXT AND SETTING

Today, a large number of asset managers are paying more attention to environmental, social and governance factors for asset allocation. Asset managers are increasingly acutely aware of how ESG indicators are a crucial aspect in investment strategy and allocations, driven by both the pull of growing client demand and push of regulatory compliance. Many individuals link ESG to pledges to reduce greenhouse gas emissions, as evidenced by the focus of the 2016 Paris Agreement and the 2021 United Nations Climate Change Conference in Glasgow (Arora, 2022).

In this context, this study aims to find out how asset managers of actively traded listed equities funds incorporate ESG, particularly climate change, into their investment process, what ESG integration strategies are preferred and effectiveness thereof, and how they are decarbonizing their portfolios. The purpose of this research is to support the premise of institutional active listed equity investors' continued involvement in South Africa's coal industry. To this end, the study collected and analyzed data from nine investment management firms involved in the management of active listed equity funds, and six asset allocators. The firms were represented by professionals in investment and sustainability roles.

3.3 RESEARCH APPROACH

There are two primary research approaches. These include qualitative and quantitative approaches.

3.3.1 QUALITATIVE RESEARCH

Qualitative research methodology appeared to be the most suitable approach for answering the research question, which requires obtaining an understanding of the practices, perspectives and considerations of institutional active equity investors in relation to ESG risk and opportunities.
Hale et al. (2003) state that the Theory of Reasoned Action argues that behavioural intentions are influenced by attitude and subjective norms (motivation to comply and/or expectation to act in a particular manner). This theory was applied to obtain an understanding of the variables that motivate institutional active listed equity investors to incorporate ESG into the investment process. This includes the beliefs, attitudes, compliance with principles for responsible investing,

stakeholder expectations and moral obligations. The required understanding was acquired through semi-structured interviews with listed equity investors and asset allocators, and review and analysis of investment policies and stewardship/sustainability reports.

3.3.2 QUANTITATIVE RESEARCH

The process of gathering and evaluating numerical data in order to characterize, forecast, or control relevant factors is known as quantitative research. This type of study aids in prediction-making, examining the causal links across variables, and extrapolating findings to larger populations. Quantitative research aims to test a theory or hypothesis and, depending on the findings, either accept or reject it. When scientists want to comprehend data sets across time and spot trends, they employ quantitative data analysis. According to the investigation's needs, quantitative research can be utilized either exclusively or in conjunction with qualitative research to examine hypotheses (Sreekumar, 2023).

3.4 PRIMARY RESEARCH QUESTION

As discussed in the above section, this study's three-part primary research question is "how asset managers of active listed equity funds integrate ESG, in particular climate change into the investment process, what is their preferred ESG integration strategy, and how they are decarbonizing their portfolios"?

3.5 RESEARCH STRATEGY

Yin (2003) defines research design as the plan of how data will be collected, analyzed and interpreted in order to answer the research question. It follows from this definition that the research design is a framework and plan on how information will be collected and analyzed to obtain answers to the research problem.

Research methods are techniques used to conduct research, to collect and analyze data (Kothari, 2004). The research approach is dependent on the research problem and question the researcher seeks to answer (Hammerberg et al., 2016; Saunders, 2009). Some of the common research strategies are: survey, case study, grounded theory, ethnography and action research (Saunders et

al., 2009). Hammerberg et al. (2016) posit that the most used research strategies are experiments, surveys and case studies. This is because of great benefits associated with them. This research will adopt a case study strategy, which as defined by Kothari (2004) as an intensive and in-depth study of a "particular unit under consideration" over a period of time.

Rationale for Using Case Study Strategy:

Yin (2003) defines a case study as a research strategy that seeks: i) to answer the how and why questions, ii) where the researcher has little control over events, and iii) where the focus is on a contemporary phenomenon. Crowe et al. (2011) define a case study as a research approach that is "used to generate in-depth, multifaceted understanding of a complex issue in its real-life context".

The most common type of case study is said to be a descriptive case study. This is interpretive in nature and based on document reviews, observations and interviews, to obtain an understanding of the participants' views, perspectives and experiences. Given the various methods of collecting data, case studies can yield rich data and evidence, which can result in hypothesis generation or theory development (Denzin & Lincoln, 2018; Crowe et al., 2011; Yin, 2003). The case study approach is applied and recognized in many disciplines such as business, economics, law, and policy (Yin, 2003; Crowe et al., 2011). It is useful where the researcher needs to obtain an in-depth understanding of a phenomenon in its natural life context (Crowe et al., 2011). The case study approach is useful for answering the questions of "*how, what, and why*" (Crowe et al., 2011; Yin, 2003).

The research question in this study meets the three components described by Crowe et al. (2011) and Yin (2003).

i) The type of research question - *how*, *why and what.* The research question is about:

- *how i*nstitutional investors in active listed equities incorporate ESG, in particular climate change, into their investment decision-making process
- *what* ESG strategies are preferred and *why***,** and effectiveness thereof in influencing change in ESG performance
- *how* investors are decarbonizing their portfolios and related barriers

ii) *The control the researcher has over actual behavioural events*. In this study, the researcher had no control over the behaviour of investors. The researcher is an independent observer.
iii) *Focus on contemporary phenomena* - the research question relates to a contemporary subject, which is about the evolution of ESG integration.

The case study entailed a comparative study of two companies involved in thermal coal mining and related activities (advanced and less advanced in ESG performance), listed on the Johannesburg Stock Exchange (JSE) and represented in the Top 40 index. These companies generate a significant portion of more than 50% of their income from thermal coal and related activities. The analysis was over a period of up to three years from 2022 to 2024 (depending on the financial year end of the company). The period of analysis fitted in well with the outcomes of COP 26 held in 2021, where a large number of financial institutions undertook to align their climate goals to net zero by 2050. Also, the prior periods of 2019 to 2021 were characterized by disruptions to business and global supply chains due to the impact of the Covid-19 pandemic, which made it difficult to measure and compare ESG and financial performance.

The case study considered and compared:

- Climate governance, strategy, and carbon footprint metrics, as per the TCFD (2017) guidance on provision of climate related financial disclosure. Companies are expected to: assess climate risks (transition and physical) and opportunities, assess their impact on strategy, devise a risk management plan, and assess the financial impact on the income statement (revenue, expenditure then cash flows) and financial position (assets and liabilities, capital and financing).
- Financial performance. This was assessed using: share price movement, dividend yield, earnings per share, and risk measures (credit ratings, net debt/equity, and beta of the selected companies).

These variables should indicate whether investors are in fact (i) adjusting their investment positions to decarbonize their own portfolios or (ii) whether financial performance remains the main investment driver regardless of ESG performance, or (iii) other.

Limitations of using a case study approach

The case study approach requires collection of data from multiple sources, which can be voluminous and time consuming. Crowe et al. (2011) and Yin (2003) state that case study research has been criticized for being less rigorous and lacking in generalizability. This can be addressed through triangulation, theoretical sampling, respondent validation, transparency which entails a detailed description of the steps involved in the research process and justification thereof.

The research methodology and process are fully detailed below and seek to achieve the requirements of transparency and provide reasonable justification for the chosen approach. The findings from interviews were checked against what is reported in the sustainability/stewardship reports of the select equity investors and also corroborated against the outcomes of the case study analysis of two selected companies.

3.6 RESEARCH PARADIGM

Neuman (2014) states that all scientific research is founded on principles and assumptions of ontology (reality) and epistemology (creation of knowledge). To produce social science knowledge there must be "inductive observation, interpretation and reflection on other people's knowledge and experiences" (Neuman, 2014).

Neuman (2014) describes three research paradigms: -

- *Positivist* Approach: this approach combines deductive logic with empirical observations to discover causal laws that can be used to predict and control events.
- *Interpretive* Approach (constructivism): this is social action through which people can be observed in their natural setting to understand and interpret their experiences.
- *Critical* Approach: this paradigm focuses on uncovering multiple levels of reality to enhance human empowerment.

This research follows an *interpretive* approach, which is a research paradigm concerned with understanding a social phenomenon from the perspective and experience of participants (Edwards & Holland, 2013; Newman, 2014). An interpretive approach entails learning about what is

meaningful and relevant, and experiences of participants, and seeks to understand, interpret and reconstruct knowledge and experiences of participants.

Triangulation can be used as a way to enhance the credibility, reliability and validity of the findings. Triangulation is the process of looking at a study problem from several perspectives utilizing a variety of sources or techniques. This can reduce biases and offer a thorough grasp of the issue. This study combined a case study with qualitative interviews to investigate the research subject from several angles. In-depth insights into the experiences of the participants were obtained through interviews, and the comparative case study provided a practical setting for cross-referencing and validating the interview data. The study obtained a variety of viewpoints by gathering information from a number of participants from different investment firms and in senior roles. This improved the robustness of the conclusions by facilitating cross-verification of data.

3.7 INTERVIEWS AND DESIGN

This study sought to address the above-mentioned deficiencies by following an interview approach to a sample of investment managers who are signatories to the PRI and other climate initiatives such as Climate Action 100+. They also have equity portfolios with exposure to high carbon intensive companies in South Africa.

There were seventeen (17) interview questions, as per Appendix B1**,** structured in three parts to answer the research question. The interview sessions were scheduled for 75 minutes to allow for detailed responses, follow up questions and clarification. The interview questions were initially reviewed by the supervisor and the second draft was approved. Prior to the final approval by the supervisor, a South African ESG stewardship consultant was requested to review the interview questions to ensure relevance and value-add. The expert who is a stewardship consultant was chosen because of independence (not a practicing investment manager), and also the depth of experience in the industry. The researcher had no prior relationship with the chosen expert, and he was recommended through the researcher's enquiries.

Most qualitative interviews are said to be semi-structured. This means that the researcher follows the interview guide or questionnaire in a flexible manner to allow for further questions,

clarification and dialogue, and for the interviewee to freely express their own views and perspective (Edwards & Hollard, 2013; Neuman, 2014; Moser & Korstjens, 2018; Kothari, 2004). In an attempt to ensure high quality of data collected and avoid bias, interview questions were structured to be open ended. They commenced with general and broad questions about the investment process, and thereafter moved on to specific questions to elicit more information to answer the research questions about ESG integration and portfolio decarbonization.

The interview questions were sent prior to the scheduled interviews to allow the participants time to consider the questions and to encourage more in-depth and well thought out responses. Prior to conducting the interviews, a desktop information search was undertaken to acquaint the researcher about each participant's stance on ESG integration and decarbonization commitments. This assisted with phrasing of follow up questions to obtain adequate data to answer the research questions.

All of the interviews were conducted virtually on MS Teams to enable the researcher to reach participants in different locations in South Africa. All interviews were recorded live on MS Teams and thereafter automatically transcribed verbatim, using the functionality within MS Teams. The original transcripts were saved on Google Drive, which requires two-factor authentication, for data protection and security purposes.

3.8 DATA COLLECTION

The case study approach requires collection of data from multiple sources such as documents, observations and interviews, which improves the validity of findings (Crowe et al., 2011). For the purpose of this research, information was collected through interviews with institutional equity investors and review of their responsible investment policies and sustainability/stewardship reports. There was also a review of financial and ESG performance of the two selected companies listed on the JSE over a period of up to three years (2022 to 2024), depending on the financial year end and available information. The company information was obtained from integrated annual reports, annual financial statements, sustainability reports, financial results presentations, and relevant media reports.

3.8.1 FOUNDATION FOR INTERVIEW QUESTIONS

Relevant literature was reviewed to ascertain the body of knowledge that exists on the research question, and to attempt to link this research to prior research thus adding to the body of knowledge. The literature review concluded that:

- ESG integration is a growth phenomenon and the two most popular ESG strategies are: integration and engagement, and negative screening. Negative screening was criticized for reducing portfolio diversification and increasing active risk. A large number of investors consider ESG issues, and use ESG ratings and disclosure of material risks to understand ESG risks and opportunities of companies. However, little is known about how ESG data is incorporated in the investment decision-making process. While ESG integration is expanding, there needs to be better understanding of the relationship between differentiated risks (climate and financial, *inter alia*) and impact on returns (Müller et al., 2023).

- Engagement is favoured by most investors as a tool to influence companies' ESG performance. A large number of investors seem to prefer engagement rather than divestment. However, it can take many years to achieve the desired outcomes.

- Investors are faced with the challenge of understanding the impact of decarbonization on their portfolios. However, they support an orderly and just transition to a low carbon economy.

This research intended to address this gap by conducting a study through interviews with select institutional investors in listed equities and a case study of two South African companies with high carbon intensity but different ESG profiles. The study sought to answer the following questions:

(i) how active listed equity investors incorporate ESG, in particular climate change, into their investment decision-making process.

(ii) what ESG strategies are preferred and why, and effectiveness thereof in influencing change in ESG performance.

(iii) how investors are decarbonizing their portfolios and related barriers.

3.8.2 SAMPLING

A sampling plan stipulates the sampling method, sampling size and the process to be followed in the recruitment of participants. It also details the number of interviews, focus group discussions and cases required to ensure that the findings yield "rich data". Finally, it provides a description and rationale for the sampling choices (Moser & Korstjens, 2018; Kothari, 2004). Key features of a qualitative sampling plan are as follows: participants are sampled "deliberately" (by design) and not randomly, the sample size differs for each study and is relatively small, the sample "emerges" during the study and is "determined by conceptual requirements" (Moser & Korstjens, 2018).

The purposive sampling methodology is a non-probability sampling method that works best when someone needs to study a certain field with qualified experts in that field (Tongco, 2007). The concept of non-probability sampling in this instance refers to the lack of a probability sampling mechanism when the universe is small and an established feature needs to be thoroughly investigated (Vehovar et al., 2016). Purposive sampling entails selecting participants based on the researcher's judgement of potential participants who will be most informative, and is suitable where the universe is small (Kothari, 2004). This research project followed a purposive sampling plan to recruit participants who are experienced investment professionals and ESG experts, who could provide rich and in-depth information on the research question, were accessible, and whose firms adopted policies aligned primarily to the PRI.

The advantage of this sampling strategy is that the participants are personally chosen by the researcher based on their expertise and familiarity with the subject. One of the drawbacks of purposive sampling is that participants are not chosen at random, meaning the researcher has subjectivity and bias when selecting study participants. To avoid any bias, the researcher followed defined selection criteria to ensure that only those involved in the allocation of assets to, and investment management of, active listed equity portfolios were selected. Purposive sampling is suited for this study since its goal is to learn more about how investors integrate ESG principles in their investment process and how they are decarbonizing their portfolios. Therefore, participants who had specialized knowledge, experience, and expertise in investment management and ESG integration were purposefully chosen to ensure data richness and usefulness.

Purposive sampling specifically seeks out key informants who can offer insights. This sampling method offers flexibility in the selection of the respondents, who in this study, were drawn from diverse investment management companies in South Africa, ensuring a comprehensive understanding of different approaches to the integration of ESG integration. Furthermore, this methodology is time efficient, as it narrows the pool of respondents to those most likely to contribute valuable information, aligning it to the research objectives and qualitative nature of the research.

The initial sample comprised sixteen (16) institutional investors who are primarily signatories to the PRI and/or other climate initiatives such as Climate Action 100+, Net Zero Asset Managers Initiative ("NZAM"). In addition, they are equity holders in high carbon intensity companies in South Africa. Confirmation of membership to the PRI and Climate Action 100+ was obtained on the websites of these two entities. The selection criteria were as follows:

1. must be a large asset manager by local AUM >$10 billion[1]. Selection based on the Alexforbes AUM survey (2023).
2. must be a signatory to the PRI, and thus committed to the principles for responsible investing.
3. can be a signatory to Climate Action 100+, an investor-led initiative that seeks to engage the world largest greenhouse gas (GHG) emitters on acting on climate change.
4. to ensure diversity and inclusion, 3 asset managers who are founded and managed by Black people and women[2] who meet criteria 1 and 2 were selected. The average AUM is approximately $2 billion, per the Alexforbes AUM survey (2023).

From criteria 1 and 2 above, ten (10) relevant investment managers were selected. From the 4th criterion, three (3) investment managers were also identified. All the above identified investment managers are in the private sector. For completeness, an investment manager (1), an asset owner and manager (1) and an asset owner (1) were selected from state-owned entities. Given the sheer size of these entities, with AUM estimated at $165 billion, including them in the sample ensures

[1] > R1800 billion, at USD/ZAR exchange rate of R18.00 as at 20 June 2024

[2] Considered previously disadvantaged people in South Africa

completeness in terms of coverage, in size, views and potential investment mandate influence. This brought the total potential sample size to sixteen (16).

The process of recruiting participants entailed contacting, by email, the chief executive officer, chief sustainability officer or senior portfolio manager of the selected potential participants to request interviews with the relevant senior investment professionals such as the chief investment officer, senior portfolio manager and ESG expert. As per Ryan and Dundon (2008) and Edward and Holland (2013), the researcher presented the purpose of the research project, the role of the participants, why their knowledge and experience is deemed important, and why the findings of the research project may be of interest and useful (Appendix B2)**.**

Potential participants were contacted by email. The contacted executive then referred the researcher to relevant participants, with varying titles such as: acting chief operating officer, senior portfolio manager, head of ESG, head of ESG research, head of sustainability, head of responsible investing and ESG research analyst. The selected participants were requested to indicate their availability for the interview and thereafter emailed the research questions and ethics form (Appendix B3). Where the participants were not responsive, follow up emails were sent. A record of the number of interview request emails, follow ups and confirmations was logged and dated, with: nine (9) of sixteen (16) potential participants being contacted <=2, and seven (7) being contacted >3 to 5 times. The period from requesting to completing all interviews spanned 6 weeks, from 30 May 2024 to 9 July 2024.

Out of the sixteen (16) identified potential participants, all 16 responded (100%), and fifteen (15) participated in the study (93.75%). Of the total participants, the gender was split equally between male and female (50:50), and also racial representation. This is important for encapsulating diverse views and considerations, and should provide fairly balanced findings. Data saturation is achieved when additional data ceases to offer new insight. Consequently, saturation determines the size of the sample (Moser & Korstjens, 2018). The sample of fifteen (15) participants from different investment firms, with relevant work experience and seniority, was deemed adequate to provide rich data that yields saturation.

Data collection through interviews can present challenges that may affect the quality of data collected such as time and cost, and accessibility. These limitations were addressed by carefully

selecting a meaningful sample of participants following the defined criteria detailed above. This also ensured that the sample size was manageable from a time perspective, and conducting all interviews virtually. The types of participating institutional investors are different and comprise active listed equity investors, multi-managers and asset owners, with the latter two (6/15 participants) not involved in active management of funds and classified as asset allocators. However, they do have exposure to active listed equity funds. Whilst this is a limitation, however, in selecting third-party managers, the asset allocators follow a due diligence process to ensure that the selected third-party investment managers are largely aligned with their investment principles.

3.9 ETHICAL CONSIDERATIONS

Research should be "ethical, important, intelligibly described and use appropriate and rigorous methods" (Hammerberg et al., 2016). The researcher should seek to balance two values: the quest for advancing knowledge against the rights of participants (Neuman, 2014). Research projects must be conducted in compliance with the school's research ethics policy and this research study was approved by the DBA program director and the researcher's supervisor. The interview questions were reviewed and approved by the researcher's supervisor to ensure the questions were appropriate, not harmful and did not infringe on the rights of the participants. The ethics form (Appendix B3) was acknowledged and signed by all participants, and copies evidencing voluntary participation were provided to the supervisor and DBA programme director. As indicated by Edwards & Holland (2013), prior to engaging the selected participants, the researcher articulated the purpose of the study, why the participant was selected, discussed confidentiality, voluntary participation, data protection and security, and obtained written consent from participants.

The researcher ensured that the confidentiality and anonymity of participants was respected, keeping in mind the sensitive nature of investment decisions. Ethical accountability guarantees that the research promotes responsible public discourse advancement and informed decision making. Research work is not complete without ethical considerations, and these should be taken into account at every stage of the investigation, from identifying the study problem to conducting the inquiry and to disseminating the findings. Adhering to the ethical guidelines is strongly related to guaranteeing the study's rigor, reliability, and credibility. The analysis and sharing of qualitative research raise ethical concerns that center on the use of research, outcomes and justice, and there

is compelling evidence that ethical concerns in qualitative research and evaluation have a distinct nature and that this has an impact on how evaluative research is delivered (Shaw, 2003).

Conflicts of interest pose a danger to objectivity and can lead researchers to make poor conclusions. The coal sector operates within a complex socio-political landscape, and often engages with regulation, political lobbying, and environmental sustainability challenges; therefore, transparency, accountability, and commitment to ethical principles are crucial to prevent conflicts of interest. To achieve this, the researcher ensured that the interview questions were objective and did not attempt to vilify any stakeholder. Furthermore, the researcher is independent and not financially supported by an interested groups thus ensuring the integrity of the findings of this research. The researcher has also ensured that robust research methodologies are adopted to ensure that the findings are grounded in evidence and not influenced by external pressures.

3.10 VALIDITY AND RELIABILITY

The case study approach has certain limitations and has been criticized for being less rigorous and lacking in generalizability. This can be addressed through triangulation, respondent validation, reflexivity, reporting on deviant cases, and transparency. Transparency entails a detailed description of the steps involved in the research process and justification thereof (Mays & Pope, 2000; Kitto et al., 2008; Korstjens & Moser, 2018; Denzin & Lincoln, 2018).

Korstjens and Moser (2018) argue that the findings of any qualitative research must be trustworthy, that is, credible, dependable and confirmable. According to Neuman (2014), validity implies truthfulness and authenticity, as well as how results reflect reality and are supported by various empirical data. Reliability means “dependability or consistency”. However, reliability does not guarantee validity. Yin (2003) posits that reliability minimizes errors and biases in a research study.

This study sought to achieve validity and reliability through:

- *Triangulation* - findings from interviews were checked against what is documented in the responsible investing policies and reported in the sustainability/stewardship reports of the

select equity investors and also corroborated against the outcomes of the case study analysis of the two selected companies.

- *Transparency and reflexivity* - this research study comprehensively outlines the methods of selecting and collecting and analysing data. The researcher is not aware of any biases.

(i) Reliability of Interviews

Interviewers always seek reliable and expressive answers to their topic, in order to obtain the required information. To achieve this purpose, the researcher must prepare appropriate interview questions and choose relevant participants, which was done through the purposive sampling approach. To avoid any misunderstandings, the interview questions were clear to the point, worded in simple English, and open ended. The participants were from large and credible financial institutions that fitted the defined selection criteria, and worked in relevant senior roles in investment management and ESG risk analysis.

(ii) Responsibility Principle

This principle seeks to generates accurate information for the research, whereby the interview is optional, and the interviewees are held responsible for their answers. As per Appendix B2, it was made clear upfront that participation was voluntary. Therefore, when the interviews were accepted by participants, their answers were deemed to be high in credibility, and compatible with their experience.

(iii) Connection Between the Cause and the Effect

The interviewer's questions were valid to connect the cause with the effect.

3.11 PROFESSIONAL VALUES IN RESEARCH DESIGN

Adherence to the fundamental principles of objectivity, honesty, transparency, equity, and accountability, forms the foundation of research integrity. Planning, proposing, conducting, reporting, and evaluating research in line with these principles is what it means to be an honest scholar. Whenever research misconduct, other misbehaviour, or harmful research practices are committed, individuals in the research enterprise deviate from the standards and proper practices of science (National Academies of Sciences, Engineering, and Medicine, 2017). In this study, the

researcher applied ethical rigour, maintained honesty in data collection, analysis, and reporting. The researcher respected the rights of participants, including confidentiality and informed consent. The research is designed in an objective manner, ensuring that it is free from bias so that the findings remain valid and reliable.

Contributing to the knowledge by properly and inclusively addressing contemporary and pertinent topics is another aspect of professionalism. These values were upheld by the researcher to ensure credibility and advancement of knowledge so that both academic and society can be benefitted. The key professional values in research are as follows:

- Transparency: The terms honesty and transparency are frequently used collectively, however transparency in this context refers to carrying the investigation in an open and objective manner, free from deceit. When presenting research findings, transparency is crucial and this includes disclosing contradictory and unfavourable findings in a clear and concise manner. To ensure transparency, the researcher clearly documented the research objectives, methodology, and provided an honest account of the findings, including an outline of limitations. Furthermore, the researcher confirmed her independence.

- Accountability: One of the core tenets of research integrity is accountability. The researcher is in charge of ensuring that the procedures and information gathered are legitimate and dependable. All researchers, regardless of their field of study or the challenges they face, have a fundamental obligation to be truthful, adhere to ethical guidelines, gather reliable data, and make an effort to draw reliable conclusions (Sáez & Bramstedt, 2024). The researcher remained honest in designing, conducting, reporting and communicating the findings of the study in a transparent, fair and unbiased manner. The researcher brought expertise in designing rigorous methodology and ensuring ethical practices, aligning with the objective of this research to explore ESG integration in the investment process and decarbonisation strategies. The researcher ensured that the study remains impartial, trustworthy, and adds significant perspectives to the discussion of sustainability and investment management.

CHAPTER 4: FINDINGS

4.1 OVERVIEW

Following the presentation of the methodology used to obtain the results of the research study in the previous chapter, this chapter presents and reports on the results of the fifteen (15) interviews based on the questionnaire presented in Appendix B1, and the respective findings of the research project. This study commenced in September 2021 and concluded in September 2024. The interviews were conducted between May 2024 and July 2024.

The findings incorporate: the background of interviewees, the research setting, demographics of interviewees/participants and the data analysis process. Additionally, a triangulation analysis was performed to confirm the validity of findings from the interviews.

Fifteen (15) interviews were conducted, based on seventeen (17) questions which were structured in three parts in relation to the research questions. The three-part research question sought to investigate how asset managers of active listed equity funds integrate ESG, in particular climate change, into the investment process and, furthermore, how they are decarbonizing their portfolios. The objective of the study is to inform the premise of institutional listed equity investors' continued interest in the coal industry in South Africa.

4.1.1 BACKGROUND OF INTERVIEWEES

The types of participating investment managers are different and comprised active listed equity investors (9) who were deemed to be core participants, and multi-managers and asset owners (i.e. asset allocators). There were 6/15 participants who were not involved in active fund management, but had exposure to active listed equity funds through selected asset managers. The rationale for interviewing asset allocators (deemed to be non-core participants) was to obtain an understanding of their ESG considerations when awarding investment mandates to active listed equity investors. The findings in relation to this non-core group are detailed at the end of this chapter. The main focus of the data analysis and reported findings is on active equity managers.

The interviewees held investment management and ESG research/analyst roles. The majority had relevant experience ranging from 11 years to over 25 years, with only two participants with

experience of 6 years or less. Their educational qualifications were grounded in finance, and consisted of: chartered accountants, actuarial science graduates, CFA charterholders, MBA graduates, and one with legal and governance qualifications.

4.2 RESEARCH SETTING

Data was collected through interviews with the identified investment professionals. The interviews were conducted virtually on MS Teams to enable the researcher to reach participants in different locations, mainly Johannesburg and Cape Town, in South Africa. The majority were located in Cape Town.

4.3 DEMOGRAPHICS OF INTERVIEWEES

Demographic variable	Active Equity Managers (N=9)	Asset Allocators (N=6)
Job title/position		
- Senior Portfolio Manager	3 (33%)	
- Head of Research	1 (11%)	
- Head of Sustainability	1 (11%)	5 (83%)
- ESG Research Analyst	4 (45%)	
- Acting Chief Operations Officer		1 (17%)
PRI signatory	9 (100%)	6 (100%)
Climate Action 100+ signatory	8 (90%)	4 (67%)

Nine (9) investment management firms involved in the management of active listed equity funds participated in the study. They were represented by professionals in investment and sustainability roles as detailed above. All participating firms are signatories to the PRI, which advocates for responsible investing. 90% are members of Climate Action 100+, an investor-led initiative that seeks to engage the world largest GHG emitters to action against climate change. The constitution of participants with experience in: investment research, portfolio construction and management, and ESG research and analysis, provided a balanced view on the investment process and ESG integration. The participants were well informed to answer most of the interview questions.

Six (6) asset allocators participated in the study, mainly represented by professionals in a senior ESG roles, such as head of ESG research. There was also representation by titles such as head of responsible investing, head of sustainability, and ESG Lead. All participating asset allocators are signatories to the PRI, and 67% are members of Climate Action 100+.

4.4 DATA ANALYSIS

Qualitative data analysis commences with organizing data, reading and rereading the data and organising it into themes/concepts (inductive coding scheme). The process of data analysis entails reconstructing data in a meaningful and comprehensive manner that is both transparent and rigorous, while maintaining the true account of participants (Noble & Smith, 2014).

This research project followed a thematic analysis method, defined as a method for "identifying, analysing and interpreting patterns of meaning or themes within qualitative data" (Clarke & Braun, 2016). Thematic analysis is an iterative process which entails inductive engagement with data where coded data leads to formulation of themes, and themes are then reviewed against coded data and the entire data universe (Clarke & Braun, 2016; Lester et al., 2020; Kothari, 2004). Coding ends when a sense of saturation in the material is reached (Aspers & Korte, 2019). A descriptive coding strategy was applied by extracting relevant statements from the interview data, as is.

4.4.1 USE OF COMPUTER ASSISTED QUALITATIVE DATA ANALYSIS SOFTWARE

Data analysis is a critical phase of the research process and involves arranging, rearranging and categorizing large amounts of data. Computer Assisted Qualitative Data Analysis Software ("CAQDAS") is capable of "importing, organising, and exploring data from various sources" (Mattimoe et al., 2021).

The interviews, which ranged from 59 to 127 minutes, yielded large volumes of data. NVivo 14 software ("Nvivo") was used to import and organize interview transcripts/files which were assigned a participant number, thereafter the coding process began. NVivo was also used for developing a thematic framework and data visualization.

All 15 transcripts were imported into Nvivo, grouped by investor type i.e. asset manager and asset allocator. As depicted in Figure 2, the following steps were followed:-

- Three folders were created, each related to the three part research question.
- On each transcript, relevant statements were identified, dragged and dropped into the related folder.
- Common statements were grouped together and assigned to the initial thirteen (13) sub-folders.
- The subfolders were named by the emerging theme from the data/statements.
- The data within each sub-folder was reviewed, where necessary reassigned to another subfolder.
- Where the statements and concepts were similar, the sub-folders/categories were merged, eventually resulting in five (5) themes and six (6) sub-themes, as shown in Table C2. Also shown in Table C2 is the number of participants whose statements or data was assigned to the theme or sub-theme, for example, the theme ESG integration in the investment process was assigned 222 statements.

Given the large volumes of data collected, the use of CAQDAS simplified the process to organise the transcripts, select relevant data, categorise and visualise the data. The motivation for using CAQDAS stemmed from the frustration of attempting to analyse data in Microsoft Excel where the copying and formatting of data from transcripts to the spreadsheet was cumbersome and time consuming, and it was laborious to analyze and categorize the voluminous data. Whilst

the use of CAQDAS yielded efficiencies, the disadvantage is the time investment required to learn to use the software and its various functions.

4.4.2 DATA ANALYSIS PROCESS – ACTIVE LISTED EQUITY ASSET MANAGERS

The qualitative data analysis process of this research study followed a six phase approach developed by Braun and Clarke (2006):-

1. *Familiarizing yourself with the data*. The MS Teams recordings were listened to and compared with automatically generated transcripts to ensure accuracy of transcripts. Original transcripts were maintained in their original form. After listening to the recordings, in instances where the words were inaccurately transcribed or sentences incoherent, the recording was listened to again and a copy of the original transcript (Version 1) generated and corrected. Thereafter, it was saved in a separate folder on Google Drive. The data was cleaned to remove timestamps, duplication, muddled and irrelevant points. Each interviewee was assigned an identity number for ease of identification of participants and organizing data. The refined transcripts were imported as files into Nvivo.
2. *Generating initial codes* - this is described as the initial phase of data analysis, where descriptive and interpretive codes are developed by identifying statements and concepts from the data.
    - Using the word frequency functionality in Nvivo, a word frequency search was conducted on all 9 files to identify the hundred (100) most frequently used words, with minimum characters of six (6) to exclude words with no relevant meaning (e.g., I, me, us, that, actually, consider, etc.). This helped to obtain a sense of the important data points to inform the initial coding process. As depicted in Figure 1 below, the top ten used most frequently words were: *engage, climate, integration, impact, change, targets, transition, strategy, returns,* and *emissions*.
    - In total, three folders were created related to each research question. A descriptive coding approach was followed by identifying relevant statements from each

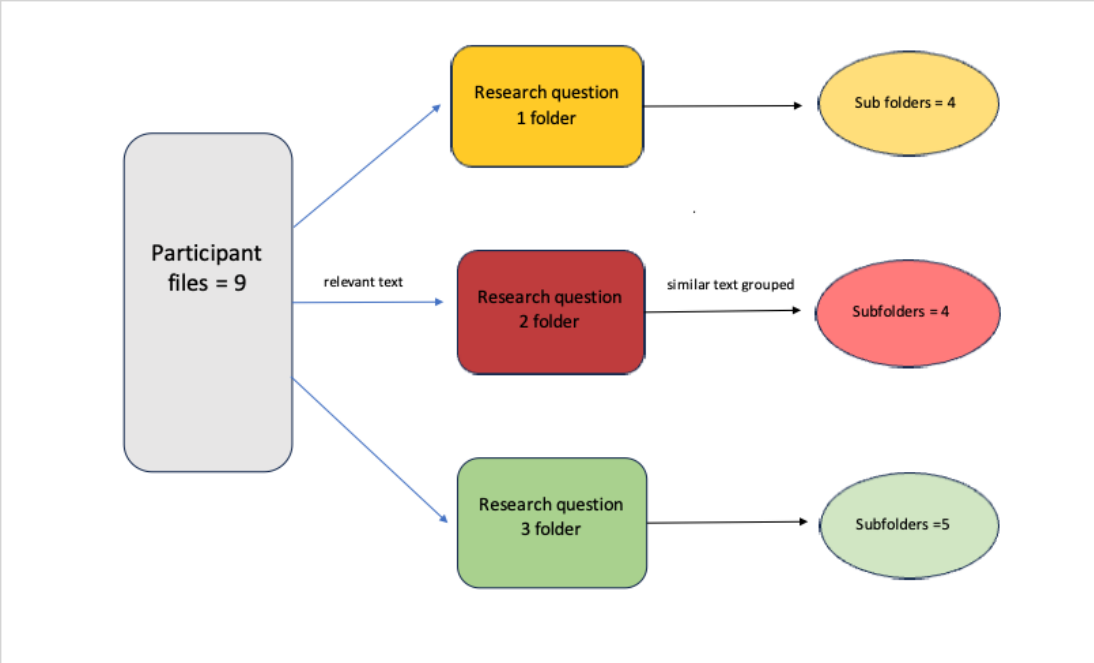
interview file, which were dragged and dropped into the relevant folders. Fifty-four (54) codes were identified from the data, as per Table C1 in Appendix C.

Figure 1. Word Cloud - 100 Most Frequently Used Words

3. *Searching for themes* - this phase entails the review of codes, identifying similarities, relationships and contradictions, and then categorizing similar codes to generate distinctive themes.

The codes were reviewed and related codes grouped together. To organize the selected data, categories or themes were created as a subfolder under each research question folder. In total thirteen (13) subfolders were created: four (4) for research question 1, four (4) for research question 2, and five (5) for research question 3. Where a statement had multiple meanings, it was dropped into more than one subfolder.

Figure 2. Identifying Themes



4 & 5. *Reviewing themes, defining and naming themes* - these phases entail reviewing themes against coded data and entire data sets, re-coding and re-organizing codes and refining the themes and developing a thematic framework.

The codes under each research question were printed and reviewed to ensure completeness of allocation to the relevant categories/subfolders. The categories were reviewed, and where necessary, the initial descriptions changed to be more representative of the data and to answer the research questions. Some codes were re-organized and moved to the most relevant categories. Where there were similar concepts, categories were merged, and reduced from the initial thirteen (13) to seven (7), and finally five (5) themes. Table C2 in Appendix C was exported from NVivo and describes the five (5) themes and six (6) sub-themes related to each research question, displayed in alphabetical order. The table also shows how many of the participants responded to a particular theme and total references/mentions by theme. Some of the dominant references relate to the following themes: investment philosophy, investment process and ESG integration and investment process, engagement approach, and transition to a low carbon economy, which are all relevant to answering the research question.

6. *Producing the report* - this involves writing notes, analyzing and interpreting each theme, incorporating relevant statements and annotations from the coded files and then reporting on the findings. The findings are presented in a theme-driven format below, logically categorized by elements which underpin each theme.

4.4.3 PRESENTATION OF FINDINGS

Theme 1 - Investment philosophy

Active investment is an investment strategy that involves buying, holding and/or selling stocks with the objective of achieving above benchmark or market returns.

This theme seeks to unpack the objectives and principles that underpin the investment approach to asset allocation and portfolio construction, which is the foundation of this research project.

All participants highlighted that they have a fiduciary responsibility to invest in order to achieve financial returns. They are long-term investors seeking sustainable returns. The most frequently used investment strategy adopts a bottom-up approach[3], with fundamental analysis as its basis, and some (2) specifically mentioned quantitative analysis as well. However, investment styles vary, with the most frequently used being value driven (6/9), pragmatic value (1/9), earnings revision (1/9), and not value driven (1/9). Whilst the investment styles differ, the investment objective is the same for all - to achieve risk-adjusted and sustainable investment returns.

Table 1. **Theme 1: Description and Quotes**

Description	Quotes
Investment objective	*"Our fiduciary responsibility is to put our clients' money where we think value will be earned over time"*

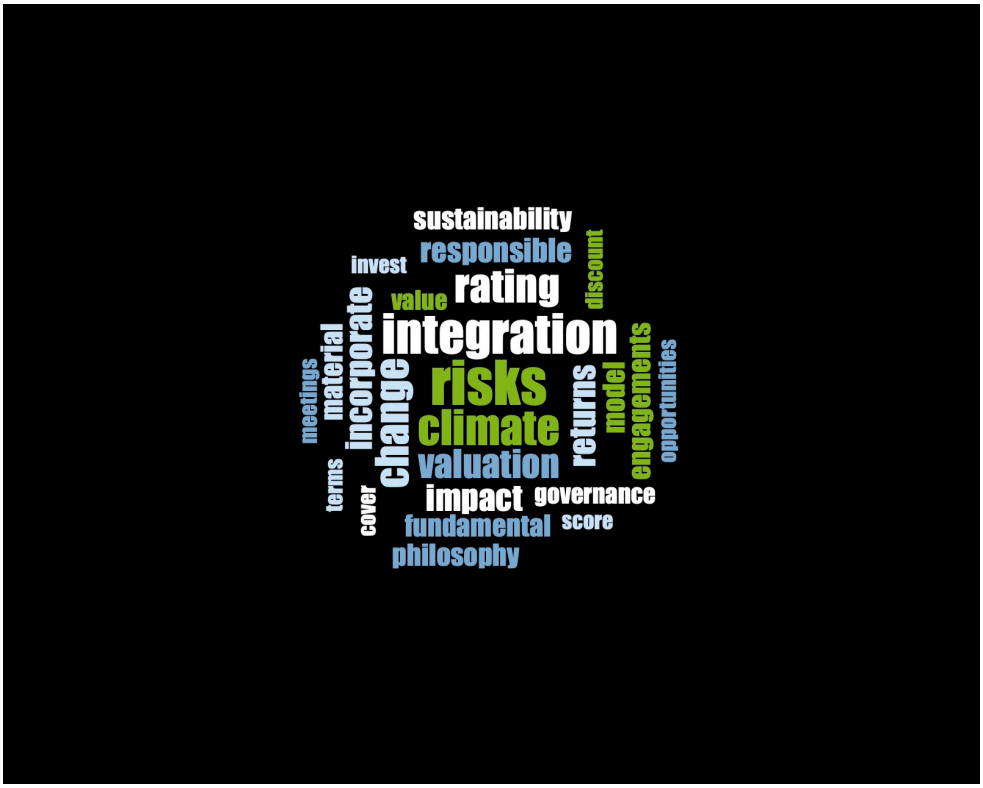
[3] bottom-up investing typically involves focusing on a specific company's fundamentals, such as financial performance and other micro-factors (investopedia.com)

	"Return sacrifice is not part of our philosophy" *"Mandates are primarily to drive financial returns, and driving real world change is a secondary impact"*
Investment style	*"Value type investor, but conscious of valuation through cycles and we are benchmark cognizant"* *"Investment approach is pragmatic value. It's slightly different from the value investor approach"* *"Investment philosophy is earnings revisions at reasonable valuation"*
Investment approach	*"Our philosophy is premised on the belief that markets aren't always efficient or rational, and that significant disparities can exist between sort of market price and intrinsic value"* *"Fundamental bottom-up, stock specific analysis, valuation driven"* *"Predominantly a bottom-up approach"*
Investment horizon	*"Long-term investor, some of our large clients are pension funds"* *"Provide risk-adjusted return to our clients and do so sustainably over the long term"* *"Our objective as a firm is to create long-term wealth"*

Theme 2 - ESG integration in the investment process

From this theme, which is most central to the research question, the 25 most frequently used words are visualized below, exported from NVivo.

Figure 3. Word Cloud - ESG Integration



The five (5) most frequently used words with a minimum of five letters in this theme were: *risks, integration, climate change, rating,* and *valuation.*

This theme sought to obtain an understanding of how ESG issues are integrated into the investment process, together with the benefits of ESG integration. ESG integration is derived from the first principle of the PRI responsible investing framework**,** which states that ESG should be incorporated into the investment analysis and decision-making processes. All participants are signatories to the PRI. The mention of ESG integration in the investment process is very dominant in this study, with 222 references pertaining to this theme. This is presented in Table C2, Appendix C.

The participants indicated that ESG integration is part of the investment decision process, providing an extra layer to fundamental analysis. In every discussion or stock review there is a section on ESG risks pertaining to that particular issuer under consideration. The ESG specialists provide additional data on ESG risks to the investment analysts. However, ultimately, the portfolio manager decides on how the ESG risks will be accounted for in the valuation model. This is in terms of the level of margin of safety deemed to be required.

From the investment philosophy theme above it is apparent that ESG integration must support the investment philosophy, which is premised on achieving long-term risk-adjusted investment returns. Based on the findings, following a fundamental analysis, ESG is overlaid on the valuation models to ensure full integration of the ESG issues. Climate change or environmental risks are treated as any other risk. Where quantifiable, ESG issues are included in the cash flow forecast of the valuation model, for example carbon tax and other projected capital expenditures. Where issues are of a non-financial nature, participants applied their own judgement by increasing the discount rate applied to the projected earnings or reducing the earnings multiple. Where ESG issues may have material impact on earnings, they may either limit exposure or possibly not invest at all, given that they are benchmark cognizant.

Participants also mentioned that the investment universe in South Africa is very limited, at most approximately 100 investable stocks. This is unlike in Europe or the USA where there are approximately 500+ stocks. Given the limited nature of the investment universe, investment analysts have a very deep understanding and knowledge of the stocks they are responsible for, and have had a long history with those companies. Consequently, their judgement would have to be trusted. Most participants use their own proprietary tools for assessing and rating ESG performance of companies, with the primary information obtained mainly from annual reports, sector analysis, and engagement with management. There is limited reliance on third-party ESG data, with it being used only as reference check.

Participants also listed the benefits of ESG integration as not only being a risk management tool but also useful for identifying opportunities.

Table 2. **Theme 2: Description and Quotes**

Description	Quotes
ESG integration meaning and understanding	*"Overarching is responsible investment"* *"ESG looks at answering the question - does this impact earnings revisions and does it impact valuation, and how can we influence real world's change?"*
ESG integration responsibility	*"Investment analysts are responsible for understanding ESG issues and integration thereof"* *"Each investment team decides how they want to practice ESG according to their investment philosophy and mandates and purposes"*
Use of ESG data and scores	*"ESG scores are flawed. The issue rather relates to the fact that when people do these studies, they look at ESG scores as a proxy for ESG performance. And that is a false assumption in my view"* *"Use a combination of own analysis and external or third-party data, but primarily relying on own analysis of company reported data"* *"IFRIS S1 and S2. And our hope is that it would lead to better alignment and eventually what you want is giving investors better information so that they can make more informed decisions about your company"*
ESG integration process	*"From an ESG perspective, the overlay is embedded into the analysts' analysis and their input into that and their own ranking table and inputs into investment decisions, which like most houses will have a buy or sell recommendation, but alongside that will actually have a ranking table. ESG gets incorporated into the actual analysis"*

	"ESG risks are included in the investment process. All reports have to have an ESG section, so it's compulsory to incorporate any factor which we believe is material that can impact the long-term valuation of the company" *"In our investment recommendation, in terms of the maximum size that we can buy in the portfolio, we've got a risk rating, and ESG is part of that risk rating process"*
High emitters	*"We penalize them on our ESG scoring; on environment they will score very low. We have a metrics or system that we use and so in terms of the amount of shares that we can buy in those companies, we limit our exposure"* *"Under environmental, mainly look at carbon emissions, but obviously depending on what the company does, that will have a different weighting for high emitters"*
Valuation inputs and adjustments	*"From an ESG perspective, we would model things like: potential carbon tax regulation, carbon border adjustment mechanism impacts, etc. Then we potentially have a discount in the valuation multiple that we use to value the business"* *"On an agnostic basis, without saying whether coal is good or bad, we see how demand may shift and that is where we can make estimates on that, but typically would also rely to some extent on consensus because there is genuinely very little evidence that people can predict that"* *"Portfolio managers also have discretion in terms of, if a company is facing more specific ESG risks, whether they would like to take a higher or lower margin of safety"*

ESG integration benefits	*"ESG incorporation can help you to outperform either by helping you to identify investment opportunities or helping you to avoid poor investments"* *"Companies who pay attention to all the three elements, in the long run, I guess they would manage risk better, but may not outperform"* *"We think companies with a good ESG profile do give you better returns, from a sustainability lens, this company is going to continue growing into the future. Although it's not quantifiable"*

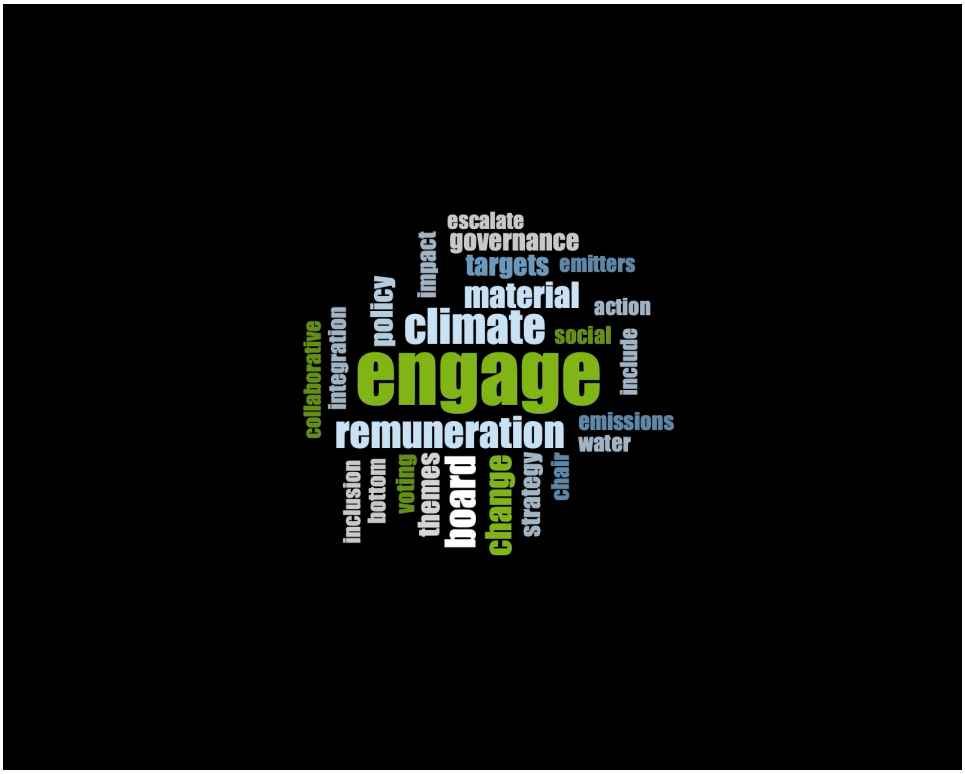
Theme 3 - Stewardship approach

The PRI defines stewardship as "the use of influence by institutional investors to maximize overall long-term value including the value of common economic, social and environmental assets, on which returns and clients' and beneficiaries' interests depend" (UNPRI, n.d.).

The use of "influence" relates to active ownership by engaging with investee companies, and taking action through voting. Once ESG has been incorporated into the investment decision process, investors are further expected to be active owners. This theme sought to obtain an understanding of how investors influence behavioural change on ESG issues which could have a material effect on long-term value creation.

The five (5) most frequently used words with a minimum of five letters in this theme were: *engage, climate change, remuneration, board, change* and *material*. The last two words, "change" and "material," had the same word count of 20.

Figure 4. Word Cloud - Stewardship



What emerged from the participants is that their preferred ESG integration strategy is integration in the investment process, followed by active ownership evidenced by engagement and voting. Engagement not only to influence change, but also to obtain an understanding of certain company-specific issues, and to provide guidance. The participants prefer to engage privately in a constructive manner, recognizing that management have a better understanding of the business intricacies.

The participants engage with a very specific agenda in mind, which is risk and materiality-based across all three elements of environmental, social and governance. Governance is considered an important vector to drive the correct behaviour and focus on material risks and financial outcomes. Remuneration as the topic of engagement was dominant, in that key performance indicators should be linked to clear, relevant and measurable outcomes.

Climate change was another priority topic, particularly in relation to high emitters. Participants expect emission reductions strategies, plans and targets to be adequately disclosed, and measurable. They indicated that there should be short-term environmental targets linked to remuneration incentives, and not only long-term targets relating to the years 2040 and 2050,

which exceed long-term incentive vesting periods and go beyond the tenure of the current management teams. Water security was also a topical theme, given infrastructure failures and water stress experienced in South Africa. Biodiversity loss was mentioned as a new topic gaining investors' attention.

On the social element, some topical issues are diversity, equity and inclusion, health and safety, decent work, and social inequality, with the last item highly prevalent in South Africa. Where engagement efforts are not successful, investors use their votes by voting against resolutions presented at the annual general meeting of the investee, with the purpose of influencing change. However, investors do not favour this action as they would rather collaborate with peers for more persuasion. If the risks pose a threat to investment outcomes, or are materially unethical then divestment could be considered as the very last resort.

Table 3. **Theme 3: Description and Quotes**

Description	Quotes
Preferred ESG integration strategy and motivation for engaging	*"We integrate, we engage and we vote"* *"Engagement is critical for us to drive change on various issues, not only climate"* *"We engage with the aim to achieve better outcomes for our clients"* *"We disagree with their definition, we believe that there are some engagements where you don't necessarily aim to influence, but you're gathering information or you're seeking a better understanding of a particular issue"*
Engagement drivers	*"risk based and materiality based"*

	"It is a risk-based approach and also a reputation-based approach and a commitment-based approach" *"We prioritize engaging with our material holdings. We prefer quality over quantity"* *"Where we see risk, we ensure pricing it in. And then coupling that with engaging with the companies"*
Engagement approach	*"We engage on a private basis. We don't do so in the media and we go to the media as a last resort"* *"Private engagements are more fruitful"*
Key engagement themes, top-down	*"An issue that we think is material in South Africa that's going to affect a number of our portfolios such as climate, data privacy, mining safety…. water."* *"Stewardship themes are: just transition, water security, as well as the reduction of social inequality, which is obviously a fundamental issue in South Africa."*
Key engagement topics, bottom-up Environmental Social	*"our most common engagement topic was climate change"* *"give us specific targets of what and how much they want to reduce CO2 emissions and what it's going to cost. And exactly how that forms part of your KPIs"* *"whether there's enough diversity inclusion"* *"On social issues, we focus mostly on human rights related issues such as decent work, fair and responsible remuneration, labour practices and safety and health"*

Governance	*"Your biggest risk is going to be governance. We can't always quantify the exact amount"* *"Remuneration is crucial. Protecting capital is very important. And making sure the companies aren't given the allowance to issue shares without pre-emptive rights to a very significant value to level"* *"remuneration and environmental KPIs"* *"board independence and board appointments, etc."*
Escalation action if issues raised with management and/or board are not addressed	*"If we feel that speaking to management or the board isn't working, then we can make voting recommendations. We can vote against particular resolutions or we can vote against the appointment or re-election of particular directors. Or we could call for a general meeting. If it's a case of something not only being unethical but also criminal, then you can involve the law enforcement authorities"* *"our last resort is to vote against something, but sometimes something is so egregious that you have to just vote against it"* *"aren't getting enough traction with individual engagement and decide to embark on a sort of more collective action by collaborating with some other investors"*
Divestment if no management and/or board action on issues raised	*"Ultimately the last stage would be that we reassess the investment case, which can ultimately lead to divestment, but that would be with a holistic assessment of what else is going on with the stock, what else is going on in the valuation"*

	"If a company is not addressing our concerns, and there's a very low probability of the company actually achieving those returns and the share price rerating, then we would be prepared to disinvest"

Theme 4 - Negative screening

Negative screening excludes certain companies or sectors from the investable universe based on defined criteria or values. The difference between ESG integration and screening is that integration attempts to incorporate ESG issues alongside financial factors in the investment analysis and decision process. Screening, on the other hand, applies defined ESG criteria that may lead to the exclusion of certain companies or sectors. As an example, there may be a specific exclusion of investment in companies involved either in the production or large use of fossil fuels, due to the negative environmental impact.

Literature indicates that negative screening is still widely used in jurisdictions such as Europe and USA. However, in the data analysis the reference to negative screening was not dominant in the South African context.

The participants indicated that negative screening was not suitable for the South African market, which has a limited number of sizable publicly listed companies. Screening out thermal coal and other mining companies (large emitters), would exclude a significant portion of the market. There is no intention to starve high emitters of capital. Instead it is in the public interest for these companies to remain listed, comply with regulatory and disclosure requirements so as to be held accountable.

Electricity generation from thermal coal makes up the majority of the energy mix in South Africa; therefore, exclusion is deemed not to be in the best interest of the economy. Some of the high emitters constitute a significant part of the Shareholder Weighted Index ("SWIX"), which represents 99% of all securities listed on the JSE (jse.co.za), and it is not possible to exclude

them from the investment universe. The only workable option would be to engage them on the material risks of concern.

There is some exclusion related to sustainability funds which apply both positive and negative screening, however, such funds are comparatively few and small. One participant indicated that the governance pillar is critical for them, and they would exclude a company with governance failures. However, they would (re)invest once the issues have been addressed.

Overall, negative screening is not a popular ESG integration strategy in South Africa. Whilst there is limited exclusion based on sanctions and ethical considerations, participants appear to prefer to work with investees to address material issues of concern and influence change.

Table 4. **Theme 4: Description and Quotes**

Description	Quotes
Negative screening not suitable for the South African investment market	*"What we don't do is do screening because the investment universe is small in South Africa"* *"Once you start screening out coal stocks, and I've done the math behind this, you lose 15 to 20% of the universe immediately and you don't have any diversified miners"* *"I don't think negative screening actually achieves much. It's quite similar to the divestment approach that you could follow"* *"A big positive if a company like that remains listed because disclosure is better and public scrutiny is also better"*
There is still demand for thermal coal for electricity generation	*"There's still a need for these products or the various products that depend on the extraction of fossil fuel"*

	"South Africa is largely dependent on coal as well as these coal mining companies support a large employee base…"
Some exclusions can be applied	*"South African actively-managed ESG funds which apply a best in class and screen out some companies out of the investable universe for either controversies or ESG rating scores"* *"there's very specific areas where exclusion is applied such as sanctions, ethical boundaries etc."* *"Governance is a big issue for us; we exclude it completely from our investable universe, even if the share price is attractive and is a large employer"*

Theme 5 - Transition to a low carbon economy

Following COP 26 in 2021, financial institutions concluded commitments to work towards reducing greenhouse gas emissions by the 50% required by 2030 and net zero by 2050, to contain temperature increase to 1.5°C above pre-industrial levels. Numerous climate initiatives have since been formed, some sector focused, such as the Net Zero Asset Managers Initiative ("NZAM"). This is an international group of asset managers committed to achieving the net-zero goal by 2050 or sooner (netzeroassetmanagers.org). The PRI's Active Ownership 2.0, which builds on the existing investing principles, prioritizes the following: achievement of real world goals, addressing systemic issues such as climate change and less focus on risk and return of individual investments, and collaborative action (UNPRI, n.d.).

This theme seeks to establish how asset managers are aligning their portfolios with the net-zero goal, how they are measuring their progress towards a low carbon economy, and furthermore, how they foresee a just and orderly transition in South Africa. Asset managers are urged by, amongst other climate initiatives, NZAM, to measure their pathway towards a low carbon

economy, phase out investment in fossil fuels and invest in climate mitigation solutions (netzeroassetmanagers.org).

Only one of the nine (1/9) participants have set a net-zero goal, and another participant is working on it. Others believe that the only way to achieve portfolio net zero is if the underlying companies achieve net zero. All participants are engaging high emitters to disclose science-based targets that are validated (where the framework for the sector is available), as this will better enable portfolio carbon measures and target setting. The participants said the decarbonization focus should be at total AUM level and not specific to a portfolio. This is because participants have many portfolios with very divergent strategies. Some participants equated net zero to divestment, which they are opposed to. Consequently, they would only set or publicly announce their net-zero target once there is improved and science-based disclosure.

The TCFD recommends that asset managers should disclose metrics and targets that can be used to assess and manage climate-related risks and opportunities. These metrics are also intended to inform capital allocation decisions and the engagement approach with high emitters. All participants measure and report on total portfolio carbon intensity mainly using Weighted Average Carbon Intensity ("WACI")[4], as per the TCFD, which estimates the portfolio's exposure to carbon intensive companies.

$$\sum_{n}^{i}\left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} * \frac{\text{issuer's Scope 1 and Scope 2 GHG emissions}_i}{\text{issuer's \$M revenue}_i}\right)$$

WACI formula per TCFD (2017)

Other participants also mentioned reporting on portfolio Implied Temperature Rise, which measures the temperature of the portfolio against global climate targets. Others also report on Economic Emissions Intensity, which is the weighted average emissions of the portfolio normalised by market value, that is:

[4] Portfolio's exposure to carbon-intensive companies, expressed in tons CO2e / $M revenue

$$\sum \frac{\%shareholding\ x\ company\ emissions}{Portfolio\ value}$$

WACI takes the weight of each investment in the portfolio and multiplies it by the carbon intensity (CO2e / $M revenue) of that company, measured by revenue.

The metrics were largely criticized for being heavily modelled and volatile, influenced by movement in the underlying variables. These included size of the investment affected by share price fluctuation, AUM/portfolio size, and company revenue *inter alia*. Overall, WACI is deemed to be "the best of a bad bunch".

The Value at Risk measure for climate-related risks did not appear to be popular. The participants were not very concerned about stranded asset risk since the South African thermal coal producers have long-term supply contracts with various customers. These include Eskom, the national power utility company, and some thermal coal customers in Asia, where there is still demand. In addition, all the coal producers are reducing their Scope 1 emissions by producing their own electricity through solar. The second highest emitter in the country, Sasol, which owns a coal-to-liquid fuel refinery was regarded by some participants as a concern. This was in the event their decarbonization plans are unsuccessful, as captured in this quote, "I think Sasol probably presents the greatest stranding risk in the portfolio; it's probably prohibitively complex and expensive to retrofit the Secunda refinery."

The Science Based Target Initiative ("SBTi") advocates that engagement should be a priority to phase out financing/investment in fossil fuels companies. In addition, ambition should be defined in terms of the rate of change in emissions reduction and not financing of clean alternatives (sciencebasedtargets.org). The majority of the participants (5/9) had a "hard no" stance on thermal coal greenfields, investing in thermal coal initial public offerings as well as new coal-fired power stations. Whilst they acknowledged that demand for thermal coal will continue into the foreseeable future, they advocate for a managed phase-out in line with the country's nationally determined contributions, of achieving net-zero emissions by 2050.

The participants who had no hard stance against new thermal coal investments stated that there must be a clear business case that supports energy security and a plan to decarbonize. Expansion

of existing thermal coal assets was not a concern since it is linked to long-term supply contracts or exports.

As part of the decarbonization process, asset managers are expected to invest in green solutions and create net-zero aligned products. Only one of the nine participants (1/9) have a net-zero aligned ESG fund and are innovating to create a just transition benchmark. Others believe the market is relatively small for such products.

All participants indicated that high emitters are reducing GHG emissions by becoming energy self-sufficient and investing in renewable energy, in particular solar power generation. Other miners are investing in copper and lithium, which are considered green minerals. The opportunity to invest in green solutions is limited for active equity investors; they indicated that there were more opportunities in green bonds for fixed-income managers and also private markets.

Active equity managers reported that their potential role in supporting South Africa's JET IP is restricted given that the potential investment opportunities in hydrogen, electric vehicles and related infrastructure are mainly in private markets. All they can do is engage high emitters to adopt science-based targets and invest in decarbonization initiatives. They are also engaging the regulators and relevant business associations to advocate for the right policies.

Table 5. **Theme 5: Description and Quotes**

Description	Quotes
Net-zero target	*"We don't have a net-zero goal, because if you have an exclusion process, from a just transition point of view, it doesn't make sense"* *"We as a firm have not made such a claim as to say by 2050 we'll be net zero."*

	"What we don't believe in is decarbonizing portfolios, we believe that is just externalizing the problem and you can't sell yourself to a low carbon world - that is, that 1.5° target - because those emissions still exist, even if it's out of your portfolio" *"We are transitioning our overall AUM down to net zero by 2050 and measuring ourselves in five yearly periods to see how that progress is going"*
Portfolio alignment measures	*"We look at the glide pathway of the portfolio, in the benchmark and we can track that and say this is where we expect to go"* *"So we do publish sort of WACI and EEI. It's not only emissions; they're sensitive to revenue, share prices, AUM etc. These metrics to measure the carbon footprint of portfolios are flawed"* *"Using the WACI metric, using implied temperature rise of our overall portfolio, looking at our coal exposure in the portfolio, it gives a clear idea of where the risk lies and where the opportunity set"*
Phase-out of investments in fossil fuels	*"We have implemented a hard no on coal or oil IPOs and we encourage companies involved in coal extraction to pursue a managed phase-out"* *"will not invest in the greenfield coal mines or coal-fired power stations"*

	"It has to make commercial sense; if it keeps lights on that's the reason they open this new coal mine. So that's the balance that we're talking about"
Just and orderly transition	*"In just transition, we have probed a number of companies saying, 'How does this impact your workforce? What do you see as your responsibility?' So we've asked a number of companies for more disclosure on some of the concrete aspects"* *"The main thing is to have a framework and set targets around how they're going to deal with the specific issue of people mining coal in marginalized rural areas and how they're going to reskill, retrain and redeploy them, how many per year. It's one of our core themes of our stewardship"* *"Decarbonization must be gradual, and consider the social impact; so we are very pro balancing this out"*
Investment in climate solutions	*"We hunt for green opportunities and we hunt for exposures like that also - such as green minerals. Copper is a green mineral"* *"There's not much opportunity in the listed equity space"* *"We also have created a Paris-aligned global active ESG fund, which is investable"*

4.4.4 DATA ANALYSIS – ASSET ALLOCATORS

The data analysis followed the process outlined in 4.4.2 above. The purpose of the analysis of data related to asset allocators was to obtain an understanding of how they integrate ESG in their externally managed active equity funds and how they are aligning their portfolios with net-zero targets. The asset allocators, classified as non-core participants, were included in the study because they are large role players, have influence in the sector - and in terms of the mandates they award. One participant described the role of a multi-manager as an "intermediary between asset owner and manager".

These participants were not expected to answer all interview questions given that they are not actively involved in the management of active equity funds, but do award and oversee such mandates, and are all signatories to the PRI.

Given the role limitation in managing active listed equities, the data analysis was thematically aligned to the three research questions, generating three (3) themes as per Table C3 in Appendix C. The table shows the number of respondents to each theme and related references, with the most referenced theme being stewardship. The word frequency search functionality in Nvivo was used to search the thirty (30) most frequently used words shown in Figure 5 below. The five (5) most used words were *managers, assets (asset managers), engage, investment, voting* and *process.* Outside of *asset managers*, the most dominant word was *engage*.

Figure 5. Word Cloud - Asset Allocator Theme

Theme 1 - Selection of asset managers and ESG integration

What emerged from the data analysis is that asset allocators first decide on the type of asset class to allocate funds to, the desired portfolio construction, and investment performance requirements *inter alia,* and thereafter search for managers who meet the requirements. They then conduct a due diligence on the potential managers including understanding their ESG integration processes, which vary from one asset manager to another. However, there must be a clear process of ESG integration in the investment process and risk management.

The appointed asset managers are contracted based on a defined mandate as to what it is they can or cannot do, performance criteria against the selected benchmark, and fees, *inter alia*. They cannot therefore, do as they please, but must operate within the mandate's confines. However,

they do have autonomy regarding the stocks they pick and their selection process. The primary objective is to deliver sustainable risk-adjusted investment returns.

The asset managers are expected to report on the performance and activities on either a monthly or quarterly basis. Asset allocators exercise oversight on investment performance and risk management.

Table 6. **Theme 1: Description and Quotes**

Description	Quotes
ESG integration considerations	*"We'll construct the portfolio based on managers that we've researched and that we understand the investment process, their philosophy, how they look at ESG"* *"So our framework is mainly built around manager selection and due diligence and oversight"* *"We require them to actually integrate ESG. It's one of the elements we look at before we appoint them. It's part of the process of appointment"*
Oversight	*"They are there to achieve certain objectives. He's allocated pension fund capital to a company. It's not his; it's not discretionary money that he can decide"* *"We give you that autonomy, we test you on it. We look for evidence on how you're managing this risk"* *"You allow flexibility with the asset managers, but you need to have a stick…"*

Theme 2 - Stewardship approach

Since the asset allocators are not actively involved in the management of funds, their core focus is monitoring and stewardship - engaging, escalating, collaborating and voting.

Asset allocators engage appointed asset managers, monitor their engagement reports and question the management of ESG risks - particularly governance issues, which are seen to be critical in addressing all other elements of ESG. They also provide guidance. Two out of six participants do engage investees directly, given the large positions they tend to take - that is, 2% or more. Appointed asset managers are therefore, accountable to the asset allocators. The engagement approach is based on materiality and the most common engagement themes are governance - remuneration and board composition, climate change strategy, water security, health and safety, and diversity, *inter alia*. Participants also indicated that they collaborate with other investment managers where material issues are not being addressed or where there are material governance failures.

Voting is also used as a tool for active ownership. (4/6) participants vote through appointed managers; one participant allocates their votes between themselves and asset managers. The other participant indicated that they have taken back the voting since the appointed asset managers can vote against each other, which causes confusion as to asset allocators' positions. All voting results are disclosed and publicly available to ensure transparency.

Table 7. **Theme 2: Description and Quotes**

Description	Quotes
Engagement	*"We do engage the business, but we do also run the materiality assessment"* *"The approach is to be able to engage with asset managers that you've appointed; you've given them a mandate that says you're going to buy local equities, but it's not without consequence"*
Engagement themes and topics	*"We do engage to an extent that there are material issues. But, mainly the issues we engage on are governance related"* *"So environmentally, things around climate and water risk are probably most front of mind"*
Voting	*"So whatever resolutions get put up by a company at the AGM, we mandate them to vote on our behalf because they've picked the shares"* *"Some managers voted differently to us"* *"We have taken away all the proxy voting rights"*

Theme 3 - Decarbonization consideration

(4/6) participants have not yet set a net-zero goal, of which two (2) are working on a climate strategy which is based on the climate policy and will guide the pathway and scenario planning. Asset managers are expected to report on absolute and carbon intensity metrics.

The majority of the asset allocators have not set a net-zero target and are not imposing this requirement on appointed asset managers. They are working on initially understanding the measures that will inform target setting. The participants also believe that decarbonization is underway since most companies in the Top 40 index have set targets - some science based, and are also disclosing based on the TCFD requirements.

The fact that the majority of the asset allocators have not set a net-zero target demonstrates their influence on asset managers, the majority of which have not set a net-zero target, since it is not a mandate requirement.

Table 8. **Theme 3: Description and Quotes**

Description	Quotes
Net-zero goal	*"A lot of some asset owners have said we're going to go net zero, but they'd have no clue what that means"* *"We haven't made a net zero commitment straight out. So by signing up to these accords, you potentially commit yourself to criteria for which you're not completely in control of"*
Setting measurable goals	*"But in the short term, there are no clear measurable goals. It's difficult to put them into practice"* *"So as part of developing the strategy, ... is baselining the emissions quantum of its assets under management to understand where the greatest exposure is and particularly how these organizations can respond in driving decarbonization"*

Reporting metrics	*"We support the TCFD and expect 3rd party managers to report quarterly on some metrics such as carbon intensity, level of exposure to GHG emissions, disclosure on all the 3 scopes"* *"Will look to assess both the absolute and the intensity metrics"*

4.5 SUMMARY OF FINDINGS

4.5.1 SUMMARY OF ESG STRATEGIES EMPLOYED

A summary of ESG strategies employed by the asset managers is shown in Table C4a, based on the ESG investing strategies defined in Table A2. All asset managers integrate ESG in the investment process and engage with portfolio companies on material ESG issues and select themes specific to a sector or company, such environmental risks, water security etc. Exclusion is not a preferred ESG strategy, but all indicated that divestment may be considered if business conduct is egregious and a threat to achieving sustainable earnings. One (1/9) of the asset managers reported to manage Sharia funds which screen for some ethical based norms, therefore applying exclusion in line with the Islamic religion.

Two (2/9) asset managers practice positive screening in relation to article 8 funds, which promote social or environmental characteristics, although these funds make up a small proportion of AUM. Positive screening is also applied to actively managed ESG funds. There was no mention of thematic investing for example in clean energy or technologies, however one of the asset managers do have actively managed ESG funds. Thematic investing can only develop if there are sizable investment opportunities within the chosen theme, which is not yet the case. While there are numerous ESG investment strategies, the application thereof is largely determined by the structure of the market in relation to the size of the investable universe and available investment options.

4.5.2. TRIANGULATION AND VALIDITY OF FINDINGS

Different methods and data were used to develop a comprehensive understanding of ESG issues. This is besides addressing the main research question of how asset managers of active listed equity funds firstly integrate ESG, in particular climate change, in the investment process, and secondly, how they are decarbonizing their portfolios

Triangulation, in this qualitative research perspective, is the strategy that was used to test the validity of the research carried out.

4.5.3 INVESTIGATOR TRIANGULATION

This section evaluates and compares the outcome of interviews conducted to answer the research question. The investigator triangulation conveys whether the participants/interviewees are significant and influential, how knowledgeable they are in their ability to contribute to research undertaken, and whether their answers are reliable. Through this triangulation analysis, the validity of the interview outcomes will be achieved.

The interview process provided lengthy responses, which consisted of plenty of descriptions of practices and examples, opinions and personal analysis based on their experience and expertise.

The interviewees/participants reported that the primary investment objective is to generate sustainable risk-adjusted financial returns over the long term. Investment styles used to achieve this objective differ, but are all focused on investment wealth creation.

All participants have a framework of integrating material ESG issues in the investment process as part of the risk and opportunity analysis overlaid on fundamental analysis. Where quantifiable, ESG issues are adjusted for cash flow impact in the valuation models. If unquantifiable, judgement is applied to ensure a higher margin of safety by adjusting the multiple or discount rate.

The ESG approach is summed up as “integrate, engage, collaborate and vote”. Following ESG integration in the investment process, engagement is the preferred approach to influence change required to address material ESG risks. It is also used as a tool to gather information and provide guidance. Participants want ambitious but credible disclosure of strategies, plans and targets to

reduce GHG emissions. There must be short to medium-term targets linked to remuneration incentives.

Negative screening was not considered to be an effective ESG integration strategy, likened to divestment. It is also not suitable for the South African investment universe, which is considered to be small relative to other markets. The participants are also benchmark cognizant and cannot deviate too far from the chosen benchmark.

The majority of the participants have not yet set and publicly disclosed a net-zero target, as they believe that is dependent on the decarbonization pathway of underlying investments. Furthermore, they are encouraging issuers to disclose science-based targets. The most widely used metric to measure portfolio alignment is WACI - although volatile, it is regarded as the best tool available. The majority of participants do not support new investment in greenfields thermal coal projects in light of the global commitment to phase out fossil fuels, while the minority have taken a pragmatic view based on the demand outlook and business case viability test. All participants support a just an orderly transition to a low carbon economy; however, they require improved disclosure to understand the financial and social implications.

The participants indicated that there are limited climate-friendly investment opportunities in the listed equity space and innovation in net-zero aligned products is minimal. However, there is some decarbonization taking place since companies in South Africa are generating power through solar installations and some miners are diversifying into green minerals, namely, copper, lithium, and more.

4.5.4 METHODOLOGICAL TRIANGULATION

(i) Data Validation

To ensure validity of the findings above, following the data analysis, the following was done to triangulate the findings.

A sample of 5 out of the 9 participating asset managers was chosen, based on the largest size of asset under management. Sustainability policies and stewardship/sustainability reports which outline statements on ESG integration and report on the activities undertaken to fulfil the

commitment to responsible investment principles, were reviewed. The stewardship reports highlight amongst others, the following: the number of engagements, the parties engaged, engagement themes, material risks in the portfolio, material emitters in the portfolio, portfolio carbon footprint and transition targets, advocacy activity, and voting activity including reasons for dissenting votes. These variables underpin the ESG integration strategy of "integrate, engage, advocate and vote". The PRI assessment scoring was also included to provide an independent perspective on how the asset managers fare on the application of the principles. The PRI scoring methodology assesses the implementation of integration of ESG in the investment process (UNPRI, n.d.).

The latest stewardship reports for the 2023 and 2024 financial years were reviewed. Table C4 shows full implementation of ESG integration, which is in alignment with the findings above. Only 2 of the 5 participants in the sample published the PRI score in the reports. Per the PRI, the highest score level is 5, with 2 participants each having an average score of 4, which demonstrates complete ESG integration.

(ii) Case study

The common investment objective was said to be to achieve long-term sustainable risk-adjusted investment returns. Two South African companies involved in fossil fuel-related activities that are listed on the JSE and included in the Top40 index were identified. They are Sasol Ltd and Exxaro Resources Ltd. These companies generate more than 50% of their earnings from fossil fuel-related activities.

Materiality

Sasol was identified by various investment managers as the largest contributor to portfolio carbon intensity emissions. It therefore had the most engagement by investment managers on: climate strategy and disclosure, measurable short to medium-term climate reduction targets, impact of carbon taxes and carbon border adjustment mechanism, and just transition plans. Sasol is a large employer and significant taxpayer in South Africa. It is the second largest emitter in South Africa, producing approximately 64,000 KtCO2e annually (2022 to 2024) and ranks 42 in the world (worldbenchmarkalliance.org). The largest emitter in South Africa, Eskom, is not a listed company.

Table 9. **Company Comparison – Salient Features**

	SASOL	**EXXARO**
Nature of Business	Sasol produces fuel components, chemical components and co-products. Sasol Energy is involved in thermal coal mining, gas exploration and supply, and produces fuels from its coal-to-liquid and gas-to-liquid refineries, in South Africa.	Exxaro generates more than 90% of its income from thermal coal assets sold mainly in the local market, supplying to the power utility, which is the largest emitter in South Africa.
EBITDA contribution from fossil fuel activities	~62% in 2023 and 2024 51% in 2022	>90%
Market cap	R73,5bn	R60bn
Emissions Scope 1 & 2 Scope 3	 ~ 64,000 KtCO2e ~ 36,000 KtCO2e	 ~ 1,000 KtCO2e ~ 70,000 KtCO2e
Permanent employees	~25,000	6,797
Decarbonization strategy	Complex and uncertain	Transforming the business to clean energy production

Table 10. **ESG Integration Comparative Analysis Sasol Ltd vs Exxaro Resources Ltd**

Aspect	Sasol Ltd	Exxaro Resources Ltd
Environmental Initiatives	Focused on reducing GHG emissions (30% by 2030, net-zero by 2050). Measuring Scope 3 emissions and tracking mechanism is being developed. Key efforts include carbon capture and green hydrogen, investment in renewable energy, and low carbon feedstock. Improved energy efficiency by 2% 2023 to 2024.^ High carbon tax exposure.	Committed to net-zero for Scope 1 & 2 emissions by 2050 (40% reduction by 2026). No target for reducing Scope 3 emissions, but do measure and monitor. Key efforts include renewable energy investments and diversification into sustainable minerals. Reduced emission by more than 5% from 2022 to 2023. Low carbon tax exposure
Social Responsibility	Invests in local communities, workforce safety, and supplier development.	Invests in local communities, workforce safety, and supplier development. Focused on socio-economic development. Demonstrates strong social equity, recognized in the Bloomberg Gender Equality Index 2023. Leads in job creation and diversity initiatives.
Governance Practices	Governance overseen by the Risk and Sustainability Committee. Board has oversight of ESG issues. Governance framework in place, complies with King IV corporate governance code and TCFD guidelines. 30% of executive STI is linked to ESG related KPIs for safety, people and climate (10%)	ESG steering committee and Portfolio Management Office ensures integration across the organization. Board has oversight of ESG issues. Governance framework in place, complies with King IV corporate governance code and TCFD guidelines. 25% of executive STI is linked to ESG related KPIs for safety, energy and water intensity (15%)

ESG Performance	Not in the Top 30 JSE/FTSE SRI Index	Top 30 JSE/FTSE SRI Index, ESG score: 3.9/5.0 (top quartile). MSCI ESG rating AA. TPI, climate risk management rating 4/4.

Source: Exxaro ESG Report 2023 and Sasol Integrated Report 2024

^ The companies have different financial year ends - Sasol's is on 30 June, whereas Exxaro's is on 31 December - hence the overlap in comparison.

The contrast between these two companies lies in the nature of their:

- Decarbonization strategies – Sasol's strategy relies on finding cleaner feedstock for its coal to liquid refinery, investing in green hydrogen, carbon capture and storage, and renewable energy. Whereas Exxraro is working on changing its business model to generate renewable energy, and transitioning to green minerals such as copper and manganese. Both strategies have an element of execution risk, however, Exxaro's plans seem less complicated.
- Social responsibility - Both companies invest in social development; however, Exxaro was recognized by Bloomberg GEI and has a high ESG ranking, which indicates stronger social equity initiatives. Sasol is not in the Top 30 JSE/FTSE SRI Index.
- Governance - Both companies are listed on the JSE and have to comply with the listings requirements, King IV corporate governance code, and all other relevant regulations. Both companies exercise climate governance through board oversight; however, Exxaro also has a climate steering committee and dedicated PMO. Both companies have an element of remuneration short term incentives (STI) linked to ESG, with Sasol allocating a 10% weighting to climate initiatives and Exxaro 15%, which exhibits greater accountability.

Exxaro demonstrates stronger ESG integration compared to Sasol, particularly in climate initiatives related to strategy, disclosure, targets, implementation plans, and remuneration

alignment. Exxaro also shows a more robust ESG framework, with many global accolades, and a focus on renewable energy and diversification.

Financial and decarbonisation pathway analysis

Figure 6: Share Price Comparison

Source: googlefinance.com

Sasol Ltd

https://www.sasol.com

Investment returns and financial indicators

From Figure 6 above, it can be seen that in the 5-year period to September 2024, Sasol's share price has under-performed, down more than 50%. It took 2 years for the share price to recover from the effect of the Covid-19 pandemic, and had a positive performance in 2022, followed by a downward trajectory from 2023. The year 2022 was characterized by high oil and gas prices,

following the invasion of Ukraine by Russia. The high oil prices benefited Sasol's cash flows and lifted its share price. The cash flow improvement in 2022 enabled Sasol to resume paying dividends, which was halted in 2020 to conserve cash following the Covid-19 pandemic, low oil prices and restructuring initiatives.

Sasol's market capitalization reached an all-time high in June 2014 at a share price of R632 (https://www.sharenet.co.za); since then the share price has been on a downward path, and as at 30 September 2024, it is approximately 18% of what it was 10 years ago, 82% down. This significant decline in value results from a confluence of factors such as: volatile oil price, delays and cost overruns at the Lake Charles chemical plant in the USA and related increase in debt, Covid-19 financial impact, and now climate change transition risks and required investment.

Prior to 2020, Sasol consistently paid dividends, except for the two years in 2020 and 2021, due to liquidity pressures from operations and Covid-19 impact. Based on its dividend payment history, the amount paid per share over the ten year period, from 2014 to 2024, is a total of R108, which does not compensate for the loss in share price value.

Table C5 provides a snapshot of the financial performance, which shows declining earnings from 2022 to 2024 due to operational challenges, impact of fluctuations in commodity prices and impairments. As at June 2024, the dividend yield was low at 1.4%, and the P/E multiple was 6.29, which is lower than the global average of 12% for the oil and gas industry, (https://stockanalysis.com), which reflects the cautious sentiment given the operating environment and outlook. While total borrowings have been decreasing over the recent years, net debt-to-equity has increased, reaching a high of 52% due to reported losses, which contributed to the decline in shareholder equity.

This is also reflected in the speculative grade credit rating of Ba1, as a result of high debt levels, vulnerability to commodity price volatility, decarbonization and transition burden. The stock has a beta of 2.25 which implies very high volatility and risk. Sasol's forward P/E as at 30 September 2024 is 2.64, which is an indication of concerns about the sustainability of future earnings of the company, given the volatility of commodity prices, high debt levels, decarbonization and transition strategy and related cost of investment.

Decarbonization Pathway

Sasol's share price is subject to significant volatility of commodity prices, and negative sentiment arising from high emissions and decarbonization strategy that is not fully aligned to the 1.5^{o}C target and short to medium-term targets that are not robust (climateaction100.org). The decarbonization pathway appears to be both complex and uncertain, particularly in relation to the coal-to-liquids refinery, which is the main polluting asset.

Sasol's gross Scope 1 and 2 emissions have relatively stayed the same at approximately 64,000 KtCO2e per annum; however, reported net emissions were approximately 61,000 KtCO2e for the year ended 30 June 2024. The reduction in emissions was mainly from purchased carbon offsets, since the renewable energy programme is being developed. Sasol has committed to reduce greenhouse gas emissions by 30% in 2030, from a 2017 baseline. It has committed to procuring 1200MW of renewable energy by 2030, and in 2024 it reported that, to date, it has entered into power purchasing agreements of 757 MW, which is 63% of their 2030 target.

The offset value of this target is unclear since the environmental report states a combined value for both Scope 1 and 2 GHG emissions. Sasol has set a target to achieve net zero by 2050, through investing in renewable energy, transforming its coal-to-liquid refinery to use gas as feedstock, investing in green hydrogen to produce low carbon products, and investing in carbon capture and storage. Some of these initiatives are still at an early stage of definition and the outlook and related affordability is not confirmed. Sasol is investing in sustainable or low carbon aviation fuel and other low carbon products from green hydrogen. It has an opportunity to be a significant producer of sustainable aviation fuel. However, this new green business is still in a development phase and is not yet contributing to earnings.

The transition pathway of Sasol Ltd is multi-faceted and seems complex, and no pathway or timelines have been disclosed as to how the balance of 70% of GHG emissions will reduce, post-2030 to get to the net-zero target by 2050. Katsantonis et al. (2016) argue that in the absence of innovation and/or efficiency improvements, strong ESG performance may not sustain financial performance. Sasol has to demonstrate that its decarbonization plans are credible, fundable and achievable, failing which its future remains uncertain. Whilst Sasol faces business model transition challenges, it has an opportunity to be a leader in green hydrogen and the production of related sustainable products.

Conclusion

The weak financial performance over the years, and sustainability risk, is not consistent with the investment objective outlined above. However, various asset managers have consistently engaged with the company over the years, with some voting against its 2023 climate strategy, but remaining invested. Sasol, as the second largest carbon emitter in South Africa, is uniquely positioned to be a leader in the production of low carbon aviation fuel and other sustainable products that can be produced from green hydrogen; however, the successful execution of this sustainable new business model comes with its own risks. This new business offers investors a long-term value proposition that aligns with both financial returns and ESG commitments. Sasol is strategically and systematically important in the South African economy, and asset managers indicated that they are benchmark cognizant, and prefer to engage instead of either excluding or divesting.

Exxaro Resources Ltd

https://www.exxaro.com

Investment returns and financial indicators

Exxaro's revenue is approximately 20% of Sasol's. As seen in Figure 6 above, the share price has performed well over the five-year period 2019 to 2024, showing positive growth, albeit volatile. The year 2022 showed strong performance driven by high coal prices due to increased demand supported by the Russia – Ukraine conflict. The company was exposed to commodity price risk, however it was diversifying into renewable energy, and generated 3% of its income from renewables.

For the years ended 31 December 2022 and 2023, Table 6C showed slightly lower revenue and profit due to lower volumes and lower coal prices in 2023 and supply chain challenges. The company had a high dividend yield of 8%; however, the P/E multiple was on the low side, given the sentiment against coal. The ROE was strong at 28%, also with a solid credit rating of A-1 and low beta of 0.49. The forward-looking P/E was on the low side at 4.5x, which is an indication of

volatility of earnings and related commodity price risk, and lack of diversification. While its renewable energy revenue was growing, it was, however, still insignificant.

Decarbonization Pathway

Whilst the businesses of Exxaro is not exactly the same as that of Sasol, Exxaro's Scope 1 and 2 emissions are low compared to Sasol's, while Scope 3 emissions are high, at 68,156 KtCO2e, as at 31 December 2023. The Scope 3 emissions emanate from its customers burning coal. Exxaro has been reducing its Scope 1 and 2 emissions, and also Scope 3 through its investment in renewable energy, which will eventually reduce Scope 3 emissions as electricity generation from renewable energy is ramped up and thermal coal electricity production is phased out.

The Transition Pathway Initiative (TPI) benchmarks corporate commitment to managing climate change related risks, and a high ranking indicates that a company is managing climate related risk in line with the Paris agreement goals (transitionpathwayinitiative.org). While Exxaro has a high ESG rating, exposure to environmental risks such as pollution, climate change and water use is high. Also, it is exposed to social risks such as health and safety, and human rights and community given the safety risk associated with mining activities, and community dissatisfaction with levels of social investment and potential impact of transition initiates including future job losses

The company has strong ESG performance and transparent disclosure. The company has proactively invested in renewable energy and now generates some income from that business. The IEA (2023) states that consumption of all fossil fuels is expected to peak in 2030, with coal demand declining rapidly thereafter; therefore, Exxaro is faced with a declining business that has the potential to reach end-of-life by 2040 or 2050, depending on the retirement profile of the coal-fired energy generating fleet in South Africa, and demand for coal in Asia and Europe, which are other export markets.

To have a long-term future, the business has to transition to other sources of income. The company has R10bn cash on hand, which indicates that it is struggling to find investment opportunities and to deploy the cash. The company has announced that it is looking to invest in green minerals; however, these assets have become expensive, but they remain an interested

buyer. Transitioning and diversifying the business model is crucial for scale, resilience and sustainability.

Conclusion

Financial performance has been consistent; however, it has also been vulnerable to volatile commodity prices. In its 2023 annual report, the company indicated that it had been responsive to issues raised by shareholders, including disclosing Scope 3 emissions. Whilst the company is transforming its operations from coal to clean energy, coal contribution is still more than 90% of profits. This indicates that it may be a much smaller company in the future, once Eskom's coal-burning electricity generation fleet is decommissioned and global demand is also reduced.

The asset managers did not report any material engagement issues with the company. Exxaro provides a detailed report on stakeholder engagements and related issues. In relation to investors, Exxaro was engaged on: capital allocation and deployment strategy, transitioning away from coal, investment in clean minerals, and growing the energy business. Investors were satisfied with ESG performance and transparency, and also the remuneration approach. The financial performance of the company is good. It has been consistent in paying dividends and there is share price growth, which is in line with the investment objective of generating sustainable risk-adjusted returns.

Industry-wide Implications

The challenges faced by Sasol and Exxaro, and most high emitting companies reflect broader issues impacting the global energy, resources and materials industries. These challenges have significant implications for these industries at large:

- Accelerating the transition to a low carbon economy: Industry players must invest in low-carbon technologies and transition their business models to align with global decarbonization goals. Incorporating realistic decarbonization targets into the company's core strategy is essential for business resilience. Transitioning from carbon-intensive operations requires innovation and collaboration with other industries and stakeholders.

- Just transition and social considerations: Companies must conduct scenario analysis and planning, and research, in order to understand the potential implications of their decarbonisation strategies on workforce, communities and the value chain. Companies should actively engage all relevant stakeholders and collaborate with governments, workers, labour unions, communities, and financiers to find just solutions for those who will be negatively impacted, such as reskilling of the workforce and supplier development.

- Transparent reporting and engagement: Companies must be transparent to investors and other stakeholders in their reporting on climate-related risks and opportunities, and progress in implementation of climate related strategies and plans. They should proactively engage on project implementation progress and challenges encountered as this is essential for maintaining stakeholder trust and support.

- Regulatory implications: Companies must consider the impact of climate regulations such as carbon tax and export related carbon tax such as the European carbon border adjustment mechanism. Companies who are exposed to high carbon taxes which will impact on earnings and competitiveness, should collaborate and engage with regulators while the regulations are still in development, and emphasize the resultant impact socio-economic impacts.

4.6 CONCLUSION

The findings detailed in this report were tested for validity against (i) asset managers' sustainability policies and reports, (ii) the investment objective was also tested by reviewing financial and sustainability performance of the two selected companies, Sasol Ltd and Exxaro Resources Ltd. The results appear to be consistent with the findings from the data, which says that where there are material ESG issues, asset managers engage to achieve better outcomes.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter aims to conclude the findings of the research and its respective validity. The chapter thus presents the summary, conclusion, limitations, and recommendations.

The summary of the findings is presented by theme and linked to the three-part research question; it also connects the findings to existing literature, thereafter followed by the interpretation and discussion of the findings, and lessons drawn from the findings. The conclusion shall answer the main research question and its sub-questions. The limitations reveal the deficiency of the research's aspects. Recommendations for further or future research will be given in respect to the limitations of this research.

Very little is known about how investment managers integrate ESG issues in their investment decision-making process, and how they are decarbonizing their portfolios. This study's three-part research question is "how asset managers of active listed equity funds integrate ESG, in particular climate change into the investment process, what is their preferred ESG integration strategy, and how they are decarbonizing their portfolios."
The purpose of this research study is to inform the premise of institutional listed equity investors' continued interest in South Africa's coal industry.

5.2 SUMMARY OF FINDINGS, CONNECTING FINDINGS TO LITERATURE, AND INTERPRETATION

This study's main research question, structured in three parts, was to address ESG integration and decarbonization strategies by examining the investment implications for the coal industry in South Africa. To account for the impact, the researcher followed a qualitative approach to obtain an understanding of practices and perspectives of experts through interviews, a review of sustainability and stewardship reports, and a comparative case study, to resolve the hypothesis predicted.

Fifteen (15) interviews were conducted, based on seventeen (17) questions which were structured in three parts in relation to the research questions, as detailed in Appendix B1. The study collected and analyzed data from nine asset management firms involved in the management of active listed equity funds, and six asset allocators. The main findings of the study are based on the data collected from the nine asset managers, who manage active listed equity portfolios. To ensure validity of the findings following the analysis of interview data, the sustainability policies and stewardship reports which outline statements on ESG integration and report on the activities undertaken to fulfil the commitment to responsible investment principles, were reviewed.

The results from the study show that: (i) ESG is fully integrated in the investment process, pre and post investment, (ii) the institutional investors prefer to engage on material ESG issues with portfolio companies in which they hold a significant interest, in order to influence change and do not apply exclusion strategies, and (iii) asset managers measure their portfolio carbon emissions, but believe that portfolio-wide decarbonization can only be achieved if underlying portfolio companies decarbonized their operations.

Five (5) themes emerged from the data and are presented in relation to each of the three research questions, as follows:-

1. How is ESG integrated in the investment process?
   Two themes emerged from the interview data to answer this question, that is, investment philosophy, and ESG integration in the investment process.
2. What is the preferred ESG integration strategy, and why?
   This question is answered through two themes: stewardship approach, and negative screening.
3. How are investors decarbonizing their listed equity portfolios?
   To answer this question, one broad theme emanated from the data: transition to a low carbon economy.

5.2.1 INVESTMENT PHILOSOPHY

This theme sought to determine the objectives and principles which underpin the investment approach to asset allocation and portfolio construction. Notably, the finding in relation to this theme was that asset managers are entrusted with peoples' savings and have a fiduciary

responsibility under their mandates to deliver sustainable risk-adjusted returns over the long-term. This aligns with the ethos of the Modern Portfolio Theory, the purpose of which is to construct an optimal portfolio that achieves expected risk-adjusted returns, taking into account expected returns, volatility, diversification and correlations of stock movements (Fabozzi et al., 2002).

Since the primary objective of investment management is to grow wealth, and ESG considerations are secondary, therefore sacrificing returns in the quest to do good is not part of the investment philosophy. This initially appears to be endorsing the Shareholder Theory of Friedman (1970), which says the primary objective of business is to increase profits. However, looking at the words "sustainable, and long term", these align more with the Stakeholder Theory of Freeman (1984), which argues that a business must consider and create value for all stakeholders affected by its decisions.

From the above, before ESG factors can even be considered, the starting point is that a stock must have the potential to deliver financial returns over the long term, and outperform the market or relevant benchmark.

5.2.2 ESG INTEGRATION IN THE INVESTMENT PROCESS

This theme sought to obtain an understanding of how ESG issues are integrated in the investment process and the benefits of ESG integration. It was found that ESG integration is part of the investment decision process; it follows after the fundamental and quantitative analysis of a stock. Material ESG risks are risk-rated, and incorporated into the valuation models, by adjusting future cash flows, discount rates or earnings multiples. For the purposes of ESG integration, climate change risk is evaluated like any other risk. Where ESG risks are of a non-financial nature, judgement is applied in relation to the margin of safety required, by increasing the discount rate or reducing the earnings multiple. This is in line with publications by the CFA Institute and UNPRI (2018), which state that investment decisions are discretionary, and incorporating ESG considerations into valuations requires application of own judgement; consequently, engagement with company leadership can provide better insight about the management of risk and potential opportunities.

ESG data is primarily sourced from company financial and sustainability reports, and most asset managers use a combination of their own analysis and third-party data, but rely more on the former. Furthermore, ESG scores were said to be "flawed" due to lack of standardization; hence proprietary analysis is deemed more reliable. Quality and consistency of ESG data is central to ESG integration into a portfolio, but the range used to define good or bad ESG performance differs between ESG data providers (Fan et al., 2022; Poukchanski, 2021). The issue of consistency and quality of ESG disclosure will likely be resolved through the application of IFRS S1 and S2 standards, effective January 2024, which requires disclosure of sustainability risks and opportunities that could have an impact on cash flows in the short, medium and long term (ifrs.org).

ESG is integrated into the investment analysis process to identify risks and opportunities, but mainly as a risk management tool to avoid poor investment decisions. This is in agreement with the findings of Briand et al. (2011) and Cappuci (2018) that the integration of ESG factors into the investment process aims to better assess either long-term risks or risks that have high impact but lower probability of occurrence, and to manage key drivers of risks and returns. The survey study of Paredes-Gazquez et al. (2014), comprising mainly institutional investors in Spain, also found that ESG issues are considered for risk management and fulfilling fiduciary obligations.

Although the benefits of ESG integration in the investment process are not quantifiable, the asset managers believe that companies who pay attention to all the three elements of E, S and G, in the long run would manage risks better, but may not outperform. Giese and Lee (2019) and Whelan et al. (2021) also found that companies with high ESG ratings are better positioned to mitigate major ESG risks and loss of value in the event of a catastrophe. Eccles and Klimenko (2019), and Khan et al. (2015) found that companies with good performance on material ESG issues outperformed those with inferior performance on these issues, which implies that investment in sustainability enhances shareholder value; however, this could not be proven by this study.

Amel-Zadeh and Serafeim (2018) stated that not much is known about how ESG issues are factored into the investment process. However, this study found that all the asset managers have

a defined process of ESG integration, together with responsible investing policies. ESG integration is embedded in the investment process, and not influenced by individual preferences or moral obligations. What seems to motivate asset managers to integrate ESG in the investment process, is mainly investment risk mitigation, and then to attract investment flows from asset allocators who indicated that they conduct a due diligence on asset managers to obtain an understanding of their practices and to ensure alignment of principles.

From the above, it is clear that the investment philosophy determines how ESG is integrated in the investment process. To deliver sustainable risk-adjusted returns, material ESG issues have to be incorporated in valuation models, where quantifiable. Most ESG issues are non-financial in nature, which then calls for discretion; for example, there is no mathematical or scientific way of determining the cost of ineffective board leadership, or environmental risk where the cost of mitigation has not been adequately assessed and disclosed. Application of reasonable judgement requires a robust investment process with proper safeguards, where each stock is thoroughly analyzed, related risks debated and rated. The interviewees indicated that the South African investment universe is relatively small, and as a result, the portfolio managers have deep knowledge of the stocks they cover hence their judgement is trusted.

Overall, the finding that ESG integration is a risk mitigation tool is aligned with the literature. Whilst it is not possible to prove that ESG integration enhances financial performance, it certainly supports the long-term sustainability of a company. Mitigating the risk of potential losses invariably implies increasing returns.

5.2.3 STEWARDSHIP APPROACH

The objective of ESG engagement is to inculcate higher standards of ESG practices that mitigate material idiosyncratic and systemic risks (Hoepner et al., 2021). Likewise, ESG integration commences with the incorporation of ESG issues in the investment process once the stock has been picked and invested in, stewardship follows, which is active ownership - engaging with the issuer on material risks and opportunities, exercising the right to vote, and collaborating with other investors to exert pressure where there is no satisfactory action on issues raised with the company management and board of directors. This theme sought to obtain an understanding of

how investors exercise stewardship, which is the most preferred ESG integration strategy to influence behavioural change on ESG issues, which, in turn, could have a material effect on long-term value creation, and what key themes or topics they engage on.

The engagement strategy is risk and materiality based - asset managers prioritize engaging with their material holdings. This is in line with the study of Azar et al. (2020) where they found that the three large universal asset managers focus their engagement efforts on their large holdings. Corporate engagement is not only to influence change, as per the PRI, but to also obtain an understanding of certain company specific issues and provide guidance. Engagement is a tool to understand portfolio companies, their actions, strategy and plans, and to influence long-term sustainable action (BNP Paribas, 2021; Wicox, 2018; Briand, 2011; Osofsky, 2019; Hoepner et al., 2021). Consequently, the engagement agenda is very targeted to achieve specific outcomes.

Based on the number of engagements disclosed in stewardship reports, asset managers engage more on governance, followed by environmental and then social issues. Governance is seen as the overarching risk, which also impacts how the "E" and "S" elements are managed. Remuneration, board independence and effectiveness were common engagement themes, followed by climate change, particularly near-term decarbonization target setting and related disclosure, and the link to remuneration incentives, and then diversity, equity and inclusion.

Linking an element of remuneration to decarbonization outcomes was considered critical in order to incentivize development of robust, credible and achievable climate mitigation plans. These engagement themes are in line with findings of various studies. Krueger et al. (2020), Wicox (2018) and Hoepner et al. (2021) report that investors engage mainly on four themes: (i) corporate governance - executive pay, board independence, board diversity and succession planning, (ii) environmental - mainly climate change - carbon risk strategy and risk management, carbon disclosure, decarbonization and stranded assets risk, (iii) social - human rights, bribery and corruption, and (iv) strategy - improving business strategy, risk management, accounting and audit issues.

Where issues being engaged on are not addressed timeously or as required, asset managers prefer to escalate the issues to the board of directors, then collaborate with peers to exert pressure, failing which they vote against resolutions presented for approval at the annual general meeting of shareholders. Voting against a resolution is seen as the last resort; it is only exercised where investors are of the view that they are not being heard. Where there is a serious threat to investment returns, the asset managers may reduce their holding, with divestment being the very last resort. Dissenting votes disclosed in stewardship reports were mainly governance-related: capital structure, director appointment, remuneration, and climate change. There was only one example of divestment dating some years back, which is an indication of the rarity of this type of action. Corporate engagement can only be successful if management takes action to address issues raised by stakeholders, as found by Hoepner et al. (2021) that risk reduction results from the target company acknowledging the issue raised by investors and acting to address it.

In South Africa, publicly listed companies tend to be responsive to shareholder requirements to avoid reputational risk and bad publicity, which is an indication of the effectiveness of active ownership. There have not been any reports of hostile relations between corporates and investors. In accordance with the findings of Wicox (2018), asset managers indicated that they prefer to engage privately, and not in the media, given that any negative sentiment can impact investment returns, which is not in the interest of shareholders. Given the relatively small investment universe, corporate engagement is the most suitable approach to address material risks and obtain required disclosures and information that can enable informed investment decision making.

5.2.4 NEGATIVE SCREENING

Negative screening remains amongst the popular ESG integration strategies in other jurisdictions. Katsantonis et al. (2016) state that negative screening is a minimal and insufficient form of ESG integration in that it is not integrated into models that inform decision making. The asset managers indicated that negative screening was not suitable for the South African market, which has a limited investable universe compared to Europe and North America. Screening out thermal coal and other large emitters would exclude a significant portion of the market. Pagano

et al. (2018) indicate that negative screening reduces the investable universe which results in a less-diversified and volatile portfolio.

Futherenore, the asset managers indicated that they prefer that large emitters remain publicly listed so there can be transparency of disclosure and these companies can be held accountable for ESG performance. Excluding them would not achieve any real world outcomes, since someone else who cares less about ESG could purchase the company, allowing bad practices to continue, including harming the environment, without any of the consequences that come with public scrutiny. Likewise, Blitz and Swinkels (2019) argue that it is questionable whether exclusion has any meaningful impact since it transfers ownership of companies with inferior sustainability profiles to investors who are less concerned with sustainability.

5.2.5 TRANSITION TO A LOW CARBON ECONOMY

Transition risk is expected to affect mainly companies with high carbon intensity (Sturkenboom et al., 2020). This theme sought to establish how asset managers align their portfolios with the net-zero goal, how they measure their progress towards a low carbon economy and how they foresee a just and orderly transition in South Africa. The TCFD (2017) recommends that asset managers should disclose metrics and targets that can be used to assess and manage climate-related risks and opportunities, and inform capital allocation decisions and the engagement approach with high emitters.

There is no certain way of predicting how climate risks will evolve; consequently, scenario planning and analysis is necessary to manage the impact of climate-related risks to ensure portfolio resilience (WEF, 2020). However, the majority (7/9) of the asset managers indicated that they have not set a net-zero goal because it is not yet clear as to how it will be achieved due to portfolio companies not yet disclosing science-based emissions reduction targets for the near term. Net zero can be achieved by selling out of investments, which externalizes the emissions problem without achieving any real world outcomes, which they do not support. This is supported by the findings of Atta-Darkua et al. (2023), that re-weighting towards low carbon emitters helps accelerate the reduction of portfolio emissions, but has no real impact on global emissions, which can only be achieved if underlying portfolio companies reduce their emissions.

Gordon (2022) identified climate change as a systematic risk, given the potential economic and portfolio wide impact, arising from physical and transitional risks; therefore, engaging on climate change as a theme will likely reduce the systemic risk and improve portfolio risk-adjusted returns, along with company-specific engagements, where material. Portfolio carbon footprint and reduction thereof should be assessed holistically, not at individual portfolio level, since physical and transitions risks are systemic. Therefore, decarbonization can only be achieved if underlying portfolio companies decarbonize and report on science-based targets, which are aligned to limiting temperature rise to 1.5°C in accordance with the Paris Agreement climate goal. Portfolio carbon intensity is measured mainly using the WACI metric; however, investors expressed that the metrics are subjective and heavily modelled, but do provide a sense of carbon intensity status.

Christophers (2019) and Krueger et al. (2020) contend that investors deem climate change to be a financial risk and a threat to investment performance as a result. The majority of asset managers have since taken a hard stance against new thermal coal mining and coal power generation projects or initial public offerings as they believe that there should be a phase-out of coal; whereas the minority believe that power generation from coal will continue for many more years to come; therefore, they are not against greenfields as long as there is a sensible business case.

Just transition, if poorly managed, could adversely affect industries and communities dependent on fossil fuels, thus propelling poverty and inequality (Robins et al., 2018; Nerini et al., 2019). Diversity and inclusion are thus fundamental to ensuring a just transition. Decarbonization strategies must address the needs of marginalized groups, such as women, previously disadvantaged people and communities, and coal-dependent workers, to reduce socio-economic disparities. Policymakers, civil organisations and investors should promote community-centered engagement and reskilling programs.

All asset managers support a just and orderly transition towards a low carbon economy, although the socio economic impact is not yet full quantified and known. Institutional investors are engaging high emitters on better and transparent disclosure in relation to their decarbonization strategies, cost and social impact. Investors can also remain invested in carbon intensive

businesses with the objective of influencing change in behaviour through engagement (CFA Institute & UNPRI, 2018; Osofsky et al., 2019; Morgan Stanley, 2020; KPMG, 2023).

The Science Based Target Initiative ("SBTi") advocates that engagement should be a priority to phase out financing/investment in fossil fuels companies, and ambition should be defined in terms of the rate of change in emissions reduction and not only financing of clean alternatives. Most asset managers disclosed in their stewardship reports that Sasol Ltd (the second largest emitter in South Africa) is a significant contributor to portfolio emissions, in some instances making up more than 25% of portfolio emissions. Sasol was one of the most engaged companies particularly on climate transition risks and credibility of its transition plans, notably in line with the reported outcomes of the GST, where investors are expected to demand better reporting and transparency, and also demonstrate more proactive stewardship (Reynolds, 2023).

As the second largest emitter in South Africa, Sasol poses a systematic risk given its importance in the South African economy, as a large employer and tax payer. As detailed in its 2024 Integrated Annual Report, Sasol has set a net-zero goal by 2050 and also a target to reduce emissions by 30% by 2030, however it is not yet reporting science-based targets. It has a multifaceted decarbonization strategy which entails replacing coal feedstock with gas, investing in: carbon capture solutions, renewable energy, and green hydrogen and related sustainable products, which all require a substantial investment, the cost of which is not finalized. Sasol's decarbonization strategy will impact those employed in the coal value chain, which then requires investment in reskilling and upskilling workers, and assessing the impact on communities as well. The survival of this business hinges on successfully transitioning its business model by reducing emissions and diversifying into green energy, failing which, the sustainability of earnings will be impacted by increased carbon tax, environmental penalties, litigation, and other factors.

A 2016 study by Gupta et al. found that dividend yield, which can also be expressed as return on equity and dividend growth, accounts for most of the long-term total return and risk. Sasol's dividend yield is low, and ability to continue paying a dividend is uncertain, and its share price has been on a downward trend; all these factors indicate a negative impact on investment returns.

The investors continue to engage with the company given its economic significance; however, the transition execution risk remains elevated. Sasol's large carbon footprint significantly impacts the decarbonization pathway of many listed equity portfolios.

However, Sasol is uniquely positioned to be a leader in the production of low carbon aviation fuel and other sustainable products that can be produced from green hydrogen. This new business offers investors a long-term value proposition that aligns with both financial returns and ESG commitments. Sasol is strategically and systematically important in the South African economy, and asset managers indicated that they are benchmark cognizant, and prefer to engage instead of either excluding or divesting. There are limited green investment opportunities in listed equities, which indicates a possible delay in carbon emissions reduction trajectory and achieving the net-zero goal by 2050.

5.3 IMPLICATIONS OF THE STUDY

The study highlights that responsible investing is a common practice in listed equities in South Africa. ESG integration is documented and embedded in the investment process, pre and post investment, following a strategy of "integrate, engage, collaborate and vote". ESG is not the primary investment driver, generating sustainable risk-adjusted returns is. Investing requires application of discretion since there are non-financial issues to be considered.

Whilst there are various ESG integration strategies, the most suitable and widely used in South Africa is corporate engagement/stewardship, due to the limited investable universe of sizable companies listed on the JSE (for example, in the JSE Top 100 companies, the smallest company has a market capitalization of R11.5 billion ($640 million)[5]. Whilst there is an increasing number of engagements on environmental risks and opportunities, governance remains at the top of the list in terms of the total number of engagements. Negative screening and divestment are not preferred, since the investment managers seek to influence positive change, in line with the findings of Katsantonis et al. (2016) which state that negative screening is a minimal and

[5] https://sashares.co.za/jse-top-100

insufficient form of ESG integration in that it is not integrated into models that inform decision making.

ESG integration is mainly used as a risk management tool; however, it is believed that companies with a strong ESG profile tend to be more sustainable, although they may not necessarily outperform, which agrees with Przychodzen et al. (2016) who found that fund managers adopt ESG strategies to mitigate risk and less to leverage for incremental value creation.

The sentiment against fossil fuels has seen a number of companies sell off their coal assets into privately owned entities, for example, South 32 Limited and Anglo American Plc separating its coal assets and listing that business separately in order to improve its sustainability goals. Such actions are not supported by investment managers as they are not achieving any real world reduction in emissions. Investors prefer companies involved in thermal coal mining and related activities to remain listed and phase out coal overtime.

The study of Krueger et al. (2020) reported that the most common approaches used by investors to assess and manage climate change risks are the analysis of carbon footprint and stranded asset risk. The asset managers who participated in the study assess and report on their carbon footprint; however, they require issuers to disclose science-based targets with a clear path to reduce emissions in line with the target to limit global warming to 1.5°C above pre-industrial levels. Asset managers should consider net-zero alignment of issuers in the investment decision-making process and engage with those who are not proactively aligning to net zero (sciencebasedtargets.org). Based on the disclosures in stewardship reports, the percentage of corporate AUM with science-based targets is low, on average less than 30%, even lower for financed emissions, which makes it difficult to assess how asset managers are decarbonizing their portfolios and aligning to the global warming target. Almost all climate related initiatives and organizations, in partnership with the UNPRI, encourage asset managers to engage material emitters to set credible and measurable decarbonization targets. Engagement has consistently been presented as the optimal strategy to influence the management of climate related risks, and material risks in general.

The PRI provide a standardized global model for ESG integration in the pre and post investment process. South African asset managers continue to embed ESG principles in their investment processes, however there are limitations arising from an emerging market setting and dynamics, such as: a limited investable universe, high levels of unemployment, poverty and inequality, which limit ESG investing strategies that can be applied. The findings of the study emphasize the alignment of environmental objectives with social equity and inclusive governance. This approach contributes to ESG theory by addressing the unique challenges of transitioning economies facing high inequality and fossil fuel dependency.

Actionable Solutions for Decarbonization in South Africa

(i) Active Engagement

One of the most critical strategies for achieving decarbonization goals in South Africa is fostering active engagement with high-emitting industries. Stakeholder collaboration is essential in this process, business associations, policymakers, and investors collectively influence business strategies to ensure alignment with long-term sustainability goals. High emitters must prioritize developing and implementing transparent decarbonization plans that are realistic and affordable, and support business resilience and sustainability.. This includes establishing measurable, time-bound targets aligned with global climate commitments like the Paris Agreement, where possible, but prioritizing country specific socio-economic issues.

(ii) Reskilling Initiatives

The decarbonization of coal-dependent industries has profound implications for South Africa's workforce, particularly those employed in the coal value chain. Proactive reskilling and upskilling initiatives are essential to mitigate the socio-economic risks associated with workforce displacement. High emitting companies should collaborate with educational institutions, regulators, and international development partners to design training programs tailored to emerging green industries, such as renewable energy, energy efficiency, and sustainable agriculture. These programs must be accessible to marginalized groups, including women and youth and rural communities in coal-reliant communities. Reskilling not only ensures economic resilience but also facilitates a smoother transition to a sustainable, diversified economy.

(iii) Inclusive Policies

To drive meaningful progress in decarbonization, it is imperative to adopt inclusive policies that integrate diversity and equity into the core of ESG practices. Business should link executive accountability to decarbonization outcomes through performance-based incentives tied to sustainability metrics, not only focused on the environmental element, but also the social implications thereof. By embedding inclusivity into decarbonization strategies, South Africa can achieve not only environmental goals but also social equity and economic transformation.

5.4 CONCLUSION

The purpose of this research is to support the premise of institutional active listed equity investors' continued involvement in South Africa's coal industry. This study's three-part primary research question is "how asset managers of active listed equity funds integrate ESG, in particular climate change into the investment process, what is their preferred ESG integration strategy, and how they are decarbonizing their portfolios"?

The research question follows from the study of Amel-Zadeh and Serafeim (2018) that an increasing number of asset managers are using ESG data in their capital allocation decisions. However, not much is known about how ESG issues are factored into the investment process. In addition, various studies have been published on the benefits of ESG integration, and financial institutions have committed to the UNPRI and related initiatives on climate risk management. This study sought to answer the research question through a South African lens to add to knowledge on what has been published on this subject based on practices in other jurisdictions, which exclude South Africa.

Qualitative research was deemed to be the most appropriate methodology for this study, using a comparative case study approach, and semi-structured interviews with investment managers, seeking to answer the three-part research question of: (i) how institutional investors in active listed equities incorporate ESG, in particular climate change, into their investment decision-making process, (ii) what ESG strategies are preferred and why, and effectiveness thereof in influencing change in ESG performance, and (iii) how investors are decarbonizing their portfolios and related barriers.

The investment philosophy first dictates the objective of investing, which is to achieve sustainable risk-adjusted returns. ESG integration was found to be fully embedded in the investment process, relying mainly on proprietary ESG data to assess ESG risks and opportunities. Climate change risk is considered in the same way as any other risk, where material. ESG data is also used for assigning a risk rating to ESG issues, factoring the issues into valuation models, and applying some level of discretion where ESG issues are of a non-financial nature and not quantifiable. This is done by increasing the margin of safety through a higher discount rate or adjusting the price to earnings multiple. Third-party ESG data is used as a reference check since the asset managers believe they have a much deeper knowledge and understanding of the stocks they cover.

Engagement was found to be the most suitable ESG integration strategy, providing investors with an avenue to engage portfolio companies on material ESG risks and opportunities, and also to provide guidance. Investors engage privately, mainly on governance followed by environmental and then social issues. Governance is considered an overarching pillar, which directs how material environmental and social issues are managed. Investors engage on material issues with specific outcomes in mind, and management actions are monitored, and where issues are not satisfactorily addressed, follow-up engagements are scheduled, and can also be escalated to the board of directors. As an act of active ownership, investors exercise their votes on shareholder resolutions presented at annual general meetings. Voting signals the position of investors on matters for resolution.

Portfolio companies are generally responsive to the engagement agenda, and this is evidenced by the low number of dissenting votes reported in the stewardship reports of the asset managers. With respect to climate change mitigation, portfolio companies are investing in the generation of their own power through solar installation, thus reducing Scope 2 emissions. High emitters are also investing in transition initiatives such as renewable energy, green hydrogen and other green solutions, although these processes are still at a developing stage, and the investments have not yet reached scale in terms of significant revenue generation.

Negative screening is not favoured given that it does not provide investors with an opportunity to engage the company and influence change. Negative screening was also found to be unsuitable

in the South African market since the investable universe is relatively small and will further constrain diversification.

The asset managers measure their portfolio carbon footprint using metrics such as WACI. They engage with high emitters to disclose credible and measurable climate risk management plans, and to better understand both transition plans and associated costs. Most (7/9) asset managers have not yet set a net-zero target due to portfolio companies not yet reporting science-based forward-looking targets. Their view is that it would be disingenuous to set a net-zero goal when there are no credible and assured forward-looking targets by portfolio companies. However, investors continue to engage with high emitters to set science-based targets which will then assist in measuring financed emissions and scenario planning for portfolio-wide decarbonization pathways.

Portfolio wide decarbonization can only be achieved if the underlying investees make progress in decarbonizing their operations. Portfolio decarbonization should be considered more holistically across portfolios, since transition and physical risks are systematic. The asset managers of active listed equity funds did not favour exclusion or tilting towards low emitters since they follow a bottom-up approach to portfolio construction, and prefer to engage to address material ESG issues. The asset managers support a just and orderly transition to a low carbon economy. However, the risks, socio economic impact and related costs are not yet fully known. An orderly transition is important since South Africa is an extremely unequal society, with high levels of poverty and unemployment.

This research study sought to inform the hypothesis of institutional equity investors' continued involvement in South Africa's unsustainable coal industry. South Africa is a resource-based economy, which is reliant on thermal coal for electricity generation. The investable universe is relatively small and resources heavy, therefore excluding heavy emitters will limit diversification and not achieve any real-world outcomes. Transitioning to a low carbon economy has to be well planned to minimize financial and social risks, given the systematic impact of climate change related risks, on the economy, coal value chain and communities.

Equity is a form of permanent capital, which requires a long-term view to achieve sustainable risk-adjusted investment returns. Investors engage actively with high emitters and thermal coal companies; they interrogate climate risk governance and related plans to ensure credibility,

business resilience and an orderly phase-out of thermal coal, which is not expected to be a linear process. The act of stewardship to mitigate ESG risks is aligned to Stakeholder Theory, which advocates for shareholder wealth creation to be based on sustainable business models that consider the impact on all stakeholders to ensure long-term value creation.

5.5 RESEARCH LIMITATIONS

The sample size of the main findings of this study was limited to nine (9) asset managers as a consequence of the chosen criteria of: size of assets under management and narrow focus on active listed equity portfolios, which excluded other asset classes such fixed income portfolios.

South Africa is a resources-based economy, with large companies involved in general mining, precious metals, iron ore and steel, oil, gas and coal, there are few (three) sizable listed companies left on the JSE generating more than 50% of their income from thermal coal. This limits the ability to compare their long-term financial and ESG performance, and also assess the outlook of these companies. The case study in Chapter 4 attempted to compare the financial performance and ESG performance of Sasol Ltd and Exxaro Resources Ltd. These two companies, while sizable and generating more than 50% of their earnings from thermal coal mining and related activities, have very different carbon footprints. Sasol has high Scope 1 and 2 emissions, whereas Exxaro has low Scope 1 and 2 emissions and high Scope 3 emissions. The decarbonization and business model transition pathways of these two companies are vastly different. The transition initiatives are still at an early stage; therefore, it is too early to assess whether the businesses will transition successfully and still deliver sustainable investment returns into the future.

High emitters are taking the initiative to transition their business models and are reporting in accordance with the TCFD framework on climate governance, strategy, risk management, and targets, however, the study could not measure the direct link between the intensity of stewardship or number of engagements to pace of decarbonization and emissions reduction.

This study is located in South Africa and does not seek to compare ESG models practiced by equity investors in other emerging economies due to limited published literature on ESG practices in South Africa and emerging markets, and also in relation to investments in fossil fuels.

5.6 RECOMMENDATIONS

Before ESG factors can even be considered, the starting point is that a stock must have the potential to deliver long-term financial returns, and outperform the market/benchmark. The tension between the Shareholder Theory of Friedman (1970) and Stakeholder Theory of Freeman (1984) is not well understood. There needs to be an improved awareness of the nexus between maximisation of shareholder value and responsible investing.

Planning for decarbonization is a new and complex phenomenon. While the adoption of science-based targets is growing, most high-emitting companies are still not reporting on these targets. This makes it difficult to assess the pathway to reducing portfolio financed emissions, and therefore how asset managers will realistically achieve net-zero targets by either 2040 or 2050. Companies have set some significant emission reduction targets for 2030, which provides an opportunity to study both the evolution of decarbonization of listed equity portfolios and impact on investment returns, as issuers adopt sustainable business practices, transition their business models, and phase out coal use.

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APPENDICES

APPENDIX A

Table A1

ESG THEMES AND METRICS

PILLARS	THEMES	ESG METRICS	
		CORE	EXPANDED
ENVIRONMENTAL	Climate change	Greenhouse gas emissions (tCO2e)	Air pollution, impact of GHG
	Nature loss	Land use and ecological sensitivity	Impact of land use
	Water availability	Water consumption	Impact on freshwater consumption, water pollution
SOCIAL	Dignity & equality	Gender pay equality, diversity and inclusion, wage level	Discrimination incidents Freedom of association Grievances
	Health & wellbeing	Health and safety	Impact of incidents Wellbeing
	Skills for the future	Training provided	Vacancies Impact of training
GOVERNANCE	Quality of governing body	Board composition	Strategic milestones, Remuneration
	Stakeholder engagement	Impact of material issues on stakeholders	Process of engaging stakeholders
	Ethical behaviour	Anti-corruption Protected ethics advice and reporting mechanism	Alignment of policies to lobbying Monetary losses of unethical behaviour
	Risk and opportunity oversight	Integrating risk and opportunity into business process	ESG in capital allocation framework

Source: World Economic Forum and CFA Institute (2020)

Table A2

ESG INVESTING STRATEGIES

ESG integration	The systematic and explicit inclusion by investment managers of environmental, social and governance factors into financial analysis.
Corporate engagement & shareholder action	Employing shareholder power to influence corporate behaviour, including through direct corporate engagement (i.e. communicating with senior management and/or board of companies), filing or co-filing shareholder proposals, and proxy voting that is guided by comprehensive ESG guidelines.
Norms-based screening	Screening of investments against minimum standards of business or issuer practice based on international norms such as those issues by the UN, ILO, OECD and NGOs (e.g. Transparency International).
Negative/exclusionary screening	The exclusion from a fund or portfolio of certain sectors, companies, countries or other issuers based on activities considered not investable.
Best-in-class/positive screening	Investment in sectors, companies or projects selected for positive ESG performance relative to industry peers, and that achieve a rating above a defined threshold.
Sustainability themed/thematic investing	Investing in themes or assets specifically contributing to sustainable solutions – environmental and social (e.g. sustainable agriculture, green buildings, lower carbon tilted portfolio, gender equity, diversity).
Impact investing and community investing	**Impact investing** Investing to achieve positive, social and environmental impacts – requires measuring and reporting against these impacts, demonstrating the intentionality of the investor and underlying asset/investee, and demonstrating the investor contribution. **Community investing** Where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to businesses with a clear social or environmental purpose. Some community investing is impact investing, but community investing is broader and considers other forms of investing and targeted lending activities.

Source: Global Sustainable Investment Review 2020.

APPENDIX B

APPENDIX B1: INTERVIEW QUESTIONS

Part 1. Investment Process and ESG Integration

1. What is your investment philosophy and process?
2. What is your understanding and meaning of ESG investing?
3. Do you have a framework that guides your investment process? How are material ESG issues, including climate change integrated into the investment process?
4. In what ways do you believe that your organisation can derive tangible and intangible benefits from embedding ESG Principles into your investment process?
5. Coal use in the production of electricity and fuels poses the most threat to the environment. What are the considerations applied when investing or reviewing investments in these stocks?

Part 2: ESG Integration Strategies

6. There are various ESG integration strategies including; negative screening, integration, thematic investing etc. What is your preferred and most effective ESG strategy and why?
7. Regarding stewardship, what is your engagement approach;
    a. What informs your engagement strategy and approach?
    b. What issues or key themes do you mainly engage on?
    c. How is engagement used to drive reduction of climate related risks?
8. If there is unsatisfactory action and progress on the issues engaged on, what other action would you take? Would you be prepared to divest, despite strong market performance?
9. ESG investing is on the rise especially for investors who consider long term sustainability in their portfolios. In this respect, how does ESG integration affect your portfolio performance and how do you balance risk and return requirements?

Part 3: Portfolio Decarbonisation Considerations

10. To what extent are you taking actions to align equity portfolios with Paris Agreement goals and what strategy or approach have you adopted?
11. What portfolio alignment metrics do you apply and to what extent do these measures inform your engagement strategy and targets?
12. How is the impact of climate related risks and opportunities measured, including portfolio value at risk (VAR)?
13. What position have you taken regarding investing in companies which are or plan to expand their thermal coal assets? How do you foresee a managed and orderly phase out?
14. Portfolio decarbonisation is a relatively new phenomenon. How do you plan to decarbonise equity portfolios and still achieve the required returns?
15. Understanding the impact of decarbonisation on portfolios is complex. Have you identified assets in your portfolios that are exposed to stranding risk? What climate related opportunities are you investing in?
16. How do you view the social impact of climate transition, and what are your priorities regarding balancing decarbonisation objectives against a just and inclusive transition?
17. The South African Just energy transition investment plan ("JET IP") indicates a funding shortfall of approximately $90 billion and funding from developed nations is scarce. How do you plan to support the just energy transition process?

APPENDIX B2: INTERVIEW REQUEST EMAIL TEMPLATE

Email Title: Request to participate in doctoral research project - ESG integration and portfolio decarbonisation strategies in South Africa

Dear [xxxxx]

I hope you are well.

The request is to engage with those who understand [investment manager name] ESG goals and integration in the investment process, ideally the CIO or Senior Portfolio manager and ESG expert.

As an investor with a substantial equity portfolio and a signatory to the PRI and/ or other climate related initiatives, [investment manager name] has been identified as a relevant prospective participant in this university doctoral research that seeks to investigate how asset managers of active listed equity funds integrate ESG, in particular climate change into the investment process and how they are decarbonising their portfolios. Literature indicates that little is known about how ESG is integrated in the investment process.

The objective of the study is to obtain an understanding of active listed equity investors'; practices, considerations and concerns about ESG issues. The research study seeks to contribute to knowledge. Your firm's actions in advancing ESG issues and the climate transition process may be helpful to other stakeholders in understanding challenges, solutions and related opportunities in the South African context.

The interview is intended to be semi structured and questions will be provided in advance to allow the participants adequate time for consideration. Participation is voluntary and responses will be kept confidential and anonymous, and data collected will be destroyed after completion of the analysis process. A consent and confidentiality undertaking will be provided in advance.

The doctoral research project is conducted through Geneva Business School, the research study is independent and not in any way associated with other investment managers and/or industry bodies.

Please feel free to contact me should you require clarification. I'm also available for a call to explain the process further i.e., confidentiality undertakings, scheduling the interview etc.

I look forward to hearing from you.

Kind Regards
Lindiwe Mthimunye

APPENDIX B3: CONSENT FORM

Consent form

CONSENT TO PARTICIPATE IN RESEARCH

I agree to participate in the research project entitled ESG INVESTING - INTEGRATION AND DECARBONISATION STRATEGIES IN SOUTH AFRICA undertaken by the researcher Lindiwe Mthimunye.

By signing below, I acknowledge that:

- I have agreed to participate in this study.
- I have been informed of and understand the purpose of this study.
- I understand that I can withdraw from the study at any time without prejudice.
- I understand how the data collected will be used, and that any confidential information will be seen only by the researchers and will not be revealed to anyone else.
- Details relating to anonymity and confidentiality have been explained and I understand these.
- I have had the opportunity to ask any questions.
- With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

Signature: _____ Date: _____

APPENDIX C: THEMES AND SUB-THEMES

Table C1

FILE CODES AND REFERENCES

Type	Name	Memo Link	Codes	References	Created on	Created by
Document	V1_P09		47	241	16 Aug 2024	LE
Document	V1_P08		46	353	16 Aug 2024 at 06:56:16	LE
Document	V1_P07		45	302	16 Aug 2024 at 06:56:41	LE
Document	V1_P06		**54**	378	16 Aug 2024 at 06:57:04	LE
Document	V1_P05_		50	359	16 Aug 2024 at 06:57:41	LE
Document	V1_P04		50	459	16 Aug 2024 at 06:58:26	LE
Document	V1_P03		**54**	735	16 Aug 2024 at 06:59:11	LE
Document	V1_P02		53	738	16 Aug 2024 at 07:00:11	LE
Document	V1_ P01_		51	371	16 Aug 2024 at 07:04:30	LE

APPENDIX C: THEMES & SUB-THEMES (continued)

Table C2

ACTIVE EQUITY MANAGERS

Research Questions	Themes and Sub-themes	Description	No. of Participants	References
Q1_ESG INTEGRATION IN THE INVESTMENT PROCESS				
	ESG integration in the investment process	ESG integration; understanding, responsibility, use of ESG data, integration process, valuation adjustments	9	222
	ESG integration\ESG benefits	benefits of incorporating ESG in the investment process	8	24
	Investment philosophy	investment approach, objective, principles	9	85
Q2 ESG INTEGRATION STRATEGIES				
	Negative screening	applying exclusion from the investment universe	9	31
	Stewardship approach	engagement approach, motivation for engaging, drivers, active ownership actions	9	133
	Stewardship approach\Engagement themes and topics	engagement themes and topics	9	31
Q3 DECARBONISATION STRATEGIES (2)				
	Approach to transition to a low carbon economy	strategies and tools employed to enable a transition to a low carbon economy	9	192
	climate friendly investment opportunities	investing in green opportunities	8	35
	thermal coal expansion and greenfields	position on new thermal coal	7	13
	net-zero goal	net-zero target and how it will be achieved	9	52
	net-zero goal\carbon measures	metrics used to measure exposure to carbon emissions	9	26

Table C3

ASSET ALLOCATORS

	Themes and Sub-Theme	Description	Participants	References
1	Selcetion of asset manager and ESG Integration	asset manager selection, due diligence and ESG integration in the investment process	6	31
2	Stewardship approach	engagement, voting, collaboration, escalation	6	50
3	Decarbonisation considerations	net-zero target and measures	6	23

Table C4

ESG INTEGRATION - VALIDATION SAMPLE

ESG INTEGRATION	DESCRIPTION	P02	P03	P04	P05	P06
INTEGRATE	Responsible Investment/ Sustainability Policy	✓	✓	✓	✓	✓
	Climate Policy/Statement	✓	✓	✓	✓	✓
ENGAGE	Ownership/Stewardship policy/guidelines	✓	✓	✓	✓	✓
	Stewardship// Responsible Investing Report	✓	✓	✓	✓	✓
	number of engagements	✓	✓	✓	✓	✓
	high emitter engagement	✓	✓	✓	✓	✓
	engagement themes	✓	✓	✓	✓	✓
	portfolio carbon footprint and transition targets	✓	✓	*	✓	✓
ADVOCATE	Advocacy policy and activity		✓	✓	✓	✓
VOTE						
	voting activity	✓	✓	✓	✓	✓
	dissenting vote report	✓	✓	✓	✓	✓
PRI SCORE						
	Score > 4	✓	*	*	*	✓
Note	Levels of disclosure vary and not standardised					
*	not published in the sustainability/stewardship report					

Source: Participants' websites

Table C4a

ESG INVESTING STRATEGIES EMPLOYED BY ACTIVE EQUITY MANAGERS

ESG STRATEGY	P01	P02	P03	P04	P05	P06	P07	P08	P09
ESG integration	✓	✓	✓	✓	✓	✓	✓	✓	✓
Corporate engagement / stewardship	✓	✓	✓	✓	✓	✓	✓	✓	✓
Negative / exclusionary screening	x	x	x	x	✓	x	x	x	x
Best in class / positive screening	x	x	✓	x	✓	x	x	x	x
Thematic investing*	x	x	x	x	✓	x	x	x	x
*no mention of clean energy or technology listed funds									

Table C5

SASOL LTD FINANCIAL INFORMATION - YEAR END JUNE 2024

		2024	2023	2022
Revenue (R'm)	R'm	275,111	289,696	272,747
Operating profit	R'm	48,109	55,415	51,514
(Loss)/earnings for the year	R'm	(44,245)	9,333	41,672
EPS	R	(69.94)	14,00	62,34
Core HEPS	R	40	48	69
DPS ('R)	R	2	17	15
Dividend Yield		1.44%	7.30%	4.32%
P/E		6.29		
Forward P/E		2.64		
ROE		-31%	5%	22%
% revenue for coal mining and related activities				
net debt/equity		52%	37%	34%
credit rating			Ba1	BB+
Beta at 30 Sep 2024		2.3		
Market cap as at 30 Septemebr 2024	R'm	73,500		
Share Price ~ 30 June	R	139	233	340
Permanent employees		25,099		
Gross Scope 1 & 2	KtCO2e	64,820	64,392	63,891

Source: www.sasol.com, www.moneyweb.co.za, & www.stockanalysis.com

Table C6

EXXARO RESOURCES LTD FINANCIAL INFORMATION –

YEAR END DECEMBER 2023

		2024	2,023	2022
Revenue (R'm)	R'm		38,698	46,369
Operating profit	R'm		10,627	16,221
(Loss)/earnings for the year	R'm		14,703	18,005
EPS	R		46.44	57
Core HEPS	R		46.81	60.16
DPS ('R)	R		15.82	11.36
Dividend Yield			8%	5%
P/E		4.6		
Forward P/E		4.5		
ROE			28%	38%
% revenue for coal mining and related activities			91%	97%
net cash			10,876	5719
credit rating				A-1
Beta at 30 Sep 2024		0.49		
Market cap as at 30 September 2024	R'm	60		
Share Price ~ 31 December	R		204.00	217
Permanent employees			6,797	
Gross Scope 1 & 2	KtCO2e		953	970
Scope 3			68,156	74,488

Source: www.exxaro.com, www.moneyweb.co.za & www.stockanalysis.com