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Exploring environmental and social KPIs linked to directors' incentives of alternate exchanges

A research report submitted by Uafhulufhedzea Netsianda

Student no. 2108482

Cell: 068 119 3256

Email: fhulu.netsianda@gmail.com

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Supervisors: Prof Wayne van Zijl and Kayleigh Burnham

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Abstract

Limited research has been performed on the use of environmental and social (ES) key performance indicators (KPIs) linked to executive remuneration. This is particularly the case for smaller listed companies. This study investigates the integration of ES KPIs in executive compensation structures within small and medium-sized entities (SMEs) listed on alternative stock exchanges in developed and developing markets. Companies listed on the Alternative Investment Market (AIM) stock exchange of the London Stock Exchange (LSE), the Johannesburg Stock Exchange's (JSE) Alternative Exchange (AltX) in South Africa, and the Bovespa Mais Exchange in Brazil are studied.

The study employs a qualitative research approach using content analysis to gather data from publicly available reports on the adoption of ES KPIs linked to executive remuneration. The findings reveal a disparity in the adoption of ES KPIs linked to remuneration amongst the three stock exchanges. AIM-listed companies show a greater integration of ES KPIs in remuneration frameworks compared to AltX and Bovespa Mais-listed companies, where there is little to no disclosure of ES KPIs in remuneration policies. Factors such as the regulatory environment, level of market scrutiny, resource availability, and stakeholder pressures appear to affect the level of ES-based remuneration adoption of companies listed on alternative stock exchanges. The findings highlight the growing recognition and practice of aligning executive remuneration with sustainability goals. This study contributes to existing literature on sustainability practices and offers insights into the use of ES KPIs in remuneration frameworks for SMEs on alternative stock exchanges. The results of the study may aid regulatory bodies and policymakers in developing regulatory frameworks that include practices that encourage linking ES KPIs to remuneration and disclosing these policies to assist in holding management accountable for the sustainability of the business.

Keywords

Executive remuneration, ES-based remuneration, key performance indicators, sustainability, sustainable remunerations and alternative exchanges.

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Table of abbreviations

Abbreviation	Meaning
AIM	Alternative Investment Market
AltX	Alternative Exchange
BRICS	Brazil, Russia, India, China, and South Africa
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CGC	Corporate governance code
COO	Chief Operating Officer
CSR	Corporate social responsibility
CVM	Brazilian Securities and Exchange Commission
ES	Environmental and social
ESG	Environmental, social and governance
FRC	Financial Reporting Council
FSB	Financial Stability Board
GRI	Global Reporting Initiative
GRSAC	Grupo de Trabalho sobre Riscos Socioambientais em Instituicoes Financeiras
IFRS	International Financial Reporting Standards
IIRC	International Integrated Reporting Council
ISSB	International Sustainability Standards Board

JSE	Johannesburg Stock Exchange
KPI	Key performance indicators
LSE	London Stock Exchange
Max	Maximum
Min	Minimum
QCACGC	Quoted Companies Alliance corporate governance code
SASB	Sustainability Accounting Standards Board
TCFD	Task Force on Climate-related Financial Disclosures
UKCGCG	United Kingdom corporate governance code
UN PRI	United Nations Principles of Responsible Investment
WBCSD	World Business Council for Sustainable Development

1. Introduction

In today's rapidly changing business landscape, the role of executive directors has expanded beyond the traditional focus on the financial success of the entity to incorporate broader societal and environmental responsibilities (Mans-Kemp & Viviers, 2018). With a rising interest in the interconnectedness between entities, the environment, and society (Epstein & Roy, 2003), there is an increased expectation for companies to align their executive directors' incentives with the company's environmental and social (ES) objectives (Oshika & Saka, 2017).

In recent years, the emergence of sustainability as a central pillar of corporate strategy has been a major contributor to the significant transformation of the business landscape (Lu, 2023). The shift towards sustainability practices is not a result of increased environmental impact but rather reflects a change in the societal value and the expectations of companies' responsibilities (Almici, 2023). Among the several strategies adopted by companies to align operations with sustainability objectives, the integration of ES factors into KPIs for executive remuneration has emerged as a notable strategy (Almici, 2023). By linking a portion of executive compensation to the achievement of ES KPIs, companies ensure that executive directors are not only motivated to achieve financial targets but also incentivised to achieve improved ES performance (Matemane et al., 2023). In doing so, executive directors are more likely to consider long-term ES implications when making executive decisions (Jian & Lee, 2015).

Prior research focuses mainly on the extent to which entities report on their impact on the environment (E) and society (S) (Adams & Frost, 2008; Aggarwal, 2013; Siegrist et al., 2020) and the impact of ESG-based remuneration on ESG performance. Prior research also focuses on large companies listed on large stock exchanges. Minimal research has been performed examining the inclusion of ES factors in executive remuneration by small to medium-sized entities (SMEs), as an indication of the company's commitment to ES sustainability (Joannou & Herbert, 2022). This study aims to investigate the use of ES KPIs by small and medium-sized companies listed on alternative exchanges and compare ES KPIs linked to remuneration between companies listed on exchanges geared towards development in developing and developed countries.

The study focuses on SMEs listed on the AIM (Alternative Investment Market) of the London Stock Exchange (LSE), which represents a developed market; those on the JSE AltX of the Johannesburg Stock Exchange (JSE) in South Africa, which represents a developing market; and those on the Bovespa Mais of Brazil, which represents a developing market.

1.1 Statement of the problem

Research regarding ES KPIs is limited, specifically in relation to small and medium-sized companies. ES factors such as resource consumption, carbon emissions, employee well-being, community engagement, and diversity are increasingly recognised as critical components of business success and sustainability (De Villiers & Maroun, 2017). By including ES factors in remuneration KPIs, executive directors will be held responsible for the broader consequences of the decisions they make for the company ((Abdelmotaal & Abdel-Kader, 2016). As such, ES KPIs help ensure that executive directors are incentivised to pursue strategies that promote responsible ES outcomes (Hartikainen et al., 2021).

1.2 Purpose

This thesis gathers evidence to determine whether companies listed on alternative exchanges support their ES targets with appropriate ES KPIs linked to executive directors' remuneration. The characteristics associated with the use of ES KPIs linked to remuneration will also be analysed as part of the study.

1.3 Significance of the study

Understanding the status of ES-based remuneration adoption by companies listed on the AIM LSE, JSE AltX and Bovespa Mais is important as it enables stakeholders such as regulators, the general public, and investors to assess the level of commitment these companies have towards sustainable business practices (Amran & Keat Ooi, 2014; Joannou & Herbert, 2022). The findings from this study may inform policymakers, regulators, and corporate boards on the effectiveness and prevalence of ES-based remuneration practices (Joannou & Herbert, 2022). This may guide the development of more robust governance models that integrate sustainability goals into the core executive incentive structures, promoting long-term value creation over short-term gains (Lee et al., 2024).

The inclusion of ES KPIs further reflects a proactive approach taken by entities toward addressing social inequalities, environmental challenges, and stakeholder interests (Maas & Rosendaal, 2016). The main purpose of listing on alternative stock exchanges for SMEs is to increase visibility amongst investors to raise capital to grow (Brownlee, 2015). The use of ES KPIs may make the companies more attractive to investors, increasing their competitiveness and access to capital (Delbufalo & Delbufalo, 2018). Results provided by this study will provide insights and benchmarks to executive directors of AIM, JSE AltX, and Bovespa Mais listed companies on the current adoption of ES KPIs. The insights from this study may enable them to determine whether they are leading, similar to, or lagging behind other companies' ES-based remuneration adoption and how to improve the effectiveness of their remuneration

policies in achieving organisational goals and objectives.

Demonstrating a link between ES performance and executive compensation improves stakeholder trust and engagement (Amran & Keat Ooi, 2014). This study may assist companies in clearly communicating their commitment to ES responsibility, which will attract investors, customers, and employees who prioritise these values.

Reporting on the impact business operations have on ES is important for all companies seeking growth, as investors are interested in such disclosures (Thoradeniya et al., 2015). When provided with options to invest in ES-responsible and ES-lacking companies, investors are likely to select the ES-responsible companies (Viviers & Els, 2017). Investors are able to contribute to positive ES outcomes while still seeking and expecting financial returns on their investments by investing in these ES-responsible companies (De Villiers & Maroun, 2017; Phillips, 2003). Prior research focuses mainly on ES KPIs linked to remuneration in large companies listed in developed countries (Hartikainen et al., 2021; Joannou & Herbert, 2022). No literature specifically focuses on niche exchanges such as the JSE AltX and Bovespa Mais. Through this lens, the research aims to contribute to the broader discourse of sustainable corporate governance and the role of executive compensation in driving responsible business practices within the context of emerging markets.

In sum, by focusing on SMEs listed across developed and emerging markets, this research addresses a notable gap in sustainability literature, which tends to overlook the specific challenges and opportunities faced by entities on alternative stock exchanges (Egu & Chiloane-Tsoka, 2023; Harwood & Konidaris, 2015). Linking environmental and social goals to executive remuneration in these settings highlights how unique regulatory environments, limited resources, and stakeholder pressures can shape the adoption of non-financial performance metrics based on sustainability practices (Joannou & Herbert, 2022; Kaur, 2021b). Ultimately, the study's emphasis on aligning ES outcomes with executive remuneration underscores the potential for more responsible governance, offering practical guidance to investors, boards and policymakers aiming to foster long-term value creation within these important but underexamined market segments (Lu, 2023; Maas & Rosendaal, 2016).

1.4 Research questions

1) To what extent do AIM-listed, JSE AltX-listed, and Bovespa-listed companies utilise ES KPIs to remunerate executive directors?
2) What factors are associated with the extent of the use of ES KPIs to remunerate executive directors? Factors that will be evaluated will include industry, share trading volume, market capitalisation, and, whether the ES KPI relates to directors or other prescribed officers. The

following sub-questions will be investigated:

2.1) Is there a difference in the frequency of ES KPIs in executive directors' remuneration based on industry?

2.2) Is there a difference in the frequency of ES KPIs in executive directors' remuneration based on size?

2.3) Is there a difference in the frequency of ES KPIs in executive directors' remuneration based on the volume of share transactions?

2.4) Is there a difference in the frequency of ES KPIs in executive directors' remuneration based on being a CEO, CFO, COO or other director?

1.5 Assumptions, limitations, and delimitations

This study assumes that the remuneration disclosures, as included in the companies' annual remuneration reports which were enclosed in their 2022 annual integrated reports, are complete and accurate.

The following limitations exist in the study:

1. Companies without detailed remuneration disclosures are excluded from the study, as their remuneration practices cannot be analysed.
2. Not all companies provide ES KPI remuneration disclosures at the same level of granularity. This may impact the comparability of the data collected.
3. Only the Top 30 companies by market capitalisation listed on the AIM LSE were examined. Less than 30 companies are on the JSE AltX and Bovespa Mais; all companies on these exchanges are examined. This may impact the generalisability of the study.

The following delimitations exist:

1. Only one year's worth of reports is analysed to ensure the availability of data.
2. Dual-listed companies and fund companies listed on the JSE AltX, AIM LSE and Bovespa Mais exchanges are excluded from the study. Dual-listed companies with another listing on a main exchange are excluded as they are not subject to the same resource and operating conditions as companies solely listed on an exchange focused on small to medium-sized and developing companies.

Additionally, this study excludes governance KPIs and focuses exclusively on environmental and social aspects of remuneration for two primary reasons:

1. Scope and manageability: Governance encompasses a wide array of elements (e.g.,

board composition, audit committees, etc.) that could significantly expand the study's scope. Restricting the research to environmental and social KPIs allows for a more targeted and in-depth investigation of how SMEs incorporate sustainability considerations into executive remuneration.

2. Literature gap and contribution: Existing literature places emphasis on governance factors. There is comparatively less literature on how SMEs listed on alternative exchanges tie environmental and social factors to executive remuneration. By isolating these ES dimensions, this study addresses a recognised gap, contributing new insights into how SMEs on alternative stock exchanges link executive remuneration to ES KPIs,

The remainder of the thesis is structured as follows. Chapter 2 starts with a discussion of the relevant theoretical frameworks used to frame the study, including agency theory, and contracting theory. This is followed by a review of the literature related to ES KPIs and the relevant guidelines and frameworks on ES reporting. Chapter 3 explains the details of the methodology for this research. This is followed by Chapter 4 which provides the empirical analysis and results of the study. Finally, Chapter 5 provides the conclusion of the study and areas for future research.

2. Literature Review

The purpose of this literature review is to provide the theoretical framework that will be used to frame the research. The literature review also provides background on ES reporting and related regulation and draws on prior research relating to the application of ES factors as incentives or KPIs in executive remuneration.

2.1 The agency theory

The agency theory provides an understanding of the relationship between executive directors and shareholders in the context of using ES KPIs to remunerate executive directors (Delbufalo & Delbufalo, 2018). The agency theory states that conflicts of interest may arise between the goals of shareholders (principals) and management (agents) (Jensen & Meckling, 1976). Management actions are largely driven by financial metrics as they primarily prioritise their own interests above the interests of shareholders (Pérez Carrillo, 2007). While it is common that managers prioritise their own interests, financial metrics that align both shareholder and management interests are established to solve the conflicts of interests, maximise shareholder value and potentially reduce agency costs (Hill & Jones, 1992; Pérez Carrillo, 2007; Rosen, 1990). This could potentially neglect the interests of other stakeholders (Maas & Rosendaal, 2016). There is an increasing demand by stakeholders for executive directors to consider the impact of their decisions on ES (Abdelmotaal & Abdel-Kader, 2016). The increase in demand is partially a result of the increase in the disclosure of risks and opportunities associated with ES factors ((Hartikainen et al., 2021).

The size of the entity affects the relationship between the owners and management of the business (Pavelková et al., 2018). Smaller entities may require fewer KPIs to align the interests of owners and management as there is a closer relationship between these parties in smaller entities (Kowala & Šebestová, 2021). The volume of share transactions may also affect the use of ES KPIs ((Pavelková et al., 2018)). As the share transactions increase, there is increased scrutiny of the financial statements and an increase in the users affected by the operations of the entity (Babiak & Trendafilova, 2011), increasing the need to align management expectations with those of the owners (Eisenhardt, 1989). Directors in different entities have ES responsibilities and objectives that the owners and other stakeholders would expect (Delbufalo & Delbufalo, 2018). Incorporating ES KPIs in the remuneration packages of directors will encourage directors to prioritise ES targets of the entity (Delbufalo & Delbufalo, 2018). This will further entrench integrated thinking that is demanded by the integrated reporting framework (De Villiers & Maroun, 2017). Theories that complement the agency theory are stakeholder theory and contracting theory (Jensen & Meckling, 1976).

2.1.1 Stakeholder theory

The growing importance of corporate social responsibility (CSR) principles and expectations of stakeholders, including financial and non-financial factors, has gradually prompted a broader examination of the traditional agency theory (Martin et al., 2020). This perspective suggests that the conduct of management may have an impact not only on shareholders but also on all other stakeholders (Almici, 2023). As a result, a new approach known as the stakeholder theory has emerged. This theory is grounded in the concept that, apart from shareholders, other stakeholders have legitimate claims and rights within the firm, and that management acts under an agency mandate (Barney, 2018; Brennan & Solomon, 2008; Coombs & Gilley, 2005; Hill & Jones, 1992; Jones et al., 2016; Zolotoy et al., 2021). According to stakeholder theory, management has the fiduciary duty to balance the needs of various stakeholders, rather than solely focusing on shareholder value (Mitchell et al., 1997). The stakeholder theory suggests that management should consider the environmental impact, social well-being, and long-term sustainability of the entity when making key decisions (Freeman et al., 2010). By following this approach, management can mitigate conflicts and enhance overall stakeholder satisfaction (Donaldson & Preston, 1995). The market capitalisation and volume of share transactions of the entity may be affected by the relationship between the stakeholders and the management of the business (Mitchell et al., 1997). Both market capitalisation and volume of share transactions are influenced by investor perceptions, which need to be shaped by a positive relationship between stakeholders and management (Mallin & Ow-Yong, 2012). The implementation of ES KPIs, may result in the interests of stakeholders being met and ultimately lead to sustainable growth and increased market capitalisation (through attracting more investors) and volume of share transactions over time (Freeman et al., 2010). Each industry has stakeholders with varying needs (Phillips, 2003). Dirty industries such as the mining industry, have stakeholders whose interests relate to sustainability practices due to E, S, regulatory, and market dynamics. It is therefore expected that these industries would prioritise sustainable practices by implementing policies such as ES KPIs to remunerate management (Maas & Rosendaal, 2016).

2.1.2 Contracting theory

Contracting theory refers to how companies use contracts to align the actions of management with the strategic objectives of the company (Hart & Moore, 2008). The theory states that executive directors' behaviour and decision-making are influenced by the terms stated in their employment contracts, performance evaluations, incentives, and monitoring processes (Lambert, 2001). In the context of ES factors, executive directors' contracts should include terms that link remuneration to ES targets, by doing this, the interests of executive directors would be aligned with the broader goal of running a sustainable business, reducing information

asymmetry, and enhancing transparency (Besley & Ghatak, 2017). Directors would have different contracts depending on the industry the company operates in and market dynamics (Rosen, 1990). To achieve the strategic objectives of the company, targets linked to these objectives should be included in the executive directors' contracts (Rosen, 1990; Schwab & Thomas, 2006). Investigating these contracts to determine whether ES targets are included is another way to test how serious companies are about sustainability and ES-based remuneration.

The frequency of ES KPIs based on CEO, CFO, COO or other director positions can be explored through the lens of the contracting theory. The CEO position is the highest-ranking executive role within a company's governance structure (Jian & Lee, 2015). The CEO is primarily responsible for making managerial decisions, which ultimately result in the development, implementation, and execution of the company's long-term strategies while creating shareholder value (Kaur, 2021a). When it comes to sustainability practices, the CEO is responsible for several things including defining and articulating the company's sustainability practices and how these align with the company's overall strategy, allocating resources towards sustainable initiatives that ensure that the company's operations are environmentally and socially responsible, and identifying risks related to ESG factors related to the company's operations (Fabrizi et al., 2014; Shahab et al., 2020). The CEO has other responsibilities outside of overseeing the sustainability practices of the company (Boggs & Boggs, 2006). Based on the vast list of the CEO's responsibilities, the CEO is likely to prioritise responsibilities for which they will receive a reward (Fabrizi et al., 2014). For example, if the CEO's performance metrics include financial targets only, the CEO will prioritise implementing frameworks to help meet the financial strategic objectives of the company (Conyon, 2006; Peng & Smith III, 2023). Therefore, to increase and enhance the sustainability practices of the company, companies need to ensure that there is an equal balance in financial and non-financial performance metrics (El-Shishini, 2001). Having ES targets as part of these performance metrics incentivises CEOs, CFOs, COOs and other directors to ensure the proper development, implementation, and disclosure of ES KPIs (Lu, 2023).

Peng and Smith III (2023) studied the relationship between CEO remuneration and ESG performance of the company and found that companies that link CEO compensation to ESG have better ESG performance. Therefore, if companies take ES reporting seriously, they should link ES performance metrics to CEO compensation for better ES performance (Jian & Lee, 2015; Peng & Smith III, 2023).

The overall role of CFOs, COOs, and other executive directors is to support the leadership and direction given by the CEO in achieving the short and long-term strategic objectives of the

company (Caglio et al., 2018). The CFO primarily focuses on the allocation of financial resources (Caglio et al., 2018), while the COO focuses on overseeing the operations of the company (Bennett & Miles, 2006). As the CEO has the highest-ranking position within the company, the CEO influences all executive roles under them (Sridharan, 1996). If the CEO takes sustainability practices seriously and prioritises them, the CFO, COO, and all other directors will likely follow suit (Sridharan, 1996).

2.2 Sustainability and ESG

Sustainability, ESG, and CSR are concepts that are used interchangeably and often overlap (De Villiers & Maroun, 2017). Sustainability links to ESG and CSR (De Villiers & Maroun, 2017). ESG refers to three main factors that are used to measure sustainability, namely: environmental, social, and governance factors (Armstrong, 2020). ESG is often used to evaluate organisations from an investor perspective (Armstrong, 2020), while sustainability and CSR are based on promoting E, S, and economic goals (Kuhlman & Farrington, 2010). This study focuses on ES factors. The credibility of present corporate sustainability policies has come under serious question due to several worldwide crises, including those relating to weather-related consequences, regulations, and customer demand for environmentally friendly products (Dhanda & Shrotryia, 2021).

Johnston et al. (2007) argue that organizations need to reassess their current social role to effectively address global issues and build a sustainable economy. The UN has been associating ecological development with the term "sustainable" since 1978 to address these concerns. Many interpretations of sustainability and sustainable development have been proposed as increased focus has been placed by society on these concepts. To encourage sustainability, the UN introduced the Sustainable Development Goals (SDGs) in 2015 (United Nations, 2015). The SDGs have developed a plan for tackling the most important issues facing the globe by emphasising the "5 P's": prosperity, planet, peace, people, and partnerships. Major issues related to global sustainability are embodied in the SDGs initiative (United Nations, 2015). This can assist organisations in choosing their approach to advancing sustainable development. The UN acknowledges that companies have a significant impact on achieving the SDGs on a local and worldwide level (United Nations, 2015).

Companies are moving away from the idea of traditional capitalism and substituting a focus on profits alone for sustainability in their corporate strategies. Shi et al. (2023) define business sustainability as tackling economic, E, and S challenges holistically to preserve organisational viability and their capacity to contribute to the economy's sustainable development. In their strategic and operational decision-making processes, more companies are incorporating

sustainability considerations with more traditional imperatives like cost minimization, profit maximization, productivity, and quality enhancement (De Oliveira et al., 2023).

2.2.1 History of sustainability

Jones (2009) claims that to minimize pollution, preserve resources, and maintain good reputations, firms started implementing environmental management systems and procedures during the 1980s and 1990s. This was the first instance of corporate environmentalism that was codified. Early in the 20th century, several businesses started to realize the ES effects they had. This is when the idea of CSR was born. Better working conditions and societal welfare were promoted by people like 19th-century British businessman Robert Owen (Jones, 2009).

A shift toward incorporating sustainability into fundamental business strategy occurred in the late 20th and early 21st centuries. Businesses started to understand how sustainability benefits their bottom line by reducing costs, reducing risk, and enhancing brand perception. CSR frameworks and standards have been developed by groups like the International Integrated Reporting Council (IIRC) and the Global Reporting Initiative (GRI), which encourage businesses to provide information about their ESG performance (Tsalavoutas & Chen, 2013).

Krosinsky and Robins (2016) claim that in recent years, there has been a rise in incentives for businesses to enhance their sustainability performance, these incentives have increased with the popularity of sustainable investing (Bank, 2012). Sustainability is becoming a top priority for businesses looking to raise financing due to investors taking ESG considerations into account more when making investment decisions (Verney, 2018).

2.2.2. Sustainability frameworks

Sustainability frameworks emerged when stakeholders, including companies themselves, had a growing concern for economic challenges, E degradation, and S issues such as inequality (Garren & Brinkmann, 2018). The first sustainability framework created which was internationally recognised is Agenda 21, this sustainability framework covered areas such as resource management, conservation, and poverty reduction, in 1992 (Spangenberg et al., 2002). Thereafter, the triple bottom line introduced by John Elkington came about, which proposes that businesses should focus on people, planet, and profit (the three P's) (Elkington, 1997). This framework is still being used today and has shaped the development of many other sustainability frameworks that came about thereafter (Elkington, 1997; Gimenez et al., 2012). Corporate codes of governance such as the United Kingdom Corporate Governance

Code (UKCGC), the (QCACGC), the King IV, and the Brazilian corporate governance code embody the essence of the triple bottom line through recommending practices that encourage the reporting of an organisation's people, plant and profit impact (Conway, 2018; Hourneaux Jr et al., 2018; Padayachee, 2017).

In 1997, the first standardised and global initiative sustainability framework was developed, the GRI (Brown et al., 2009). The GRI introduced a standardised approach for all companies on CSR (Brown et al., 2009) and encouraged disclosure of business practices related to ESG to enhance the transparency and accountability of companies (Monte, 2009). The adoption of the GRI is not universally mandatory. The adoption of this framework is dependent on industry norms, regulatory frameworks, company size, and type (Monte, 2009). JSE AltX-listed companies are encouraged by the King IV code to practice integrated thinking and reporting and to use GRI standards as a sustainability disclosure guide (Ackers & Grobbelaar, 2022). JSE AltX-listed companies have the liberty to choose which sustainability framework best suits their integrated thinking and reporting approach. Bovespa Mais and AIM-listed companies alike are not mandated to comply with the GRI, however, the adoption of the GRI standards is seen as a positive step towards transparency and accountability in companies' sustainability practices (Monte, 2009). Another standardised and global initiative is the SDGs, which replaced the Millennium Development Goals (Ziai, 2016). This standard sets 17 global goals that address global challenges related to peace, poverty, inequality, justice, and environmental degradation (Hák et al., 2016). Like the GRI, this standard is not universally mandatory but represents a commitment to CSR when adopted by companies (Kanie et al., 2019).

To improve corporate reporting related to economic and ES impact, the International Integrated Reporting Framework was developed by the IIRC(Cheng et al., 2014). The main goal of this framework is to improve the quality of information companies disclose and make such information available to providers of capital, to ensure a more efficient allocation of capital (Cheng et al., 2014). This framework is not globally mandated, however, corporate governance codes (CGC) that endorse integrated reporting such as the King IV encourage the adoption of this framework which allows for both integrated thinking and reporting (Dumay et al., 2017). Frameworks that integrate sustainability and business policy (i.e. financial reporting) are the Sustainability Accounting Standards Board (SASB) and Task Force on Climate-related Financial Disclosures (TCFD) (Lehner & Harrer, 2019; Mejia, 2023). These frameworks highlight the economic implications of sustainability reporting (Lehner & Harrer, 2019). The TCFD is adopted by seven countries, two of which are the UK and Brazil, but only premium and standard listed companies are mandated to adopt the TCFD (this excludes AIM and Bovespa Mais listed companies) (Watershed, 2023).

2.2.3 Sustainability practices in a South African context

Sustainability reporting in a South African context is embodied in the principle of good corporate citizenship which is promoted in the King IV Code (IoD, 2016). The most recent version of the King Code report (King IV), published in 2016, adopts the six capitals of integrated reporting, promoted by the integrated reporting framework released in 2013 (IFRS Foundation, 2021). This code is a non-binding regulation that states that by including disclosures of the impact of the entity's activities on the people, planet, and profits, the entity acts as a good corporate citizen (Joannou & Herbert, 2022). The King IV code operates on the "apply and explain" approach, a shift from the "comply or explain" approach (Natesan, 2020). All companies that are publicly listed are required by the JSE to comply with the King Code (Republic of South Africa, 2008).

The requirement for all companies listed on the JSE, including its alternate exchange (the AltX) to apply King IV encourages companies to report and act sustainably (JSE, 2016; Verney, 2018). Companies mainly list on the JSE AltX for growth purposes and to ultimately be able to list on the JSE main board. As such, producing sustainability reports, thereby complying with King IV's recommended practices, makes it more likely for these companies to qualify to be on the JSE main board (Brownlee, 2015). In doing this, they demonstrate their commitment to sustainable practices and attract investors whose interests are aligned with ES objectives (Adams & Frost, 2008).

As indicated by the Department of National Treasury (2020) the Sustainable Finance Initiative for South Africa was created to promote the realization of sustainable industrial and commercial endeavours that recognize, accommodate, and account for ES hazards that may influence the financial sector's stability. As a result, the JSE offers a venue for drawing capital designated for environmentally friendly endeavours.

South Africa's government commitment to achieve Net Zero emissions by 2050 shows that, like other growing economies, it is not falling behind in the pursuit of sustainable environmental policies (Department of National Treasury, 2020). As coal accounts for the majority of the nation's electrical generation, the country emits a significant amount of greenhouse emissions. This creates an opportunity for investments in renewable energy and other low-carbon technology (OECD., 2021).

The South African government passed several laws such as the National Environmental Management Act, tying the natural resources, the physical environment, and ethics together to direct government institutions toward improved sustainability and stewardship to address these and other issues (RSA, 1998).To promote ecologically friendly behaviour in the economy, several policies have been implemented, such as the Carbon Tax, the National

Environmental Management Act, and the Integrated Resource Plan. There are now two indexes for responsible investing available on the JSE (Chininga et al., 2023). These consist of the FTSE/JSE Responsible Investment benchmark and the Top 30 Index for Responsible Investment.

2.2.4 Sustainability practices in the UK context

The United Kingdom (UK) has been leading in integrating ESG criteria into corporate strategy and business operations (Insights, 2023; Mallin & Ow-Yong, 2012). This commitment to sustainability practices is due to the presence of multiple regulatory frameworks such as the TCFD (Mejia, 2023), and CGCs such as the UKCGC (Mallin & Ow-Yong, 2012). These frameworks encourage and emphasise the importance of embedding sustainability into companies' strategic targets and daily business operations (Sutherland, 2023; Watershed, 2023).

The UKCGC is one of the regulatory frameworks applied by most UK organisations (Keasey et al., 2005). This code sets standards for good practice and good governance concerning remuneration, relations with stakeholders, accountability, and board leadership and effectiveness (Financial Reporting Council, 2012). All companies listed on the main board of LSE are required to comply with the UKCGC (Financial Reporting Council, 2012; Lu, 2023). The UKCGC emphasises the importance of considering ESG issues when setting the values and standards of the company (Financial Reporting Council, 2012). What differentiates the UKCGC from King IV is that it still operates on the "comply or explain" principle, while King IV operates on the "apply and explain principle" (Natesan, 2020; Roberts et al., 2020).

Unlike premium and standard-listed companies, AIM-listed companies are not required to comply with the UKCGC (Mallin & Ow-Yong, 2012). However, if AIM-listed companies comply and explain with any CGC of their choice, the code should be disclosed on their websites (The Chartered Governance Institute, 2018). The common choices amongst AIM-listed companies are either the UKCGC or QCACGC, QCACGC being chosen by the majority (Yeap, 2023). The QCACGC provides governance guidelines for SME-quoted companies in the UK and a framework to help these SMEs grow not only economically but also in all ES aspects. Compared to the UKCGC which is applied by larger companies, the QCACGC provides more flexibility for SMEs (Cucari, 2019; Rachagan & Satkunasingam, 2009). The QCACGC has provisions that strongly emphasise corporate culture, transparency, and objectivity (Cucari, 2019). Companies that apply the QCACGC are encouraged to disclose and communicate corporate strategies and long-term objectives which include their approach to ES matters (Cucari, 2019; Mallin & Ow-Yong, 2012). The QCACGC encourages companies that choose to apply its requirements to consider how their governance structures and policies, including

remuneration policies, support the strategy, objectives, long-term success and purpose of the company thereby maintaining shareholder and stakeholder trust (Mallin & Ow-Yong, 2012). Adherence to either the UKCGC or QCACGC helps companies meet investors' governance expectations (Htay & Salman, 2013). When investors profile AIM-listed companies, they expect a level of governance within these companies, which reassures them of the company's commitment to accountability, risk management, and transparency (Htay & Salman, 2013).

In June 2023, the UKCGC consulted with various standard setters on recommended changes that should be made to the 2018 UKCGC (Sutherland, 2023). The Financial Reporting Council (FRC) was one of the standard setters and regulators chosen by the UKCGC (Sutherland, 2023). The FRC proposed amending the principles included in section 5 of the UKCGC. These principles relate to remuneration policies. The FRC proposed strengthening and emphasising the link between the remuneration policy of a company, its ESG objectives, delivery and implementation of its long-term strategy, and its overall corporate performance (Sutherland, 2023). This suggests that standard setters and regulatory bodies are aware of the growing importance of ESG-based remuneration and the potential positive impact it has on investments and business operations in the long term (Lee et al., 2024).

Of the 18 initial proposed changes to the 2018 version of the UKCGC, only a handful were incorporated in the latest version of the UKCGC (2024) (Sutherland, 2023). One of the proposed changes that has not been incorporated is the audit committee's responsibility for sustainability and ESG reporting, this includes ESG-based remuneration as a recommended practice (Financial Reporting Council, 2024). The latest version of the UKCGC 2024 applies mandatorily to all premium and standard LSE-listed companies and by choice to AIM-listed companies (The Chartered Governance Institute, 2018).

Another regulatory framework that supports the use of ESG-based compensation is the TCFD. Premium-listed companies are required to have climate-related disclosures consistent with the TCFD's recommendations (Deloitte, 2013). Similar to the UKCGC, the TCFD operates on the "comply or explain" approach (Deloitte, 2013). AIM-listed companies are not subjected to the mandatory requirements of the TCFD which apply to premium-listed companies. The TCFD is an initiative founded by the Financial Stability Board (FSB) tasked to develop recommendations for more clear, robust, and effective climate-related disclosures (TCFD, 2017). The TCFD aims to promote more well-informed investment, insurance underwriting, and credit decisions (FSBT Force, 2017). The TCFD helps companies understand what financial markets require from disclosures to measure and respond to climate change risks and encourages companies to align their disclosures with investors' needs (Ding et al., 2023; TCFD, 2017). The disclosure recommendations provided by the TCFD fall into four thematic

categories which are governance, strategy, risk management, and metrics and targets (TCFD, 2017). The metrics and targets category is the link to ESG-based remuneration (FSBT Force, 2017; TCFD, 2017). The metrics and targets category states that "*metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material" (FSBT Force, 2017).* The guidance provided related to this recommended practice is to state whether and how performance indicators related to climate risk are integrated into remuneration policies (FSBT Force, 2017). If this is not disclosed, companies need to disclose why they do not integrate performance indicators related to climate risk into their remuneration policies (Deloitte, 2013). This recommended practice encourages the integration of E metrics into executive pay frameworks, with the intent to align executive directors' performance indicators with stakeholders' needs and interests (Lu, 2023; TCFD, 2017). Therefore, premium-listed companies (mandatory) and AIM-listed companies that choose to apply the TCFD are expected to at least disclose E KPIs linked to remuneration (Deloitte, 2013; Lu, 2023).

2.2.5 Sustainability practices in a Brazilian context

An improvement in sustainability practices has recently been witnessed in Brazil (Miralles-Quirós et al., 2018). More Brazilian companies are beginning to embrace ESG criteria. This is supported by the development of corporate remuneration strategies, regulatory frameworks, and standards (Garcia et al., 2017). The development in regulatory frameworks gained prominence in 2022, as the Brazilian regulatory bodies encouraged the shift in corporate strategies to more ESG-targeted strategies (Mattos Fliho, 2023). The Brazilian regulatory bodies have started requesting companies to comply with the set ESG reporting requirements laid out in regulatory frameworks such as the B3 ESG Reporting Guide, the Brazilian Corporate Governance Code, and the Brazilian Securities and Exchange Commission (CVM) Regulations (Matthos Filho, 2023). It is expected that this advancement and upward trend in ESG practices will persist for the foreseeable future (Matthos Filho, 2023; Mattos Fliho, 2023).

Regulatory bodies, including the Central Bank of Brazil, have established significant new regulations (Smoleńska, 2023), such as resolution No. 131 issued in 2021 and effective from 1 December 2022 (Baker McKenzie, 2021). This resolution requires companies under the purview of the Central Bank to report and disclose their ES, and climate risks and opportunities report (known as the GRSAC report) by December 2022 (Baker McKenzie, 2021). This regulation forces both financial and non-financial institutions under the purview of the Central Bank to identify, evaluate, and disclose ES and climate-related risks and opportunities linked to their operations (Baker McKenzie, 2021). The introduction of the GRSAC report demonstrates a pivotal shift towards integrating ESG practices into the strategic planning and

risk management of companies (Lehmen, 2021). This new resolution, implemented by the Central Bank of Brazil applies to all companies regulated by the Central Bank of Brazil (Smoleńska, 2023). Companies listed on the Bovespa Mais, a segment of B3 (Brasil, Bolsa, Balcão) are not directly regulated by the Central Bank of Brazil, they are regulated by the Securities and Exchange Commission (CVM), which also issues guidelines encouraging the disclosure of ESG practices (B3, 2023; Smoleńska, 2023).

The International Sustainability Standards Board's (ISSB's) International Financial Reporting Standards (IFRS) Sustainability Disclosure Standards have been incorporated into Brazilian Regulatory Frameworks (IFRS, 2023). IFRS S1 and S2 standards specifically require companies to disclose sustainability-related financial disclosures including climate-related disclosures (Susan, 2023). The decision to apply this standard encourages more Brazilian companies to disclose their ESG footprint, thus enhancing transparency around ESG and/or sustainability-related risks and opportunities (Miralles-Quirós et al., 2018).

The adoption of ESG-based remuneration is not specifically stated in the implemented sustainability regulations in Brazil. However, as Brazilian companies continue to integrate sustainability into their corporate strategies, it is expected that the advancement in sustainability practices will result in the inclusion of ESG criteria in executive directors' compensation frameworks (Schrippe & Ribeiro, 2018). It is expected for Brazil to be at the forefront of sustainability practices and disclosures as they are the sixth largest global greenhouse gas emitter and Brazil is responsible for 3.2% of global emissions (Lehmen, 2021). However, for SMEs listed on alternative exchanges like the Bovespa Mais, progress towards adopting advanced sustainability practices such as ES-based remuneration is expected to be much slower than that of large companies listed on main stock exchanges (Harwood & Konidaris, 2015; Schmidt et al., 2018). These SMEs often have financial constraints and receive much less market scrutiny and pressure to have complex and advanced sustainability disclosures (Franco & Rodrigues, 2021; Schmidt et al., 2018). However, it should be noted that although the individual impact on ES is minimal, collectively their ES impact is significant (Schmidt et al., 2018). Bovespa Mais listed companies primarily prioritise financial goals, including growth as this is what potential investors look for in small and growing companies (Franco & Rodrigues, 2021).

2.3 Purpose of listing on alternative stock exchanges

Alternative stock exchanges provide a platform that gives SMEs access to capital from the public (Brownlee, 2015). Through these platforms, these companies can invest in new projects, fund their growth, and create employment (Brownlee, 2015; Scholtz & Smit, 2012). These companies increase the economic development in the communities in which they

operate, as they promote entrepreneurship and innovation, which are crucial drivers of economic growth (Scholtz & Smit, 2012). It should be noted that their contribution to economic development is enabled by the accessibility to sufficient funding (Brownlee, 2015). The following table provides the main requirements that need to be met to list on the JSE AltX, AIM LSE, or Bovespa Mais.

Table 1: Listing Requirements of the JSE AltX, AIM LSE and Bovespa Mais

	JSE AltX	AIM LSE	Bovespa Mais
Capital requirement	Minimum share capital of R2 million	Market capitalisation of £30 million	Not specified
Board of directors	Must undergo a director induction programme	Directors must understand their responsibilities under AIM rules, usually guided by a nominated advisor	There is a strong emphasis on high corporate governance standards
Advisory requirements	Appointment of Designated Adviser	Appointment of Nominated Adviser (Nomad)	Not specified
Prospectus/Admission document	Companies need to publish a pre-listing statement or a prospectus	Preparation of an admission document detailing the company, its capital, and business; less detailed than a main market prospectus	Business plans outlining future prospects are required
Financial requirements	No profit history is required	Three years of audited financial required	Presentation of audited financial statements as per Brazilian accounting standards or IFRS

Corporate governance	Compliance with King IV code	Companies must apply a recognised corporate governance code and conduct annual reviews	High levels of corporate governance; directors should have proven competence and integrity
Sustainability requirements	Developed sustainability disclosure guidance aligned with global standards like GRI, TCFD, and IIRC	Not mandatory	Compliance with regulations including those with ESG requirements
Trading history	Not specified	No trading history is required	Not specified
Share free float	Not specified	Need a minimum of 10% share free float	
Reporting and disclosure	Need to comply with JSE listing requirements including declaration of cash dividends and compliance with King IV code	Compliance with AIM rules for reporting and disclosure practices	Establish an internal compliance department and adhere to internal controls and risk management
Listing fees	Not specified. The listing fee calculator is available on the JSE website	Not specified. The listing fees calculator is available on the LSE website	Exempt from the registration fee, there is a gradual discount on the listing maintenance fee for the first listing year

Listing process timeline	9 to 13 weeks	Initial stages take 3- 6 months, final stage takes 1-2 months. In total, it can take up to a year	Not specified

(B3, 2023; JSE, 2023; LSE, 2021)

According to Table 1, AIM-listed companies appear to have much stricter listing requirements (e.g., three years of audited financial statements). Auditing financial statements is costly (Bédard & Courteau, 2015) thus implying that the companies that list on the AIM LSE have more resources and are more developed than companies that list on the JSE AltX and Bovespa Mais. AIM-listed companies have sufficient capacity to create effective and efficient remuneration policies. This is emphasised by the share-free float minimum requirement. The purpose of a minimum share-free float requirement is to ensure that there is sufficient liquidity in the market for the listing company's shares (El-Nader, 2018). Shares that are free float allow investors to buy and sell them without any restrictions (Bostanci & Kilic, 2010)Therefore, it is expected that companies listed on the AIM LSE will have higher share trading volumes and, in turn, more financial resources than those on the JSE AltX and Bovespa Mais.

Based on Table 1, JSE AltX companies are expected and required to have sustainability disclosures, while Bovespa Mais companies are required to comply with regulations including those with ESG principles (B3; JSE, 2023). The AIM-listed companies do not have any mandatory sustainability requirements to be listed on the stock exchange (LSE, 2021). Based on the listing requirements, all JSE AltX should have sustainability reports or sustainability disclosures in their annual reports. The vagueness of the sustainability requirements of the Bovespa Mais sustainability requirements means that the lack of sustainability reports/disclosures potentially goes unpunished within this exchange.

2.4 Key Performance Indicators

Executive remuneration policies aim to incentivize and reward appropriate performance, risk management, and behaviour (Scholtz & Smit, 2012). KPIs are used to measure progress towards the achievement of the entity's objectives and the performance of management (Jetter et al., 2018). However, not all KPIs are linked to pay (Parmenter, 2015). Some KPIs are set for the company, which measure the achievement of set strategic targets (Parmenter, 2015). Other KPIs are set for employees, including executive directors, which are metrics used to reward employees for achieving set targets (Stan et al., 2012). The latter type of KPIs is ordinarily outlined in the remuneration policies set up by the remuneration committee (van

Wyk & Wesson, 2021). These remuneration policies form the foundation upon which executive remuneration packages are built (Jensen et al., 2004). These packages play a critical role in the success of the entity as they are used to attract and retain skilled executive directors who will, in turn, create value for the company (Mans-Kemp & Viviers, 2018).

2.5 KPIs and ES factors

Entities have started to account for and manage their ES footprints due to the increasing attention on the importance of sustainability reporting, the impact of business activities on ES factors, and the influence sustainability has on investing decisions (Adams & Frost, 2008). In a research study by Adams and Frost (2008), the process of developing KPIs for measuring sustainability performance and how these indicators can be used in decision-making, planning, and performance management is explored. The results from this study revealed that organisations integrating E indicators are beginning to increase the inclusion of S indicators into performance measurement, strategic planning, and decision-making including risk management (Adams & Frost, 2008). As KPIs are ordinarily implemented by those in governance to incentivize management to meet strategic objectives (Oshika & Saka, 2017), the above study proves that sustainability objectives can be met through the inclusion of sustainability targets in KPIs. The GRI provides a list of sustainability KPIs that can be used by companies for guidance in developing their own KPIs to measure sustainability performance (Joannou & Herbert, 2022).

Table 2 below depicts the different types of ES KPIs developed over time. ES KPIs can be further categorized into these categories; however, this is not the aim of the study.

Table 2: ES framework

Environmental	Social
✓ Energy efficiency ✓ Materials (recycled) ✓ Effluent water ✓ Waste ✓ Emissions	✓ Employee development and labour practices ✓ Occupational health and safety ✓ Training and education ✓ Local communities ✓ Human rights assessment ✓ Rights of Indigenous people ✓ Freedom of association and collective bargaining ✓ Public policy ✓ Customer health and safety ✓ Socioeconomic compliance ✓ Marketing and labelling

(Deloitte, 2021)

2.6 ES incentives as part of executive remuneration

Most executive remuneration policies tend to include mainly financial targets (Scholtz & Smit,

2012; Schwab & Thomas, 2006). Remuneration focuses on aligning the interests of executives and shareholders, paying little attention to other stakeholders (Maas & Rosendaal, 2016). Shareholders primarily want to maximise profits while stakeholders prefer non-financial target prioritisation over profits (Pérez Carrillo, 2007). The ignorance of the needs of stakeholders contributes to the lack of non-financial targets, specifically sustainability targets, included in existing remuneration policies (Hartikainen et al., 2021). Sustainability targets are sometimes difficult to present in numerical figures and the achievement of these targets is difficult to measure. This makes it more difficult to implement remuneration policies that include sustainability as a performance target in a transparent manner (Abdelmotaal & Abdel-Kader, 2016).

Researchers and academics are beginning to acknowledge the importance of including sustainability targets in executive remuneration (Hartikainen et al., 2021). The exclusion of such non-financial targets from executive remuneration packages does not promote value creation in the long term (Siegrist et al., 2020). Organisations such as the United Nations Principles of Responsible Investment (UN PRI) and the World Business Council for Sustainable Development (WBCSD) are encouraging organisations to include ES targets as part of executive remuneration. Multiple recommendations underscore the significance of linking non-financial, long-term objectives with executive compensation, both at the international and national levels. The UN PRI, for example, articulated that tying ESG performance to executive compensation is a means of ensuring accountability in achieving sustainable business objectives. The recommendation emphasises the integration of relevant ESG incentives into reward systems, forming a meaningful component of the broader remuneration framework (UN PRI, 2016). The inclusion of ES targets is a recent phenomenon (Joannou & Herbert, 2022). As such little research is available, this paper aims to contribute to research by exploring the inclusion of ES targets in executive remuneration.

Maas and Rosendaal (2016) explore the inclusion of sustainability targets (environmental, social, and a combination of both) in executive remuneration based on a sample of the largest listed firms from 11 developed countries. The study finds that financial incentives in executive remuneration are used to align the intentions of management with most stakeholders. Stakeholders that were previously ignored are now prioritised through the inclusion of these sustainability targets. In including such targets, ES bottom-line objectives are met (UN PRI, 2012).

The notion of corporate sustainability, which is adopted in this study, refers to the firm's capacity to maximize economic and ES performance simultaneously by guaranteeing the complete satisfaction of all stakeholder expectations (Almici, 2023). In light of this, executive

compensation is considered an effective instrument for promoting economic and non-economic performance improvement, provided that it is connected to non-financial objectives (Berrone & Gomez-Mejia, 2009).

Targets that are placed in remuneration policies increase the priority and effort that management places in achieving the objectives linked to the targets (Jetter et al., 2018). Having sustainability targets would thus lead to increased sustainability development within the entity (Dissanayake, 2021). Maas and Rosendaal (2016) argue against the inclusion of such targets as this could lead to agency costs. Once sustainability targets are included in executive remuneration, this could prompt executives to overinvest in ES objectives to receive rewards, in the short term this could affect the maximisation of shareholder wealth (Maas & Rosendaal, 2016).

Maas and Rosendaal (2016) further oppose sustainable remuneration as it does not completely address the stakeholder theory, which states that entities should not only focus on creating shareholder wealth, but they also equally need to meet the needs of other stakeholders like employees, customers, suppliers, and financers (Phillips, 2003). The inclusion of sustainability targets in remuneration addresses only some of the stakeholders' interests and needs, this could imply that other stakeholder needs and interests are not prioritised (Maas & Rosendaal, 2016), as not all stakeholders have the same stack (Freeman et al., 2010).

2.7 Factors affecting the inclusion of ES incentives as part of executive remuneration

The inclusion of sustainability targets in executive remuneration varies across industries ((Hartikainen et al., 2021). Maas and Rosendaal (2016) proved that companies within the 'dirty industries such as energy and utilities include these targets in their executive remuneration (66% and 64% respectively). The study further provides evidence that Australian and Canadian companies are the pioneers and frontrunners in including sustainability targets in remuneration. The result of this study provides more insight into the extent of inclusion of sustainability targets by various industries. The level of inclusion may differ based on whether there are stringent laws and regulations which emphasise sustainability reporting (Oshika & Saka, 2017). These results help analyse the remuneration policies of companies listed on alternative stock exchanges. More factors would need to be taken into consideration in the analysis, such as the AltX, AIM, and Bovespa Mais lists SMEs, whereas Maas and Rosendaal's study is based on large firms from developed or first-world countries. There is existing literature that demonstrates the frequency and variations in the use of ES KPIs based on the industry in which a company operates (Hartikainen et al., 2021). Each industry has distinct characteristics, including sustainability challenges, which influence the selection and

utilisation of ES KPIs (Melnyk et al., 2003). Furthermore, prior literature proves that the use of ES KPIs may differ based on industry-specific metrics such as waste management, water usage, labour conditions, or carbon footprint (Sharma & Vredenburg, 1998). For example, companies within mining industries are known to have much higher footprints and therefore have stricter regulations that require them to disclose their carbon footprints (de Villiers et al., 2014). These companies are most likely to prioritise disclosing E impact over S and governance impact, as their E impact is more detrimental and is what the market scrutinises them over (de Villiers et al., 2014). A contrasting example is companies within the tourism industry are likely to have a lower environmental impact and a more social impact (Ionescu et al., 2019; King et al., 1993). How these companies impact societies is part of their marketing strategies and whether customers prioritise positive social impact companies (King et al., 1993).

Another factor which could influence the inclusion of ES KPIs in remuneration is the size or market capitalisation of the company and the volume of the company's shares traded (Ullmann, 1985) (Pavelková et al., 2018). Studies have demonstrated that larger companies that have a high market capitalisation and a high volume of shares traded, tend to receive more pressure from the public, specifically investors and analysts (Babiak & Trendafilova, 2011). Companies with a high share trading volume may have a larger shareholder and stakeholder base with varying interests, making it necessary to incorporate sustainability practices to meet the interests of these shareholders and stakeholders (Ullmann, 1985). This results in a more complete adoption of ES KPIs to demonstrate transparency and accountability (Oshika & Saka, 2017).

The governing body has significant influence over the remuneration policies and frameworks of the company (de Matos, 2022; Van Zyl & Mans-Kemp, 2023). Specifically, the remuneration committee would primarily be responsible for providing oversight of the development and implementation of the remuneration policy and framework of the company (IoD, 2016). It is therefore important that companies comply with the composition requirements of the corporate governance codes they follow (Diligent corporation, 2019). For example, King IV requires a minimum of 3 members within the remuneration committee, and all members need to be non-executive directors with the chairman of the committee being an independent non-executive director (IoD, 2016). The decision to include ESG KPIs in remuneration frameworks would need to be approved by the remuneration committee (IoD, 2016). It is, therefore, crucial to have an all-rounded remuneration committee that does not only prioritise supporting the financial objectives of the entity but also the non-financial objectives such as good ESG performance (Aluchna & Kuszewski, 2022; Duh, 2017).

2.8 Empirical evidence from previous studies on ESG-Based Remuneration

Prior studies on ESG-based remuneration examine how incorporating ESG factors into executive pay schemes influences corporate behaviour, sustainability performance and financial outcomes. These studies provide insights into the practical implications of ESG-linked incentives.

Below is a list of positive impacts of ESG-based remuneration on sustainability practices compiled from prior literature:

1. Improvement in ESG performance: Prior studies indicate that companies that adopt ESG-based remuneration policies often see significant improvements in their ESG performance scores (Almici, 2023). For example, a study performed by Almici (2023), found a positive correlation between ESG-linked incentives and improved CSR reporting and practices, suggesting that executive directors prioritise ESG incentives when their remuneration is tied to ESG performance.

2. Enhanced corporate reputation: Collett Miles and Miles (2013) discuss how ESG-based remuneration can enhance a company's reputation among investors, customers and other stakeholders. By merely demonstrating a commitment to sustainability, companies can improve their brand image and stakeholder trust (Collett Miles & Miles, 2013; Donaldson & Preston, 1995).

3. Long-term value creation: Lu (2023) presents evidence that ESG-based compensation aligns executive directors' decisions in long-term value creation, encouraging investments in sustainable practices that benefit the company over time. By linking a portion of compensation to ESG performance, executive directors are incentivised to consider how their decisions impact E stewardship, S responsibility, and governance practices (Lu, 2023). ESG integration ensures that sustainability is not neglected as a peripheral concern but is central to the company's operational and strategic decision-making process (Velte, 2020). An important part of long-term value creation is sustainable investments. Examples of these include energy efficiency, green technologies, community development projects and waste reduction initiatives (Hartikainen et al., 2021). ESG-based compensation gives executive directors an incentive to prioritise and champion such investments, recognising their potential to generate long-term benefits not only for the company but for the ES at large (Jian & Lee, 2015). In the long term, these investments contribute to building a resilient, strong, and sustainable business model that can navigate changing world challenges.

Empirical evidence on the relationship between ESG-based remuneration and the financial

performance of the organisation is complicated. Some research reports, such as those in Jian and Lee (2015), provide findings that prove that although ESG-based compensation can lead to better sustainability practices, the correlation with short-term financial performance is not always positive. This is an indication of a potentially complex relationship between ESG objectives and financial outcomes.

While there a several positive outcomes of including ESG factors as KPIs in remuneration factors, there are challenges that companies, especially SMEs may encounter. A persistent challenge noted by Winschel (2022) is the complexity of accurately measuring ESG performance. There is a lack of uniform metrics and benchmarks which can be followed or referenced when trying to measure ESG performance (Winschel, 2022). This, in turn, makes it difficult to assess the success of executive directors in achieving the set ESG targets and meeting their allocated ESG KPIs (Jian & Lee, 2015; Winschel, 2021). The complexity is further exacerbated for SMEs due to a lack of resources, in comparison to large companies listed on main stock exchanges (Shields & Shelleman, 2015).

The rest of the report focuses on the methodology (see Chapter 3) followed by the researcher, the analysis of the results from tests run over the data collected (see Chapter 4) and the conclusion of the study (see Chapter 5).

3. Methodology

3.1 Research Design and overview of the method

A qualitative approach was employed using content analysis as a technique to gather data from the remuneration and sustainability reports enclosed in annual integrated reports of companies listed on the JSE AltX, AIM LSE, and Bovespa Mais exchanges. To analyse the data collected and address the research questions, descriptive and inferential statistics were used.

3.2 Population and sample

The population consists of companies listed on the JSE AltX, AIM LSE and Bovespa Mais as of the 31st of December 2022. The Bovespa Mais and JSE AltX were chosen because they are listed in BRICS[1] countries, which are developing economies. The AIM LSE was chosen for comparison, as it is listed in a developed economy, providing contrast to the JSE AltX and Bovespa Mais stock exchanges in developing economies. The study samples the Top 30 by market capitalisation AIM-listed companies, all 21 JSE AltX-listed companies and all 12 Bovespa Mais listed companies[2]. The rationale for sampling only 30 of the AIM-listed companies is threefold (Lu, 2023). Firstly, the Top 30 companies are the largest companies listed on the AIM LSE by market capitalisation. Due to their substantial influence in the market and increased institutional ownership, these large companies face heightened pressure and expectations to embrace sustainability initiatives including incorporating ESG-based remuneration (Insights, 2023; Lu, 2023). However, these companies are still considered small to medium-sized companies in comparison to the size of companies listed on the main LSE. Secondly, these companies typically have sophisticated and advanced remuneration frameworks in place which allows them to swiftly implement changes. As a result, it is assumed that the Top 30 AIM-listed companies are at the forefront of adopting ES-based remuneration practices in comparison to other companies listed on stock exchanges for SMEs (Insights, 2023; Mace, 2023). Furthermore, due to more stringent disclosure requirements, these companies provide a greater amount of publicly available information for content analysis (Lu, 2023). The population of the companies listed on the JSE AltX and Bovespa Mais will not be sampled. As of December 31st, 2022, there were 21 companies listed on the JSE AltX and 12 companies listed on the Bovespa Mais. Dual-listed and fund companies will be excluded from the study. Testing the entire population will aid the researcher in providing a holistic view of

[1] Brazil, Russia, India, China, and South Africa
[2] Only 30 of AIM listed companies were sampled to limit the impact of unequal samples sizes when comparing each stock exchange

the use of ES KPIs by companies listed on the AIM LSE, JSE AltX, and Bovespa Mais.

3.3 Data collection instrument

3.3.1 Sources of data

The data on ES-based remuneration was collected from the remuneration and sustainability reports of the JSE AltX, AIM LSE and Bovespa Mais listed companies, which were enclosed in their 2022 annual integrated reports. Information regarding the industry, the volume of transactions, and market capitalisation per company was obtained directly from iRess and EquityRT databases and the Financial Times website.

3.3.2 Pilot study

As in van Zijl & Hewlett (2022), a pilot study over 5 companies' reports was conducted. Each report was read in detail to identify all sections that contain KPI-related information. The purpose of the pilot study is to ensure consistency in the remuneration and sustainability reports of the companies and to identify any other variables to be captured that were not previously identified. From these sections, keywords were developed and used going forward to identify all KPI-related sections of companies' reports by identifying whether the targets or incentives used to remunerate the executives are linked to ES factors (van Zijl & Hewlett, 2022).

3.3.3 Collection of data

Data was collected through content analysis. A data collection instrument (see Appendix) was developed using Microsoft Excel. This instrument was used to capture the required information from the reports of JSE AltX, AIM LSE, and Bovespa Mais listed companies.

For consistency purposes, the data collection instrument used was the same across all exchanges. For each company, the following data was captured:

i. The name of the company, the trading name,

ii. whether it is dually listed or not,

iii. the primary listing date and secondary listing date (if applicable),

iv. the industry, sector, and the market capitalisation.

This information was captured directly from the LSE website (for the AIM-listed companies), Google Finance, the Financial Times and Google Finance website (for the JSE AltX-listed companies) and the B3 Mais website (for the Bovespa listed companies).

Information captured directly from the remuneration and sustainability reports of the

companies includes: the name and position of each director, whether the entity has sustainability reports/disclosures, whether each KPI captured was E, S or combined ES KPI[3], the number of E, S, and combined ES KPIs, the weighting of ES KPI in the total annual remuneration and the composition compliance of the remuneration committee.

When capturing data using the data collection instrument (see Appendix), each ES KPI per director per listed company was captured as a separate row. The unit of account used in this study was each director's ES KPIs disclosed in the remuneration and sustainability reports enclosed in the annual integrated reports of AIM LSE, JSE AltX, and Bovespa Mais listed companies (Guthrie, 2005).

Once data had been captured, each company's ES-linked remuneration KPIs were classified as E KPI, S KPI, or combined ES KPI. The ES framework, depicted in Table 2, was used to identify ES KPIs from each company's remuneration reports.

Before capturing the ES KPI frequencies, the researcher analysed the reports and captured whether the company provided detailed ES KPI remuneration disclosure based on the following 3 categories: the company provides detailed disclosures of ES KPIs linked to remuneration, the company mentions the integration/use of ES KPIs in remuneration, or the company does not provide nor mention the use of ES KPIs in remuneration. Grouping the companies according to the abovementioned categories aided the researcher in analysing trends within each industry, market capitalisation, volume of share transactions and executive director group (e.g., industry group 1 mostly contains companies that mention ES KPI). If the remuneration report did list the ES KPIs per executive director as well as the weighting of the ES KPIs against other short- and long-term incentives, it was allocated to the detailed ES KPI disclosure classification.

3.4 Data management and analysis

The Statistical Package for the Social Sciences (SPSS) was used to run the data analysis. Descriptive statistics, such as mean, median, variation, standard deviation, minimum and maximum and range, were used to summarise the data and gain an overall understanding of the ES remuneration KPIs used by the AIM, JSE AltX and Bovespa Mais companies. These descriptive statistics were used to answer all the research questions of the study at a basic comparative level.

The inferential statistic Kruskal-Wallis test was used to answer research questions 2.1, 2.2, and 2.3. The data captured was analysed using Kruskal-Wallis tests to determine

[3] Combined ES KPI refers to disclosures that do not clearly differentiate the KPIs as exclusively environmental (E) or social (S)

whether the frequency of ES KPIs is statistically different when the companies are grouped by industry, volume of share transactions and market capitalisation. To use the Kruskal-Wallis test, data must be non-parametric (Sawilowsky et al., 2005). The Kolmogorov-Smirnov and Shapiro-Wilk tests were run to ensure that the data used in this study is non-parametric (Luengo et al., 2009). A 5% significance level was chosen in line with other exploratory research papers (Malola & Maroun, 2019). Table 4 below provides an overview of the tests that were performed to answer research question 2.1, 2.2, and 2.3, to determine if there is a difference in the sum of the ES KPIs per category. During data collection, it became apparent that JSE AltX and Bovespa Mais companies disclosed very few ES KPIs, resulting in an unexpectedly small sample for inferential testing in those exchanges. As a result, there was no feasible alternative for robust statistical testing, since Kruskal-Wallis test requires sufficient subgroup sizes. Consequently, the final inferential analysis could only be performed for the LSE AIM data, for which appropriate sample sizes were available. The outcomes from these tests are included in chapter 4.This limitation, stemming from the unexpectedly small sample, necessarily constrains the breadth of the study's quantitative findings, but does not invalidate the descriptive insights gained. These constraints and their impact on the interpretation of results are further discussed in Chapter 4.

3.4.1 Variables

The independent variables used to answer research question 2 include the industry, size of the company (this was measured using the market capitalisation as of 31 December 2022), the annual volume of share transactions for the 2022 financial year, and whether the remuneration related to the CEO, CFO, COO, or other directors. In the case where a company does not disclose the position of the director or does not disclose which type of director the ES KPI applies to, the researcher categorised the ES KPIs as applicable to other directors. The remuneration committee composition compliance was analysed as part of analysing the differences in ES KPIs frequency based on market capitalisation.

Each company in each of the three stock exchanges were initially classified according to the industry and sector in which it operates. The industries were further segmented into categories based on ES impact. Table 3 depicts the classification of each industry. The category "Other" refers to industries that do not have a high E, S or combined ES impact. The category "High combined ES impact" refers to industries that have a high E and S impact. Industry per company was captured from the stock exchange website in which the company is listed (i.e., AIM LSE website). The FTSE4Good Index Series Inclusion criteria were used to classify the

industries based on ES issues (FTSE, 2010; Galbreath, 2013)

The volume of share transactions was collected from iRess, Financial Times and Google Finance. The volume represents the number of share transactions in 2022. A list of each company's volume of share transactions (per stock market) was compiled in descending order. The researcher proceeded to divide this list into three quartiles namely, high volume of share transactions, medium volume of share transactions and low volume of share transactions. e

Table 3: Classification of industries into categories based on ES impact

	Industry	Score per category
High E impact	Consumer staples, basic materials, industrials, Energy, Technology	1
High S impact	Consumer discretionary, consulting services, Financial services, medical care facilities, education and training services, confectioners	2
High combined ES impact	Biotechnology and health information services, medical care facilities	3
Other	Advertising agencies, Telecom services, software applications, internet retail, capital markets, electronic gaming and media, furnishings, fixtures, and appliance	4

(Andersen & Bams, 2022; Indeed, 2023)

The market capitalisation for each company was collected directly from the website of the stock exchange in which the company is listed. For each stock exchange, the companies were ranked and grouped based on market capitalisation into top-tier, middle-tier, and bottom-tier. A list of the company's market capitalisation was compiled in descending order and was equally split into three tiers.

Information regarding the composition of the remuneration committee was collected directly from the respective company's remuneration report. The number of independent non-executive directors and the corporate code of governance applied by each company were captured. The study captures whether the company follows the recommended practices related to the remuneration committee of the chosen corporate code of governance. For example, the United Kingdom Corporate Code of Governance (UKCGC) recommends that the

chairman of the board should not be a part of the remuneration committee. The dependent variable of this study is the frequency of ES KPIs included in executive remuneration.

3.4.2 Challenges faced when capturing data

All the reports for each company on the Bovespa Mais were in Portuguese. The researcher translated them into English using Google Translate.

3.5 Validity and reliability

To ensure validity and reliability, a pilot test was conducted over a sample of companies listed on the JSE AltX, to ensure the availability of data for the study. The researcher who performed the pilot study is the same researcher who collected and captured the data to ensure consistency.

The study tests all companies listed on the JSE AltX and Bovespa Mais, which increases the validity of the results that were obtained. The validity and reliability of the study are increased through the use of appropriate tests. Through the data meeting the Kruskal-Wallis test assumptions, the validity and reliability of the study are increased. The assumptions are:

1. The dependent variable should be measured at the ordinal or continuous level: the dependent variable is the frequency of ES KPI, which is at the continuous level.
2. There should be independence of observations: each group is independent of one another, and information gathered and observed from one AtlX-listed company's remuneration reports has no impact on information gathered and observed from another (Laerd statistics, 2023; Ostertagova et al., 2014).
3. Two or more independent categorical variables: market capitalisation, industry and volume of share transactions are independent categorical variables, as such the third assumption of the Kruskal Wallis test is met. (Ostertagova et al., 2014).
4. The data must be non-parametric: the data used does not follow a normal distribution, thus there is no assumption of normality. The Due Kolmogorov- Smirnov and Shapiro-Wilk tests were run to ensure that the data used in this study is non-parametric (Luengo et al., 2009).

Most of the data captured is either from the remuneration reports of the companies or the stock markets' websites. Although prior research studies do not use websites as data sources, websites are easily accessible and are used by most companies to publish useful information for users (Hassan et al., 2022).

To increase the validity and reliability of the chosen methods, the Wilcoxon signed-rank test was used as a robustness test (Sawilowsky et al., 2005).

Table 4: Inferential data analysis

Description of the independent variable	Combined ES KPI frequency	E KPI frequency	S KPI frequency	Reason	Test
Industry (1-12 categories)	ES KPI frequency= f(industry)	E KPI frequency= f(industry)	S KPI frequency= f(industry)	To determine whether the extent of ES remuneration KPIs differ depending on the industry of the entity.	KW**
Size (1= top tier, 2= middle-tier, 3= bottom-tier)	ES KPI frequency= f(size)	E KPI frequency= f(size)	S KPI frequency= f(size)	To determine whether the extent of ES remuneration KPIs differs depending on the market capitalisation of the entity.	KW**
The volume of share transactions (1= 1st quartile, 2= 2nd quartile, 3= 3rd quartile, 4= 4th quartile)	ES KPI frequency= f (volume of share transactions)	E KPI frequency= f (volume of share transactions)	S KPI frequency= f (volume of share transactions)	To determine whether the extent of ES remuneration KPIs differs depending on the volume of share transactions of the entity.	KW**

** Kruskal-Wallis

4. Analysis of results

The analysis of results begins with an overall discussion of the ES KPIs linked to remuneration used by companies listed on the JSE AltX, AIM LSE and Bovespa Mais exchanges to address research question 1. A summary of the ES KPIs linked to remuneration used by the investigated companies is included in Table 5 below. This is followed by an in-depth discussion on the link between the level of ES-based remuneration disclosure adoption and the CGCs which apply to each stock exchange. Figures which provide extracts of the ES KPI disclosure in companies' integrated reports are provided to illustrate the varying levels of ES-based remuneration adoption. For those companies that do not disclose ES KPIs, a discussion on whether this practice is justified is provided. To address research question 2, a discussion is provided on whether the ES-related KPIs linked to remuneration differ depending on the industry, size, volume of share trading transactions, and being CEO, CFO, COO or other director of the company. Furthermore, the remuneration committee composition compliance based on the chosen CGC is analysed to assess whether remuneration committee composition links to the adoption of ES-based remuneration. Owing to the limited ES KPI linked to remuneration disclosure within JSE AltX and Bovespa Mais listed companies (see Table 5), the discussion for research question 2 is confined to AIM-listed companies.

4.1 Extent of use of ES KPIs by companies listed on the AIM, JSE AltX, and Bovespa Mais stock exchanges

The table below summarises the data collected from companies listed on the alternative exchanges in the UK, South Africa, and Brazil.

Table 5: Extent of use of ES KPIs linked to executive remuneration

Number of companies	AIM LSE	JSE AltX	Bovespa Mais
Disclose ES KPIs linked to executive remuneration in detail	15	0	0
Mention ES KPIs in their remuneration reports but do not provide detailed disclosure	1	2	0
Neither mention nor disclose ES KPIs	14	19	12
Total number of companies	**30**	**21**	**12**

Companies listed on the AIM stock exchange operate within the UK's regulatory environment. It is a requirement that the AIM-listed companies comply with a chosen CGC, the most common being the UKCGC and the QCACGC. The codes advocate for integrated thinking at all levels in the organisation and a focus on long-term value creation (Cucari, 2019; Financial Reporting Council, 2012). According to Table 5, 15 of 30 (50%) AIM-listed companies provide

detailed ES remuneration disclosures compared to none disclosed by JSE AltX and Bovespa Mais companies. This suggests that the UK's regulatory environment encourages transparent disclosure practices and the integration of ES factors with director remuneration to meet the long-term sustainability goals of the company, this is in line with the findings of Kaur (2021a), Lu (2023) and und Recht (2022). The strict listing requirements within the AIM LSE may impact the level of reporting and disclosure by companies within this exchange as they undergo more regulatory compliance checks in comparison to the JSE AltX and Bovespa Mais listed companies. This is in addition to the increased focus placed by the AIM on long-term value creation and sustainable development to the less stringent regulatory frameworks that may characterise exchanges like JSE AltX and Bovespa Mais.

Companies listed on the JSE AltX are required to not only comply with the King IV code of corporate governance but also meet listing requirements that mandate sustainability disclosures aligned with global frameworks such as GRI Standards, TCFD recommendations and the IIRC Integrated Reporting Framework (JSE, 2016). This code advocates for the use of remuneration policies that are aligned with the ES goals of the company (Doni et al., 2019). Bearing this in mind, it is surprising that no companies disclose ES remuneration KPIs, with only two companies investigated vaguely mentioning the adoption of ES KPIs (see Figure 3) in their annual integrated or remuneration reports. The lack of disclosure and use of ES KPIs in executive remuneration may be because companies listed on the JSE AltX are generally emerging companies in a developing country. As such, it is likely that these companies face resource pressures and may not have the available financial or intellectual resources to implement and disclose sophisticated remuneration policies (Harwood & Konidaris, 2015). Furthermore, these companies possibly face more pressure to remain financially feasible due to their growth priority, placing less pressure on the need to engage in ES-based remuneration, which might not have a direct or faster impact on the companies' finances (Franco & Rodrigues, 2021; Harwood & Konidaris, 2015).

Companies listed on the Bovespa Mais exchange are not mandated to comply with any CGC aligned with ES-based remuneration thinking and reporting. This contributes to the lack of disclosure and the use of ES KPIs in the remuneration policies of these companies as seen in Table 5 (nil companies have ES KPI disclosures). Bovespa Mais of Brazil, like JSE AltX of South Africa, operates within a developing economy and lists SMEs. Similarly to JSE AltX companies, Bovespa Mais companies are also likely to face resource constraints in adopting advanced sustainability practices, such as the integration of ES KPI in directors' remuneration.

Figure 1 below provides further analysis of the use of ES KPIs in director remuneration policies. Figure 1 provides the ES-based remuneration disclosure patterns of AIM-listed

companies based on their CGC of choice.

Figure 1: ES remuneration disclosures of companies grouped by corporate governance code.

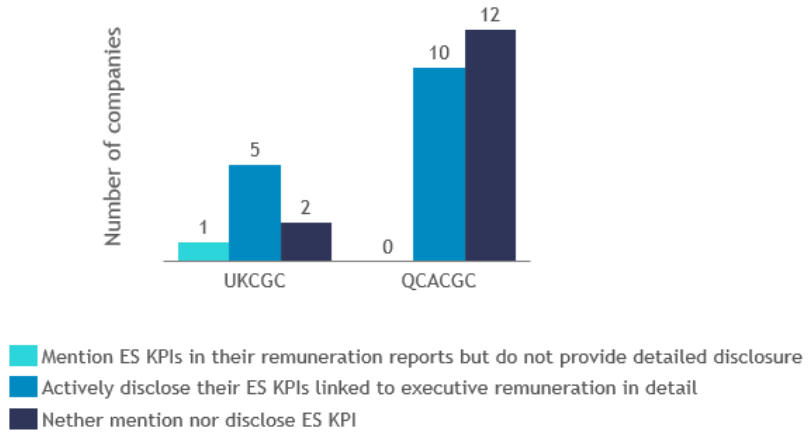


Figure 1 indicates that 22 of the 30 companies investigated on the AIM chose to adhere to the QCACGC, whilst the other eight companies adhere to the UKCGC. This is expected as the QCACGC is typically more suitable for SMEs due to its flexibility, which recognises the diverse nature of SME operations within its target audience (see section 2.2.5). Furthermore, the QCACGC allows SMEs to adopt governance practices proportional to their size, resources, and complexity, rather than forcing a rigid governance framework (Cucari, 2019; Rachagan & Satkunasingam, 2009). The more rigorous disclosure requirements of the UKCGC require more resources to be deployed to meet these requirements, which may be difficult for SMEs because of resource limitations due to lower capital and generally lower skills and experience of employees (Dwekat et al., 2020; Mallin & Ow-Yong, 2012; und Recht, 2022).

Figure 1 illustrates that 10 of the 22 (45%) companies that adhere to the QCACGC have detailed ES remuneration disclosures, while five of the eight (62%) companies that adhere to the UKCGC have detailed ES remuneration disclosures. The higher ES-based remuneration adoption rate in companies that adhere to the UKCGC is attributed to the increased emphasis by the UKCGC on incorporating ESG factors in corporate governance practices. However, it should be noted that the UKCGC does not specify detailed requirements for the inclusion of ES KPIs in remuneration frameworks (Financial Reporting Council, 2012).

As part of the adaptation process of the 2024 UKCGC, regulatory bodies recommended the inclusion of ESG targets linked to executive remuneration and the disclosure of these policies (Sutherland, 2023). Companies that adhere to the UKCGC could have pre-empted adherence to the 2024 UKCGC by integrating ESG targets into remuneration frameworks before

amendments are made to the UKCGC. The overall number of companies with ES-based remuneration disclosures (15 of 30 companies investigated) is expected as the majority of the AIM-listed companies adhere to the QCACGC which does not have detailed ES-based remuneration disclosure requirements (Mallin & Ow-Yong, 2012). Put differently, had more AIM-listed companies adopted the UKCGC, a higher proportion of ES-based remuneration adoption would have been expected.

The QCACGC encourages companies that choose to apply its requirements to consider how their governance structures and policies, including remuneration policies, support the strategy, objectives, long-term success and purpose of the company (Mallin & Ow-Yong, 2012). If the objectives of a company include ESG targets, the company should disclose remuneration policies, amongst other policies, that support the achievement of those ESG targets. It is up to the company to decide on how to disclose the remuneration policies that support the achievement of the ESG targets. This suggests that the 10 QCACGC companies that provided detailed disclosures of ES KPI linked to remuneration took a step further into considering how they can use their remuneration policies to promote responsible business practices and their values, which may include ESG factors.

Two of the eight (25%) companies that adhere to the UKCGC neither disclose nor mention the use of ES KPIs. In comparison, 12 of the 22 (55%) companies that adhere to the QCACGC neither disclose nor mention the use of ES KPIs. This could imply that the UKCGC, which is known for its meticulous and prescriptive approach, is effective in encouraging some level of engagement with ES-based remuneration, even though it does not have specific recommended practices which mandate the adoption of ES KPI in remuneration frameworks (Lu, 2023; und Recht, 2022).

The TCFD has been adopted by the UK and Brazil[4], amongst other countries. This framework is only mandatory for premium and standard listed companies within the main stock exchanges. A best practice recognised by the TCFD's "metrics and targets" is the integration of ES criteria into executive compensation (Mejia, 2023). Interestingly, there is a stark contrast between the AIM and Bovespa Mais stock exchange in adopting this practice. The AIM stock exchange is leading in gaining traction in ES-based remuneration (50% of companies have ES KPI linked to remuneration disclosure) (Mallin & Ow-Yong, 2012). This shows a proactive approach to sustainability and governance-conscious business strategies by AIM-listed companies (und Recht, 2022). Given that many SMEs use alternative stock exchanges as a stepping stone towards listing on main/primary stock exchanges, it would be expected that

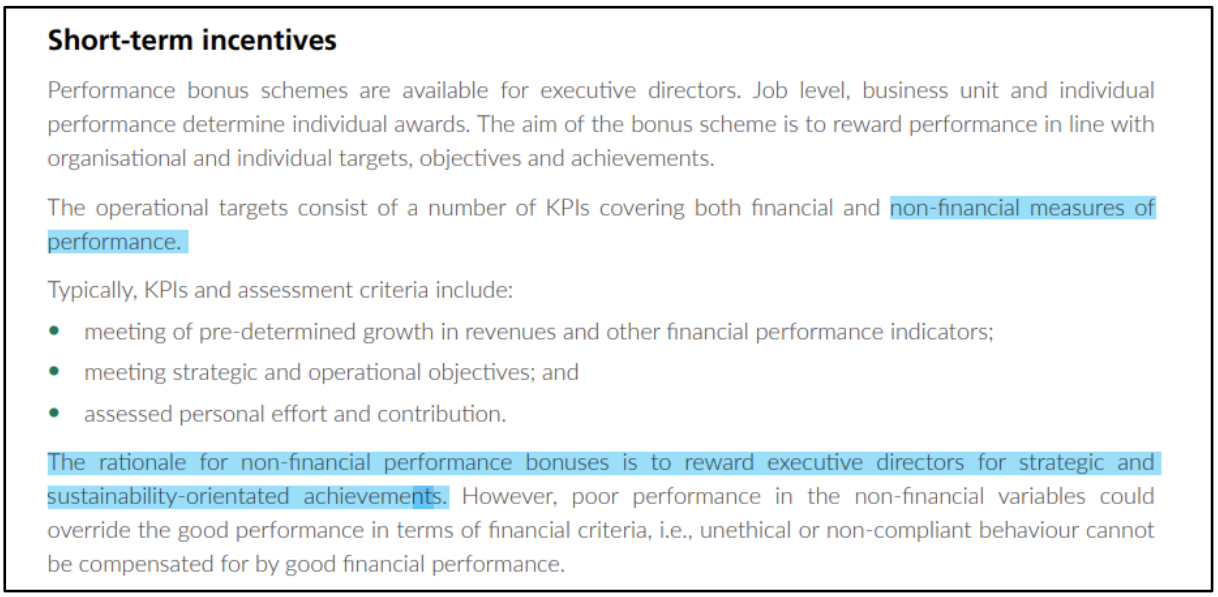
[4] South Africa is not part of the seven countries that adopted the TCFD

these SMEs gradually start adopting requirements that are mandatory for premium and standard listed companies. The 15 of the 30 AIM-listed companies with ES-based remuneration adoption could have chosen to comply with the requirements set in the TCFD framework, as once they are listed on the main stock exchange, they would have already shifted their operations to the main stock exchange's mandatory requirements.

On the other hand, the Bovespa Mais shows little progress in implementing ES-based remuneration policies. Companies listed on the Bovespa Mais exchange are yet to integrate ES KPIs in their remuneration frameworks and provide detailed disclosures thereof, as evidenced in Table 5. This could indicate reluctance towards making a complete shift to more sustainable practices (Harwood & Konidaris, 2015) as companies within this stock exchange prioritise raising capital and growth, as it is a niche exchange with small-sized companies. The difference in sustainability disclosure practices between the Bovespa Mais and AIM LSE stock exchange underscores the varied pace at which different markets across the globe are making the shift towards integrating ES performance into executive compensation structures. What sets the JSE AltX and Bovespa Mais further apart from the AIM LSE is the capital requirements to list (see Table 1). For instance, the minimum market capitalisation required to list on the AIM LSE is £30 million, whereas the JSE AltX has a much lower threshold at R2 million (approximately £86 000). No minimum market capitalisation requirement exists for listing on the Bovespa Mais. This highlights the disparity in the financial and other resources available to these entities based on their listing exchange. Companies listed on the AIM have far greater experience and financial resources, allowing for increased focus on sustainability and long-term value creation made possible by linking ES KPIs to remuneration.

An interesting practice identified during data collection is the vague disclosure of ES KPIs linked to remuneration, or mention made of ES KPIs linked to remuneration without providing the details of these ES remuneration policies and practices. This practice is identified in JSE AltX companies and AIM-listed companies' remuneration reports. According to Table 5, 2 of 21 AltX-listed companies and 1 of 30 AIM-listed companies vaguely mention, or disclose the use of ES KPIs, but do not provide details such as what the KPIs are, whether the KPIs are E or S KPIs and how remuneration is allocated to these E and S considerations. Figure 2 is an example of how one of the JSE AltX-listed companies mentions the use of ES KPIs but does not disclose the detailed ES remuneration KPI. It is impossible to determine the frequency of ES KPI when the disclosures are vague, this makes it challenging to assess the company's progress in adopting ES-based remuneration (Kaur, 2021a).

Figure 2: Extract of 2022 Integrated Annual Report of Company A (JSE-AltX listed company)



Short-term incentives

Performance bonus schemes are available for executive directors. Job level, business unit and individual performance determine individual awards. The aim of the bonus scheme is to reward performance in line with organisational and individual targets, objectives and achievements.

The operational targets consist of a number of KPIs covering both financial and non-financial measures of performance.

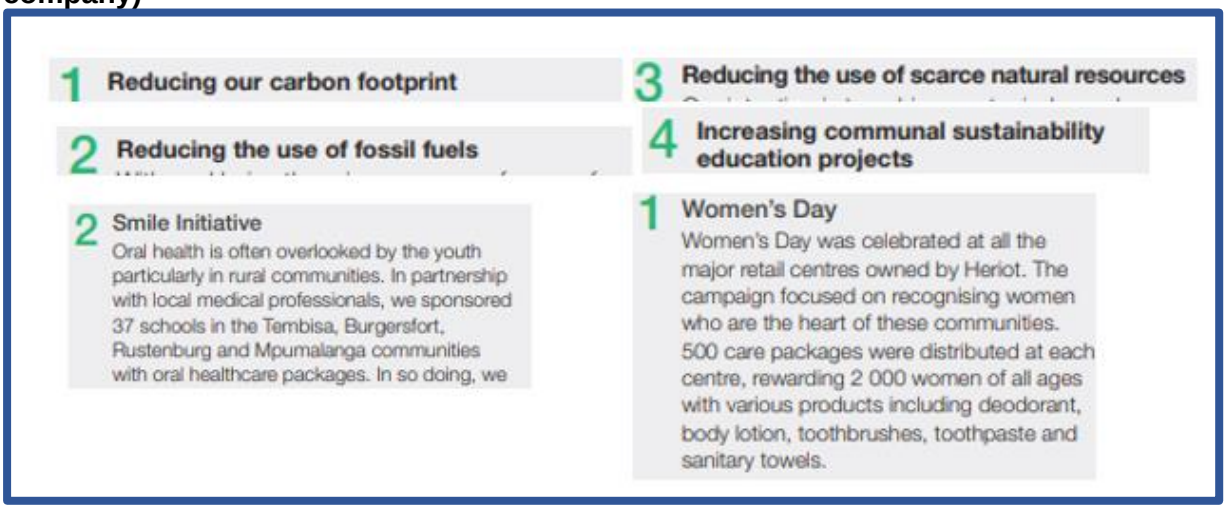
Typically, KPIs and assessment criteria include:

- meeting of pre-determined growth in revenues and other financial performance indicators;
- meeting strategic and operational objectives; and
- assessed personal effort and contribution.

The rationale for non-financial performance bonuses is to reward executive directors for strategic and sustainability-orientated achievements. However, poor performance in the non-financial variables could override the good performance in terms of financial criteria, i.e., unethical or non-compliant behaviour cannot be compensated for by good financial performance.

Figure 3 below is an example of sustainability KPIs disclosed by Company B, a JSE AltX-listed company. Some companies on the JSE AltX provide detailed disclosures of their ES targets and KPIs but do not take a step further to link those KPIs to executive remuneration. This suggests that JSE AltX companies are already attuned to basic sustainability practices, including sustainability disclosures, but there is room for improvement.

Figure 3: Extract of 2022 Integrated Annual Report of Company B (JSE AltX listed company)



1 Reducing our carbon footprint

2 Reducing the use of fossil fuels

3 Reducing the use of scarce natural resources

4 Increasing communal sustainability education projects

2 Smile Initiative

Oral health is often overlooked by the youth particularly in rural communities. In partnership with local medical professionals, we sponsored 37 schools in the Tembisa, Burgersfort, Rustenburg and Mpumalanga communities with oral healthcare packages. In so doing, we

1 Women's Day

Women's Day was celebrated at all the major retail centres owned by Heriot. The campaign focused on recognising women who are the heart of these communities. 500 care packages were distributed at each centre, rewarding 2 000 women of all ages with various products including deodorant, body lotion, toothbrushes, toothpaste and sanitary towels.

The integration of ES targets into remuneration frameworks is complex and requires a foundation built on detailed sustainability reporting (Lee et al., 2024). This foundational step is crucial, as the KPIs need to be based on established ESG targets (Peng & Smith III, 2023). The progress towards achieving these set targets is used to determine executive directors' remuneration (Lu, 2023). For some of the companies in developing markets without ES-based

remuneration disclosures (see Table 5), the owners of the company and management are the same people, therefore there is less need to align interests, due to very low agency costs (Franco & Rodrigues, 2021; Rachagan & Satkunasingam, 2009). This reduces the need for complex sustainability disclosures such as ES-based remuneration. Additionally, SMEs are usually perceived to have a much lower ES and financial impact (Schmidt et al., 2018), reducing sustainability disclosure pressures.

Table 6 presents a stark contrast in the approach of the AIM, JSE AltX, and Bovespa Mais listed companies towards sustainability reporting, and ES-based remuneration as an extension. In the UK, the AIM-listed companies all show a proactive stance towards sustainability reporting, either by issuing annual sustainability reports or by incorporating sustainability disclosures in their annual integrated reports. This pervasive compliance to sustainability reporting among AIM-listed companies is an indication of the level of commitment to sustainability principles and lays a solid foundation for integrating ES targets into executive remuneration frameworks (Lu, 2023; Mallin & Ow-Yong, 2012).

Table 6: Number of companies with sustainability disclosures/reports within the AIM LSE, JSE AltX and Bovespa Mais stock exchange

	AIM LSE	JSE Alt X	Bovespa Mais
Number of companies with sustainability disclosures/ reports	30	15	0
Number of companies without sustainability disclosures/reports	0	6	12
Total number of companies	**30**	**21**	**12**

In contrast to the AIM-LSE sustainability practices, the JSE AltX in South Africa demonstrates a much slower progression towards sustainability reporting (Egu & Chiloane-Tsoka, 2023). While all companies on the JSE AltX prepare integrated reports, only 15 of the 21 (Table 6) companies include sustainability disclosures in their integrated reports. This demonstrates an embryonic stage in their journey towards ES integration in operations and the resultant executive director remuneration practices (Hartikainen et al., 2021). According to the AltX listing requirements, all companies need to have sustainability disclosures aligned with global sustainability standards such as the GRI (Table 1). The companies that do not have sustainability disclosures/reports are non-compliant with the AltX-listing rules, this raises questions on what punishment these companies should potentially receive for non-compliance. During data collection, the Bovespa Mais listed companies had no easily

attainable sustainability reports, which implies that there were no companies on this exchange with publicly available sustainability reports.

The level of detail in sustainability disclosures varies across the AltX companies. For example, Figure 4 provides an extract of Company C's sustainability disclosure within its 2022 integrated annual report. This disclosure was provided under the Social and Ethics Committee report. In comparison, Figure 5 provides an extract of Company D's application of one of the SDG goals to its operations. Company D provides detailed disclosures of selected SDG goals and how they plan on applying and achieving the goals within their business. The varying levels of detailed sustainability disclosures demonstrated in Figures 4 and 5 may be due to differences in the interpretation of the sustainability frameworks used by these entities. Company C and Company D both follow the UN SDG's sustainability disclosure guidelines, Company D particularly focuses on goals 3, 6, 8, 12, and 15. Company C also applies the GRI standards for sustainability reporting. These frameworks provide guidance on the extent of detail for sustainability disclosures and are influenced by the availability of resources and the entities' experience in sustainability reporting. Company D operates within the mining and metals sector which is highly regulated and has a larger direct impact on the environment and surrounding communities (Van Zijl et al., 2017). This contributes to the detailed sustainability disclosures to avoid compliance penalties or related issues. Company D has a longer listing period (it has been listed since 2006) on the AltX than Company C which operates within the REIT sector (it has been listed since 2017). The greater tenure results in a greater understanding of the impact of the business and may allow for better understanding and disclosure of the sustainability of the company. Company C has a higher market capitalisation, R8.3 billion than Company D, R4.4 billion. Since Company C has more financial resources than Company D, they may be in a position to provide better sustainability disclosure despite having less environmental impact. However, due to their lower impact, it is likely that fewer resources would be allocated to the process.

Figure 4: Extract of sustainability disclosure of Company C within its 2022 integrated annual report(JSE AltX-listed company)

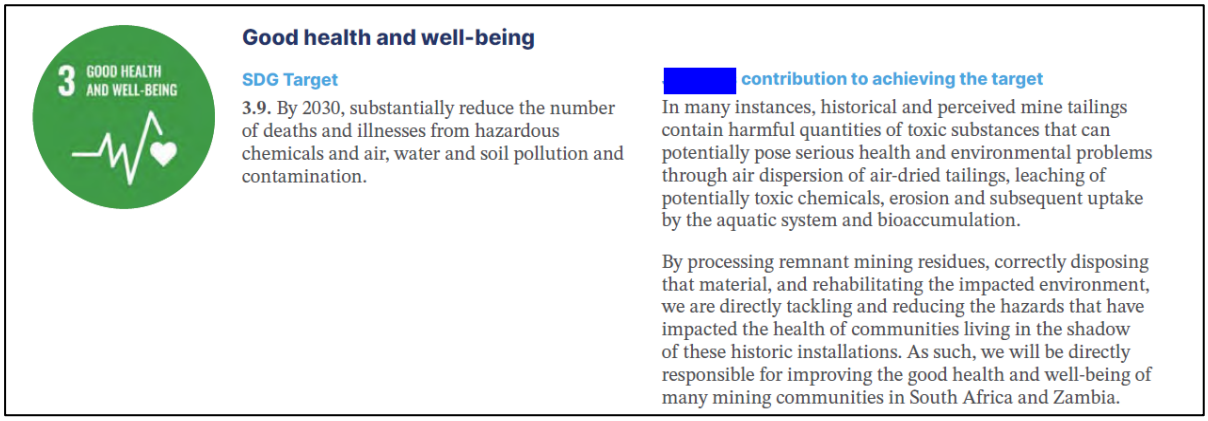

Sustainability

Monitoring employment relationships and the company's contribution to employees' self-development.

Monitoring workplace health and safety issues.

Consideration of the top sustainability issues as identified by management.

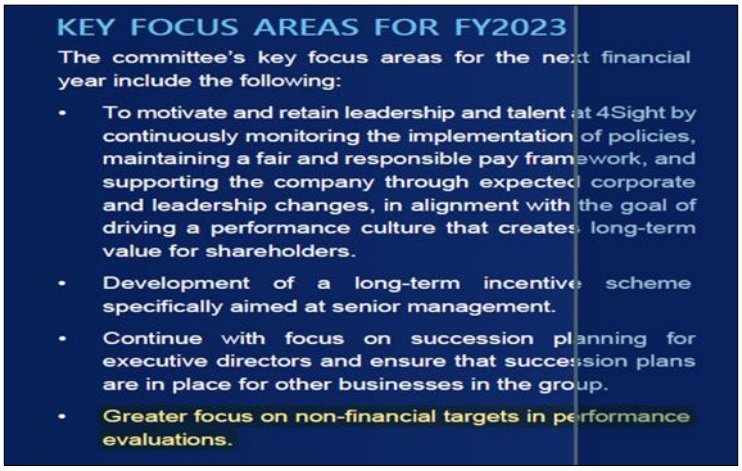
Figure 5: Extract of sustainability disclosure of Company D within its 2022 integrated annual report (JSE AltX-listed company)



The difference in sustainability practices between the JSE AltX and the AIM may be attributed to the regulatory and governance frameworks within their respective countries (Dwekat et al., 2020). In the UK, the UKCGC and the QCACGC play a crucial role in urging companies to report on their sustainability practices (und Recht, 2022). These CGCs recommend practices that foster transparency and encourage companies to align their strategies with established sustainability targets (Dwekat et al., 2020; Mallin & Ow-Yong, 2012). The gradual adoption of sustainability reporting within the JSE AltX may demonstrate the absence or limited impact of regulatory and governance frameworks such as the UKCGC and QCACGC (Arun et al., 2022; Egu & Chiloane-Tsoka, 2023), that encourage and emphasise sustainability reporting and ES-based remuneration as a corporate strategy (Lu, 2023). Until more JSE AltX-listed companies begin to adopt sustainability reporting, the shift toward ES-based remuneration will remain an uphill battle (Arun et al., 2022).

Figures 6 and 7 below demonstrate the gradual shift towards sustainability practices within the JSE AltX and AIM LSE. These figures demonstrate two companies that are actively working towards integrating ES metrics in remuneration frameworks. Amongst these companies, Company E stands out for its forward-looking approach. Figure 6 demonstrates the extent to which the directors at Company E are well aligned with non-financial metrics, recognising them as a strong motivator for good performance. While the disclosure does not specifically describe the non-financial targets as ES targets, the mere acknowledgement of the importance of non-financial targets signals a step towards adopting ES-based remuneration (Doh et al., 2015). The commitment to prioritise non-financial targets as KPIs in the next financial year signals a positive shift towards a more transparent, comprehensive, and responsible corporate strategy (Matemane et al., 2023).

Figure 6: Extract of 2022 Annual Integrated Report of Company E (JSE AltX-listed company)

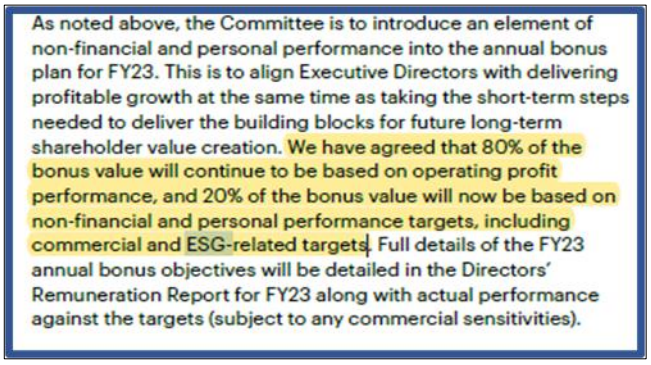


KEY FOCUS AREAS FOR FY2023

The committee's key focus areas for the next financial year include the following:

- To motivate and retain leadership and talent at 4Sight by continuously monitoring the implementation of policies, maintaining a fair and responsible pay framework, and supporting the company through expected corporate and leadership changes, in alignment with the goal of driving a performance culture that creates long-term value for shareholders.
- Development of a long-term incentive scheme specifically aimed at senior management.
- Continue with focus on succession planning for executive directors and ensure that succession plans are in place for other businesses in the group.
- Greater focus on non-financial targets in performance evaluations.

Figure 7: Extract of 2022 Annual Integrated Report of Company F (AIM-listed company)



As noted above, the Committee is to introduce an element of non-financial and personal performance into the annual bonus plan for FY23. This is to align Executive Directors with delivering profitable growth at the same time as taking the short-term steps needed to deliver the building blocks for future long-term shareholder value creation. We have agreed that 80% of the bonus value will continue to be based on operating profit performance, and 20% of the bonus value will now be based on non-financial and personal performance targets, including commercial and ESG-related targets. Full details of the FY23 annual bonus objectives will be detailed in the Directors' Remuneration Report for FY23 along with actual performance against the targets (subject to any commercial sensitivities).

Figure 7 complements Figure 6. The disclosure extracted from the annual integrated report of Company F, an AIM-listed company, provides a clearer picture of the company's commitment and intention to employ ES-based remuneration in the upcoming year. A comparison can be made between the disclosure in Figure 6 (JSE AltX-listed company) and Figure 7 (AIM-listed company). The difference between the two figures is that Company F provides more detail on the type of targets they are committed to implementing in the next year while Company E uses an umbrella term for the targets to be used in the upcoming year. The differences in disclosures could be related to resource allocation and differences in the presence of stringent regulatory frameworks within the JSE AltX and AIM stock exchange (Egu & Chiloane-Tsoka, 2023; Harwood & Konidaris, 2015).

The explicit intent to integrate ESG factors into remuneration frameworks as clearly shown in Figure 7, places no doubt on the deliberate effort by management to align executive pay with

broader ESG goals (Almici, 2023). The decision to link 20% of variable remuneration to non-financial and personal performance targets, which include ESG metrics, is an indication of an actionable plan to integrate sustainable practices into their core operations (Maas & Rosendaal, 2016). Currently, Company F links ES KPIs to long-term incentives. In the upcoming year, ES KPIs will be linked to short-term incentives.

The trend seen amongst the AIM and JSE AltX-listed companies embodies a growing awareness of ESG metrics as crucial components of corporate success (van Wyk & Wesson, 2021). These companies show an integration of ES factors into the key operational strategies of the company. Companies like Company E are paving the way for other JSE AltX-listed companies that only focus on financial targets, and companies like Company F are paving the way for companies across the globe to begin investing in ES goals and embedding them in pay structures. Ultimately, such efforts will lead to a paradigm where ES growth and profitability are intrinsically linked (Lu, 2023; Scholtz & Smit, 2012).

4.1.1 Overview of KPI frequency within AIM listed companies

Table 7 below demonstrates the frequency, mean, minimum and maximum of ES KPIs per KPI category per company within AIM-listed companies.

Table 7: Frequency, mean, minimum and maximum number of ES KPIs per KPI category (within AIM-listed companies)

KPIs per category	E KPIs	S KPIs	Combined ES KPIs
Mean number of KPIs	1	1,2	0,67
Minimum number of KPIs	0	0	0
Maximum number of KPIs	3	3	4
Frequency of ES KPIs for all companies investigated	14	18	10

According to Table 7, AIM-listed companies prioritise S KPIs. S KPIs are the highest type of KPI (by frequency of 18 and mean of 1,2) that is disclosed within the AIM-listed companies. This indicates that the strategic objectives of companies within this stock exchange lean primarily towards S impact. Combined ES KPI has the highest number of maximum KPIs (this is the maximum frequency of KPIs per company that has been observed during data collection), demonstrating a broader approach to adopting ES-based remuneration practices that cover both E and S impact areas. Further analysis of the factors that drive the frequency, mean, minimum and maximum number of ES remuneration KPIs is discussed in Sections 4.2, 4.3, 4.4 and 4.5 below.

4.1.2 Absence of ES KPIs in executive remuneration

According to Table 5, 45 of 63 (71%) companies analysed in this study neither mention nor disclose the use of ES KPIs in executive compensation structures. Table 5 reveals that 47% of AIM-listed companies, 90% of JSE AltX-listed companies and 100% of Bovespa Mais-listed companies fail to acknowledge and disclose ES KPIs linked to remuneration in their remuneration reports. One of many other reasons for this could be the financial turbulence caused by the Covid-19 pandemic (Rahman et al., 2022). This pandemic impacted companies' liquidity and disrupted their financial and non-financial performance (Aftab et al., 2021). As part of the recovery process, many companies may have deferred or suspended performance-based awards to preserve cash and stabilise operations in the wake of Covid-19 disruptions (Diab, 2023). In turn, remuneration committees likely focused on short-term financial and operational priorities, which may have limited their capacity to introduce or disclose new ES-linked incentives.

50% of the companies that refrained from awarding variable remuneration linked to performance metrics due to financial reasons, disclosed this fact in their remuneration reports. An additional reason for the non-payment of the bonuses was directors not achieving the predefined KPIs set. Despite the payment status of variable remuneration, companies should disclose their remuneration policies, which include any ES KPIs linked to remuneration. The companies that did not award bonuses/variable remuneration reported on their remuneration policies, as required, but they did not include ES KPIs linked to remuneration in the policies, as they have not yet adopted this type of sustainability practice. Supported by the results from the study by Maas and Rosendaal (2016), the board may have some doubts about integrating ES KPIs into executive directors' remuneration due to the fear of high agency costs. These high agency costs could potentially be caused by executive directors overinvesting in ES objectives, especially if ES KPIs linked to remuneration are not properly designed and aligned with the company's overall strategic objectives. This misalignment could negatively affect shareholder wealth.

As seen in Table 5, the absence of ES KPIs disclosure is most prominent in developing markets. This absence may be attributed to a lack of resources (Egu & Chiloane-Tsoka, 2023). This is demonstrated through the difference in disclosures between Company E and F (see Figures 6 and 7). Such constraints result in SMEs having to prioritise their immediate financial concerns (Harwood & Konidaris, 2015). Two of these immediate concerns include growth and raising capital (Egu & Chiloane-Tsoka, 2023; Harwood & Konidaris, 2015). These two interrelated factors take precedence as they help attract investors and support growth (Freeman et al., 2010). Due to the smaller size of these companies in comparison to those

listed on the main board, investors are typically interested in seeing the companies' potential for positive financial growth (Aboah et al., 2015). Consequently, companies in developing markets allocate their resources to areas within the business that matter the most to the investors, which are economic growth and profits. Sustainability often needs to be deprioritised (Aboah et al., 2015; Harwood & Konidaris, 2015). Less focus may also be placed on sustainability due to the substantial costs associated with establishing and implementing sustainable practices (Shields & Shelleman, 2015). Furthermore, SMEs in developing markets face reduced pressure from stakeholders, including investors, along with lower scrutiny from the market, in comparison to their counterparts listed on main stock exchanges in more developed markets (Harwood & Konidaris, 2015). This reduced visibility and lower public, economic, environmental, and social impact results in lower expectations from the market for them to incorporate ES KPIs into remuneration policies (de Villiers et al., 2014).

A dilemma is presented by the data. On one hand, there is a clear need for sustainability practices including the integration of ES KPI for long-term growth and success, and investor confidence (Maas & Rosendaal, 2016). On the other hand, the immediate pressures caused by the Covid-19 post-pandemic recovery and growth imperatives, force companies, especially those in developing markets, to prioritise financial stability and growth trajectories (Harwood & Konidaris, 2015; Rahman et al., 2022).

The above suggests the need for a balanced approach that allows for the gradual integration of ES factors into compensation structures, in a manner that does not put too much strain on the resources available (Joannou & Herbert, 2022; Matemane et al., 2023). This highlights the need for sustainability efforts that are scalable and measurable, starting with small feasible actions that can expand as the company grows (Shields & Shelleman, 2015). With the increasing conversation on sustainability across the globe, it is anticipated that ES-based remuneration will become integral to narratives of corporate success and transparency, even for SMEs in developing markets (Harwood & Konidaris, 2015). For now, the progress towards this goal is paced by a combination of what investors expect, corporate foresight, and what regulations require (Lu, 2023).

4.1.3 Is the lack of ES KPI-based remuneration adoption justified for developing markets?

Given the high rate of non-disclosure of ES KPI linked to remuneration, as evidenced in Table 5, much thought and attention needs to be paid to whether this is justified. Companies in developing markets try to avoid the high regulatory and compliance costs that come with having to establish, implement, monitor, and report on sustainability practices and ESG metrics, by deprioritising ESG-focused practices (Buallay, 2019). The lack of ES KPIs linked

to remuneration practice is advantageous for much smaller businesses or start-ups that have limited resources (Shields & Shelleman, 2015).

Conversely, not prioritising sustainability reporting could result in an increased risk of E degradation and S issues which could negatively impact the company's reputation (Aggarwal, 2013). It could also be argued that since the companies in these developing markets are small, having strict constraints such as adhering to ESG guidelines, reduces their flexibility and could result in much slower growth and expansion in the short term – something crucial for developing economies to progress (Harwood & Konidaris, 2015; Shields & Shelleman, 2015). Additionally, countries in developing markets may prioritise economic growth and alleviating poverty over sustainability practices (Harwood & Konidaris, 2015). Not focusing on sustainability reporting helps these companies focus on generating profits and contributing to economic development and employment, without the burden of additional reporting and performance metrics (Harwood & Konidaris, 2015). While the disadvantages of not reporting and disclosing sustainability practices are vast, based on the short-term objectives of these companies (Aggarwal, 2013), the lack of sustainability practices does not put them at a complete disadvantage (Shields & Shelleman, 2015). In fact, it increases the pace of meeting their set growth objectives. Sustainability reporting is more desirable for companies in developed markets that have enough resources and no longer prioritise profit growth over non-financial metrics (Aggarwal, 2013; Dilling, 2010).

Most companies on the Bovespa Mais stock exchange only make their financial statements publicly available which do not include any sustainability disclosures.

4.2 Research question 2.1: Is there a difference in the frequency of ES KPIs included in executive directors' remuneration based on industry?

Due to the lack of disclosure of ES KPIs by companies listed on the JSE AltX and Bovespa Mais (see Table 5), the differences in the frequency of ES KPIs across industry groups will only be determined and discussed for AIM-listed companies.

Firms across different industries experience different expectations when it comes to integrating sustainability practices into their operations. This possibly reflects differing stakeholder expectations and regulatory environments (Dilling, 2010). Tables 8 and 9 present the findings of the descriptive analysis, demonstrating the adoption of ES KPIs across various industry groups.

According to Table 8 above and Table 9 below, High E impact companies have the highest total frequency of ES KPIs linked to remuneration and maintain the highest mean frequency

of E KPIs. The high frequency of E KPIs within the High E impact industry category can be attributed to multiple strategic imperatives. Firstly, regulatory pressures compel these companies to align their strategic operations with stringent environmental regulations and/or standards, which drives the need to use ES KPIs in executive compensation structures as a mechanism for compliance and risk mitigation (Berrone & Gomez-Mejia, 2009). Secondly, demands from stakeholders such as investors, customers, and environmental advocacy groups for accountability and transparency in environmental management, potentially influence companies to demonstrate and disclose their commitment through measurable metrics included in executive remuneration packages (Berrone & Gomez-Mejia, 2009; Lu, 2023; Maas & Rosendaal, 2016).

Table 8: Frequency and mean number of ES KPIs per industry group within the AIM stock exchange

	Frequency of E KPIs	Frequency of S KPIs	Frequency of combined ES KPIs	Total frequency of ES KPIs	Total number of companies	Mean number of ES KPIs
High E impact	12	7	2	21	5	4.2
High S impact	2	3	6	11	3	3.67
High combined ES impact	3	2	0	5	2	2.5
Other	1	6	2	9	5	1.8
Total	18	18	10	46	15	

Table 9: Mean, minimum and maximum number of ES KPIs per industry category within the AIM stock exchange

	Mean number of E KPIs	Mean number of S KPIs per category	Mean number of combined ES KPIs	Minimum number of ES KPIs	Maximum number of ES KPIs
High E impact	2,4	1,4	0,4	2	6
High S impact	0,67	1	2	1	8
High combined ES impact	1,5	1	0	2	3

Other	0,2	1,2	0,4	1	3

Ultimately, the findings in Tables 8 and 9 suggest that companies within the differing industry categories prioritise KPIs based on their specific impact areas. For example, Company G operates in the oil and gas industry and is involved in the exploration, development and production of oil and gas reserves. Company G falls within the High E impact category and has the highest number of E KPIs. The figure below demonstrates its disclosure of E KPIs.

Figure 8: E KPI disclosure of Company G

In the 2021 annual report, [redacted] committed to the following bonus related targets for 2022. Although absolute emissions were 4% over target, and this was reflected in the bonus payment, our carbon intensity (CO_2 emitted per barrel of oil equivalent produced) went down from 17.8 kgCO_2/boe in 2021 to 16.5 kgCO_2/boe in 2022.

2022 Commitment	2022 Outcome	Comments
Daily flaring below 9.5 tonnes/day	9.0 tonnes/day	On target
Total flare below 5,000 tonnes	5,850 tonnes (13,860 tonnes CO_2)	16% above due to operational upsets
Scope 1 CO_2 emissions below 210,000 tonnes	218,567 tonnes	3.5% over target due to higher production rates and a shorter maintenance period
General waste from Bruce platform 90 tonnes	90 tonnes	On target
60% waste recycled	47%	Below target due to increased waste to energy
Develop a methane action plan	Done	Plan written – aerial survey and enhanced monitoring

Based on Figure 8 and the 2022 integrated report of Company G, the company only disclosed E KPIs and did not disclose S KPIs. The inclusion of KPIs which relate to CO2 emissions, waste management, daily and total flaring and methane action planning demonstrates Company G's operational focus on reducing its E impact. The sector in which Company G operates, the oil and gas sector, has stringent environmental regulations. The adherence to specific E KPIs such as CO2 emissions possibly aligns with national environmental regulations such as the UK's Carbon Budgets under the Climate Change Act, and international standards such as the Paris Agreement targets. Methane emissions are a significant contributor to climate change. As such, the development of a methane action plan as an E KPI demonstrates the company's interest in contributing to global efforts to reduce methane emissions, this places the company ahead of its competitors and attracts E-sensitive investors. The lack of S KPIs disclosure possibly shows an imbalanced approach towards ES-based remuneration. Even though Company G might have a greater E impact than S impact, the S impact should not be ignored. Common S impacts that the oil and gas industry has are community displacement, health risks, and social inequality, amongst other impacts. The disclosure of

such factors and their link to executive remuneration would have demonstrated transparency and accountability taken by Company G in terms of its S impact.

While the High S impact and the “Other” category have the second highest number of companies, they fall short in the number of E and S KPIs disclosed, in comparison to the other industry groups (see Tables 8 and 9). At a superficial glance, one might anticipate that the High S impact companies would exhibit a greater number of S KPIs, and a higher S KPI mean than combined ES KPI mean. The lower disclosure of S KPIs in comparison to combined ES KPIs may be due to the possibility that social issues are less prominent in developed countries, where the quality of life is generally higher, unlike in developing countries. The only pressing matters may be E issues. E issues as a primary concern is demonstrated by the higher mean of KPIs (4) within the High E impact group, which also has the highest number of E KPIs (12). The extensive disclosure of E KPIs may possibly be due to the substantial E impact these High E impact companies have. In contrast, High S impact companies tend to have minimal E impact, possibly justifying the lower disclosure of E KPIs.

Companies with lower ES impact (categorised as other) show a contrasting picture to High E impact companies, with only one of 18 E KPIs linked to remuneration. These companies have a significantly lower mean of E KPIs at 0.2, in comparison to a mean of 1.2 for S KPIs. Notably, the S KPIs mean for these companies is higher than that of both High S and High Combined ES impact companies. This possibly indicates that lower ES impact companies (categorised as other) face lower business risks associated with E issues and higher business risks associated with S issues. Additionally, it suggests a lack of external pressure from either the market or stakeholders to address these concerns.

What is interesting to note is that companies with high combined ES impact report the lowest frequency (two) and mean number (one) S KPIs. This suggests a potential area for enhanced focus and development within S KPIs linked to the remuneration of these companies. Companies within this category are not sufficiently recognising or rewarding great S performance in their executive compensation structures. This reflects a potential imbalance or oversight in addressing S issues which relate to the company. On the other hand, the lack of focus on S-related issues might be good for the company if it faces low business risks in terms of S issues, requiring less focus and investment in this area.

Table 10 demonstrates the weightings of total ES KPIs in the variable remuneration, specifically annual bonuses against total remuneration earned by executive directors per industry group.

Table 10: Average weighting of ES KPI in annual bonus and total remuneration per industry group

	High E Impact	High S impact	High combined ES impact	Other
ES KPI as a percentage of total remuneration (average per company)	21%	9%	2%	8%
ES KPI as a percentage of total annual bonus (average per company)	26%	17%	5%	11%

Table 10 reveals that High E impact companies allocate a larger portion of executive remuneration to the achievement of ES targets, with 21% of remuneration allocated to ES KPIs. High E impact companies usually face higher operational risks such as risks related to pollution control, resource scarcity, reputation within the market and damage to ecosystems. Companies minimise these risks by generously rewarding top management for achieving ES targets. The high compensation for achieving ES targets sends a powerful message throughout the company, from top-level management to entry-level employees, on the importance of sustainability. This emphasis can yield long-term benefits for the company such as more efficient and less resource-intensive production processes/operations. This can help the company's operations remain sustainable in the face of challenges such as resource scarcity and rising costs.

Despite the various advantages of allocating a higher portion of remuneration to achieving ES targets, disadvantages exist. Due to the substantial remuneration for ES targets, there is a risk that executive directors within High E impact companies might focus too narrowly on meeting ES targets at the expense of other crucial business and corporate social responsibility objectives. Executive directors might also rationalise manipulating ES metrics to get higher pay. The costs of implementing and tracking ES initiatives are high (Harwood & Konidaris, 2015; Shields & Shelleman, 2015). Costs include training staff members and maintaining ongoing compliance. Should the achievement of these ES targets not yield financial benefits, the financial performance of the company will be negatively impacted. Additionally, allocating a larger portion of remuneration to ES achievements may reduce the capital capacity for other

uses such as reinvesting in other business objectives, research and development and shareholder dividends, which stakeholders might not be impressed about.

The regulatory environment within the AIM stock exchange might offer some explanation for the patterns seen in Table 10 (und Recht, 2022). Industries with high E footprints often have to adhere to stricter regulations such as the Industrial Emissions Directive (IED) which requires companies within the manufacturing sector to use the Best Available Techniques (BAT) document to reduce emissions. These strict regulations require transparent disclosure of E performance (Dilling, 2010). Incentivising directors for good E performance could be a strategic move, which could drive directors to ensure that their companies not only achieve the set E objectives but also satisfy stakeholders' needs for rigorous sustainability reporting (Maas & Rosendaal, 2016; Sharma & Vredenburg, 1998). This aligns with the observation that companies in high E impact industries are likely to fulfil stakeholder expectations of transparent and responsible business practices using E KPIs (Berrone & Gomez-Mejia, 2009; Dilling, 2010).

The findings indicate a complex interplay between corporate governance practices, industry characteristics, and regulatory pressures. While the high integration of E KPIs in companies with high E impact is intuitive, the lower emphasis on S KPIs in these areas implies a subtle approach to integrating ES factors into compensation structures. Companies in the UK most probably want to see the transformation within the environmental landscape, hence the heavy focus on E KPIs (Brammer & Pavelin, 2006). The findings suggest that companies prioritise different aspects of sustainability based on whether they have specific E and/or S footprints, and there are strict regulatory frameworks that demand such practices.

Table 11 presents the results from the Kruskal-Wallis test, which demonstrates whether there is a significant difference between the frequency of ES KPIs and industry groups.

Table 11: Results from the Kruskal-Wallis test grouped by industry

	E KPIs	S KPIs	Combined ES KPIs	Total ES KPIs
H statistic	4.423	1.082	0.636	2.928
P-value	0.219	0.781	0.888	0.403
Degree of freedom	3	3	3	3

Results from the Kruskal-Wallis test suggest that there are no statistical differences in the frequency of ES KPIs based on industry groups (p-value>0.05) (van Zijl & Hewlett, 2022). A 5% significance level was used, meaning that none of the p-values in Table 11 crossed the

conventional threshold to suggest a non-random, industry-specific variation (all above 0.05). Nonetheless, given the small sample sizes in certain industries, the statistical power may be insufficient to detect more subtle differences. As a result, these findings could either reflect a genuine absence of industry influence on ES KPI use or a limitation in the dataset's ability to capture that effect, emphasising the importance of expanding the sample in future studies to confirm whether industry groupings truly shlow no variation in ES KPI in remuneration adoption.

4.3 Research question 2.2: Is there a difference in the frequency of ES KPIs included in executive directors' remuneration based on company size?

Due to the lack of disclosure of ES KPIs by companies listed on the JSE AltX and Bovespa Mais (see Table 5), the differences in the frequency of ES KPIs across size (market capitalisation) groups will only be determined and discussed for AIM-listed companies.

The data in Tables 12 and 13 demonstrate the descriptive statistics of ES KPIs linked to executive director remuneration based on the company's size (market capitalisation).

Table 12: Frequency and mean of ES KPIs per market size group within the AIM stock exchange

Market size group	Frequency of E KPIs	Frequency of S KPIs	Frequency of combined ES KPIs	Total frequency of ES KPIs	Total number of companies	Mean number of ES KPIs
High market capitalisation	4	13	2	19	7	2.71
Medium market capitalisation	9	1	1	11	3	3.67
Low market capitalisation	5	4	7	16	5	3.2
Total	18	18	10	46	15	

Table 13: Mean, minimum, maximum number of ES KPIs per market size group within the AIM stock exchange

	Mean number of E KPIs	Mean number of S KPIs	Mean number of ES KPIs	Minimum number of ES KPIs	Maximum number of ES KPIs
High market capitalisation	0,57	1,86	0,29	1	5
Medium market capitalisation	3	0,33	0,33	2	6
Low market capitalisation	1	0,8	1,4	1	8

According to Tables 12 and 13, high market capitalisation companies have a moderate frequency of ES KPIs, with a mean of 2.71 KPIs per company. This implies that larger companies have a more balanced approach to ES-related issues. The distribution of KPIs within the High market capitalisation group (four E, 13 S and two ES), suggests that there is a stronger focus on S aspects, reflecting the companies' prioritisation of maintaining a good public image and stakeholder relations, these two aspects are crucial for larger entities.

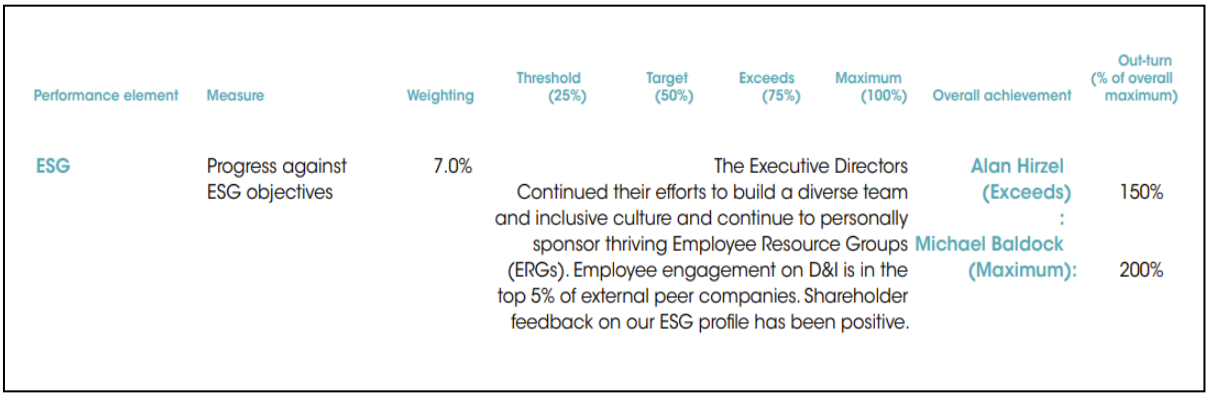
The smaller-sized companies show a diverse spread of ES KPI, with a mean number of KPIs of 3.2 and an even distribution of KPI frequency across E, S and combined ES categories (five E, four S and seven ES). This suggests that smaller-sized companies are possibly trying to leverage advanced sustainability reporting as a differentiator strategy (Porter, 2008), which might attract sustainability-sensitive investors, who are often quite challenging to attract and appease.

In comparing the ES-based remuneration practices across all company sizes, it is evident that larger companies primarily focus on disclosing S-related work to enhance their corporate responsibility image, which is crucial to them. While medium and smaller-sized companies take a comprehensive approach to ES reporting as a strategy to increase their competitiveness within the market. The medium and smaller-sized companies primarily want to appeal to investors to raise capital and drive economic growth within the company (Harwood & Konidaris, 2015). Due to the large scale of resources that larger companies already have, appealing to investors for more funds possibly no longer becomes their number one priority, as they can afford to deploy expensive S KPIs (de Matos, 2022; Lu, 2023). Medium and lower market capitalisation companies disclose more E KPIs than S KPIs. This is likely because S

KPIs are often more qualitative than E KPIs, making them more subjective and challenging to quantify consistently and fairly.

The above insights should encourage companies to consider not only the quantity of ES KPIs disclosed but also the disclosure of ES KPIs tailored to their operational realities, global sustainability goals, and investor and market expectations, as this would drive more positive impact within their organisations. The figure below demonstrates the detailed S KPI disclosure of a high market capitalisation company, Company H.

Figure 9: S KPI disclosure in 2022 integrated annual report of Company H



Performance element	Measure	Weighting	Threshold (25%)	Target (50%)	Exceeds (75%)	Maximum (100%)	Overall achievement	Out-turn (% of overall maximum)
ESG	Progress against ESG objectives	7.0%	The Executive Directors Continued their efforts to build a diverse team and inclusive culture and continue to personally sponsor thriving Employee Resource Groups (ERGs). Employee engagement on D&I is in the top 5% of external peer companies. Shareholder feedback on our ESG profile has been positive.				Alan Hirzel (Exceeds) : Michael Baldock (Maximum):	150% 200%

Figure 9 demonstrates how Company H, a global biotechnology company that specialises in the production and distribution of antibodies and related scientific products discloses S KPI linked to directors' remuneration. Company H only discloses S KPI linked to executive directors' remuneration and was the largest company on the AIM stock exchange in 2022. This implies that larger companies possibly focus on S-impact work more than E impact work. It is noteworthy that Company H does not have any E KPIs. Biotechnology operations have a high E impact, which includes resource consumption, waste production, emissions of greenhouse gases, chemical use, and soil degradation, amongst other factors. Previous studies have shown that these factors can contribute significantly to environmental degradation (Bennett et al., 2013; Helwig et al., 2024; Soetaert & Vandamme, 2006). The extent of the impact potentially depends on the scale of operations. Given the size of Company H, its operations probably have a high impact on the environment. This suggests that the choice of E, S, or combined ES KPI disclosure should not be dependent on only the company's strategic goals and priorities but should also be driven by the scale of operations' impact on E and S.

Table 14: Average weighting of ES KPIs in annual bonus and total remuneration per market size group

	High market capitalisation	Medium market capitalisation	Low market capitalisation
ES KPI as a percentage of total remuneration (average per company)	8%	30%	6%
ES KPI as a percentage of total annual bonus (average per company)	33%	41%	11%

The data in Table 14 reveals that medium market capitalisation companies stand out for a significant allocation of 30% of remuneration to achieving ES goals. This is much higher than the high and low market capitalisation companies that allocate 8% and 6% respectively. The high allocation of remuneration by medium capitalisation companies speaks volumes as this is not anticipated as they have a lower frequency of ES KPIs. This analysis is further echoed by the average annual bonus weight for executive directors, with medium capitalisation companies allocating 41% to ES targets, compared to a mere 11% within the low market capitalisation companies. The high stake in a few ES KPIs could suggest that medium market capitalisation companies have strategically chosen specific ES KPIs to focus on and are confident that they have the capabilities and capacity to achieve the ES KPIs. This may reflect a quality-over-quantity approach to ES-based remuneration. These companies would probably rather have fewer KPIs as this makes ES-based remuneration more manageable and could potentially lead to improvement within the chosen ES areas. The high allocation of remuneration to ES KPIs within medium market capitalisation companies potentially sends a strong signal to investors and other stakeholders about how seriously the companies take ES goals. Additionally, the niche focus on ES KPI with high stakes differentiates these companies within the market and attracts investors that appreciate and are interested in ESG-driven companies.

On the other hand, the smaller-sized companies, despite having a high number of E and combined ES KPIs, do not seem to emphasise and focus on E and combined ES performance as much as when it comes to how much they pay their executives. From a broader perspective, when all the companies across the different market capitalisation categories are put together, it seems like there is no strong and consistent pattern in the adoption of ES-based remuneration. The frequencies of ES KPIs vary across all sizes and do not follow a set trend (i.e., the larger the company the more ES KPIs are integrated into executive remuneration).

This highlights a need to encourage companies across all market capitalisation categories to adopt a balanced approach that does not favour one aspect of ES and apply sustainability holistically.

The results from the Kruskal Wallis test performed provide further interesting insights into the ES-based remuneration practices across the different market capitalisation groups. The chosen level of significance of the test is 0.05. According to Table 15, the p-values of E and combined ES KPIs are greater than the chosen significance level of 0.05, meaning that there is no significant difference in the number of E and combined ES KPIs based on market capitalisation groups (Chan & Walmsley, 1997).

Table 15: Results from the Kruskal Wallis test grouped by market size capitalisation

	E KPIs	S KPIs	Combined ES KPIs	Total ES KPIs
H statistic	0.088	7.099**	3.473	3.174
P-value	0.957	0.029	0.176	0.205
Degree of freedom	2	2	2	2

**Significant at the 5% level (2-tailed)

The results show that there is a significant statistical difference in the number of S KPIs based on market capitalisation ($p<0.05$) (Chan & Walmsley, 1997). According to the pairwise test, this significant difference lies between large and medium capitalisation companies. This suggests that high-market capitalisation companies disclose more S KPIs in comparison to medium-market capitalisation companies (see Table 12). A clear pattern of influence is evident. Larger companies (those with high market capitalisation) tend to have more S goals embedded in their compensation structures, this is evidenced by the high mean ranking of 1.86, which is higher than medium capitalisation companies' of 0.33. This could include projects that improve CSR efforts and the community. Essentially, executive directors in these large companies get paid based on how the company performs in the social context (Jian & Lee, 2015).

4.3.1 Remuneration committee compliance

The data captured delves into the composition compliance of remuneration committees. It assesses the quality of governance and whether deviations from the composition requirements as per the chosen CGC affect the strength of and level of detail in remuneration frameworks and disclosures. The discussion below focuses on remuneration committees

within the AIM LSE and JSE AltX. Due to the inability to easily attain governance disclosures within the Bovespa Mais companies, it was challenging to analyse the composition of the remuneration committee within these companies.

Table 16: Remuneration committee composition compliance for AIM and JSE AltX listed companies

	JSE AltX companies				AIM LSE listed companies			
	Mention ES KPI	Disclose ES KPI	Neither	Total	Mention ES KPI	Disclose ES KPI	Neither	Total
Composition compliance	0	0	13	13	0	14	12	26
Composition non-compliant	2	0	6	8	1	1	2	4
Total	2	0	19	21	1	15	14	30

According to Table 16, within the AIM stock exchange, 26 of the 30 companies investigated complied with the recommended composition and structure of the remuneration committee as per the UKCGC or QCACGC. Four of these companies are non-compliant with the composition requirements, with instances such as the chairman of the board being a member of the remuneration committee, which could negatively affect the independence of the committee (Appiah & Chizema, 2015). The companies that included the chairman of the board in the remuneration committee did not provide any rationale for this deviation, thus not applying the comply and explain principle required by the UKCGC and QCACGC.

Among the AIM-listed companies that have adopted ES-based remuneration, 14 of the total 15 companies comply with remuneration committee composition requirements. Conversely, those who do not mention nor disclose ES KPI show a lower compliance rate, with only two of the companies being non-compliant. Given that the majority of the AIM-listed companies have already adopted ES-based remuneration, which could be considered an advanced sustainability practice, it is potentially expected that these companies would have remuneration committees that consist of more than three members and have the expertise to set and execute remuneration policies, including policies that turn ES targets to performance metrics (Mallin & Ow-Yong, 2012).

Non-compliance with remuneration committee guidelines could imply that the remuneration policies within the company are not effective. The JSE AltX demonstrates a different scenario. The two companies that mention but do not disclose ES KPIs are not compliant with the King

IV remuneration committee guidelines (principle 7). Moreover, according to Table 16, companies that are compliant with the King IV remuneration committee guidelines do not mention nor disclose ES KPIs. This raises concerns when compared to prior literature, which suggests that a remuneration committee composed of independent, skilled and experienced individuals should be capable of establishing and implementing strategies that align management's interests with stakeholder expectations, including rewarding managers for great ES performance (Appiah & Chizema, 2015). In the same breath, if a company decides not to disclose ES KPI because it is not a priority, that in itself does not necessarily mean that the remuneration committee is ineffective or unable to implement strategies that align management interests with stakeholder expectations. This could simply imply that robust remuneration frameworks and the integration of ES factors in remuneration might not be dependent solely on the quality of the corporate governance structure. The 2 non-compliant companies that show a higher level of ES-based remuneration adoption potentially prioritise ES factors within strategic objectives and corporate culture. This demonstrates that to have an effective ES KPI linked to remuneration, compliance with CGCs needs to be accompanied by a genuine commitment to sustainability.

On the other hand, the JSE AltX-listed companies without ES KPIs linked to remuneration disclosures (19 of the 21) may be implementing ES KPIs linked to remuneration but refrain from disclosing them in their integrated reports due to sensitivity and competition within this alternative stock exchange.

4.4 Research question 2.3: Is there a difference in ES KPIs in executive directors' remuneration frequency based on the volume of share transactions?

Due to the lack of disclosure of ES KPIs by companies listed on the JSE AltX and Bovespa Mais (see Table 5), the differences in the frequency of ES KPIs across the volume of share transaction groups will only be determined and discussed for AIM-listed companies.

The data contained in Tables 17 and 18 below demonstrate the descriptive statistics of ES KPIs linked to executive director remuneration based on the volume of share transactions.

Based on the data collected in Table 17, companies with a higher volume of share transactions disclose more E KPIs. They account for 61% of the total E KPIs, which indicates a strong commitment to E standards that most likely align with investor interest and market demands. This proactive stance could be a strategic response to investors who often place higher expectations on companies with high volumes of shares traded, as these companies have a larger shareholder base, higher market visibility and often higher ES impact (Babiak &

Trendafilova, 2011). The high market visibility and greater ES impact made by the company potentially results in a greater drive for sustainability.

Table 17: Frequency, mean, minimum and maximum number of ES KPIs per volume of share transaction group within the AIM stock exchange.

	Frequency of E KPIs	Frequency of S KPIs	Frequency of combined ES KPIs	Total frequency of ES KPIs	Total number of companies	Mean number of ES KPIs
High volume of share transactions	11	6	5	22	7	3.14
Medium volume of share transactions	5	6	4	15	4	3.75
Low volume of share transactions	2	6	1	9	4	2.25
Total	18	18	10	46	15	

According to Table 18, companies with a high volume of share transactions exhibit a high mean number of E KPIs (1,57) and a lower emphasis on S KPI (0,72). This distribution of KPIs within these companies suggests that companies with greater market activity might face more scrutiny from the public or they are self-motivated to disclose more E factors due to the high exposure that comes with high share transaction volumes. Additionally, it could imply that these companies prioritise E factors as a strategy to mitigate potential risks associated with their high market visibility and to appeal to E-conscious investors. The lower focus on S and ES KPI may suggest a more segmented and narrow approach to sustainability reporting, where E and S issues might be addressed separately, and combined ES issues could potentially be neglected.

Table 18: Mean, minimum and maximum number of ES KPI per company in each volume of share transaction group within the AIM stock exchange.

	Mean number of E KPIs	Mean number of S KPIs	Mean number of combined ES KPIs	Minimum number of ES KPIs	Maximum number of ES KPIs
The high volume of share transactions	1,57	0,86	0,72	1	6
Medium volume of share transactions	1,25	1,5	1	1	8
Low volume of share transactions	0,5	1,5	0,25	1	3

The medium volume of share transaction companies have a higher mean number of S KPI (1,5) and the highest mean number of combined ES KPI (1) and total ES KPI (3,75). This balance of ES KPI disclosure reflects a strategic approach taken by these companies to not only address broader market expectations concerning sustainability but also aim to provide a holistic view of their sustainability efforts through comprehensive and inclusive disclosures. This balanced approach could be a differentiation strategy for the medium volume of share transaction companies in a moderately competitive share trading environment.

Companies with low share transaction volumes have lower mean numbers for E and combined ES KPIs (0,5 and 0,25, respectively) and a notably higher mean for S KPIs (1,5). This trend suggests that the small scale of trading volumes and market visibility could potentially be associated with the companies' focus on S aspects to maintain local or segmented stakeholder relations, which are important when market visibility through trading shares is not as pronounced.

In the social context, all categories of trading activities have the same number of S KPIs (see Table 17), each holding a third of the total S KPIs. This is indicative of a global acknowledgement of the importance of incorporating social sustainability practices into the company's operations (Babiak & Trendafilova, 2011). However, according to Table 18, medium and low volume of share transaction groups have the same mean S KPI (1,5), with

high volume of share transactions just below (0,86). This is due to the difference in the number of companies within each group, medium and low have the same number of companies (four) each, while high volume of share transactions has almost double the number of companies (eight).

Table 19 below presents a deeper analysis of the allocation of remuneration to ES KPI per volume of share transaction group.

Table 19: Average weighting of ES KPI in annual bonus and total remuneration per volume of share transaction group

	High volume of share transactions	Medium volume of share transactions	Low volume of share transactions
ES KPIs as a percentage of total remuneration (average per company)	15%	9%	8%
ES KPIs as a percentage of total annual bonus (average per company)	25%	31%	14%

The high volume of transaction group not only has the highest E and combined ES KPIs but also allocates the largest amount of remuneration to achieving ES KPIs, the allocation standing at 15%. However, the medium of volume share transaction group allocates a larger portion of annual bonuses to the achievement of ES goals, the weighting standing at 31%. This suggests that even if the allocation of remuneration to ES goals is not high, the drive to meet these goals is reflected in the variable remuneration incentives offered to executive directors.

The key takeaway from the information presented in Table 19 is that the volume of shares traded could be a reflection of how closely investors watch the operations of the company (Aboah et al., 2015). Interestingly, among the high volume of share transactions traded category, five of the ten companies fall within the low market capitalisation category (see section 4.4.) This suggests that high share trade volumes might not directly equal higher market capitalisation. It could imply that companies with high volumes of shares traded might use more E and S KPIs to not only meet investor expectations but also enhance their reputation and portfolio, thereby appealing to potential investors for funding (Aggarwal, 2013). Contrastingly, companies with lower volumes of shares traded, four out of ten within the

medium market capitalisation category, could experience fewer resource constraints and less pressure from investors in comparison to the high-volume trader companies. This could be due to having a smaller investor base or less intense public scrutiny (Harwood & Konidaris, 2015).

The results in Table 20 from the Kruskal-Wallis test performed did not yield any significant results. All p-values in Table 20 exceed the conventional 5% significance threshold. There is not enough evidence to prove that there are statistical differences between the frequency of ES KPIs based on the volume of share transaction group ($p>0.05$) (Chan & Walmsley, 1997; Laerd statistics, 2023; van Zijl & Hewlett, 2022). Such null results may reflect a genuine uniformity of ES-remuneration practice across trading-volume categories or may be influences by the small sample size. By reporting these non-significant findings alongside the significant results (see Table 15 on market capitalisation), the study delivers a transparent account of where ES KPI adoption does, and does not, vary.

Table 20: Results from Kruskal Wallis test grouped by volume of share transactions

	E KPIs	S KPIs	Combined ES KPIs	Total ES KPIs
P-value	0,734	0,951	0,197	0.472
Degree of freedom	2	2	2	2
H statistic	0.618	0.1	3.25	1.503

4.5 Research 2.4: Is there a difference in the frequency of ES KPIs based on being a CEO, CFO, COO or other director?

Due to the lack of disclosure of ES KPIs by companies listed on the JSE AltX and Bovespa Mais (see Table 5), the differences in the frequency of ES KPIs based on being a CEO, CFO, COO or other director will only be determined and discussed for AIM-listed companies.

CEOs drive the strategic direction of companies, including the development and implementation of long-term sustainability goals (Boggs & Boggs, 2006). The analysis below in Table 21 focuses on the mean number of ES KPIs per CEO, CFO, COO, and other directors, and Table 22 focuses on the weighting of ES KPIs per CEO, CFO, COO, and other directors.

Table 21: Frequency and mean number of ES KPIs per type of director

	CEO	CFO	COO	Other directors
Mean number of E KPIs	1,2	1,2	0	0,25
Mean number of S KPIs	1,2	1,2	3	0,75
Mean number of Combined ES KPIs	0,6	0,6	0	0,5
Total ES KPI frequency	46	46	3	5

Table 22: Weighting of ES KPI and average remuneration per CEO, CFO, COO, and other directors

	CEO	CFO	COO	Other directors
ES KPI as a percentage of total remuneration (average per director in each company)	9%	10%	29%	1%
Average total remuneration (£)	1 160 701	669 236	536 956	954 452

In analysing the mean number of KPIs per director, it was found that all 15 AIM-listed companies disclose ES KPIs linked to CEO and CFO remuneration, and both CEO and CFO share the same mean number of E, S, combined ES and total ES KPIs. This possibly suggests that both CEOs and CFOs have an equal contribution and responsibility to establishing, implementing, and monitoring sustainability practices that are aligned with the short and long-term strategic objectives of the company. In contrast, only one company discloses COO ES KPIs and four companies report ES KPIs for other directors. This suggests that there is a strong emphasis on ES factors at the highest level of corporate leadership.

Based on Table 22, the weighting of ES KPIs in total remuneration is much lower for CEOs (9%), in comparison to COOs (29%). COOs remuneration is almost 50% lower than CEO remuneration, resulting in a much higher weighting of ES KPIs for COOs than CEOs. Put differently, with a lower denominator, the same absolute value of ES-linked remuneration will appear as a higher proportion for COOs. Additionally, the lower CEO weighting of ES KPIs in total remuneration could be due to CEOs having a vast range of other responsibilities and having to find a balanced approach to allocate incentives to all types of responsibilities a CEO might have, ES development, execution, and implementation only being a part of them (Boggs & Boggs, 2006; Fabrizi et al., 2014). More research is required to understand the allocation of responsibility for ES sustainability and remuneration.

CFOs are responsible for the financial stewardship of the company, but they are increasingly held accountable for non-financial performance outcomes (Caglio et al., 2018). This is observed in the data captured in Table 22, the weighting of ES KPIs in total CFO remuneration of 10% suggests a recognition of the financial value of ES issues. This potential correlation could stem from analysing the allocation and management of financial resources towards achieving set ES targets. Another potential factor is the direct impact of ES factors on the company's financial performance, such as regulatory compliance costs, reputational risks, and resource efficiency. This suggests how crucial the role of CFOs is in integrating ES into financial analysis and decision-making. The CFO's ES KPI remuneration weighting (10%) is higher than that of the CEO (9%), which could indicate the extent to which financial risks and opportunities associated with ES factors such as climate change can affect a company's financial performance.

Table 21 reveals that one company disclosed ES KPIs linked to COO remuneration. The decision to not disclose ES KPIs linked to COO remuneration by the other 14 companies is possibly due to the role-specific responsibilities assigned to the COO. COOs are ordinarily responsible for the day-to-day operations of the company and primarily focus on the efficiency of operations and execution of strategic plans. The 14 companies might perceive ES factors as less directly relevant to the role of the COO compared to that of the CEO or CFO. The company that discloses the COO's ES KPIs also allocates the highest portion of total remuneration towards the achievement of these ES KPIs. This approach may stem from an understanding that competitors' COOs probably do not have duties or responsibilities that are specifically aligned with the achievement of ES objectives and are, as such, not remunerated for achieving ES targets. Consequently, the company aims to remunerate the COO for the additional duty associated with the achievement of ES KPIs.

Tables 23, 24 and 25 demonstrate the weighting of ES-linked remuneration (i.e., bonuses or long-term share incentives that are allocated to achieving ES KPI) against the total CEO remuneration. These tables present the weightings and averages of total CEO remuneration per industry, market capitalisation and volume of share transactions group. From Tables 23, 24 and 25, insight can be drawn on how seriously companies in the different independent variable groups take ES KPIs seriously by analysing the weighting of the CEO remuneration linked to the achievement of ES targets against total CEO remuneration.

Table 23: CEO variable remuneration weighting linked to ES KPIs in total CEO remuneration per industry group.

	High E impact	High S impact	High combined ES impact	Other
ES KPIs as a proportion of total remuneration	15%	3%	1%	12%
Average total remuneration (£)	1 025 940	1 004 132	2 358 800	941 004

Table 24: CEO variable remuneration weighting linked to ES KPIs in total CEO remuneration per market capitalisation group.

	High market capitalisation	Medium market capitalisation	Low market capitalisation
ES KPI as a proportion of total remuneration	9%	26%	3%
Average total remuneration (£)	1 317 910	1 235 425	941 325

Table 25: CEO variable remuneration weighting linked to ES KPIs in total CEO remuneration per volume of share transaction group.

	High volume of share transactions	Medium volume of share transactions	Low volume of share transactions
ES KPI as a proportion of total remuneration	15%	7%	3%
Average total remuneration (£)	1 296 097	1 150 808	906 401

Based on Table 23, CEOs in industries with high E impact have a high portion of remuneration (15%) tied to achieving ES KPIs. Although the data does not indicate which KPIs are prioritised between E and S, based on the regulatory frameworks which require strict environmental compliance requirements, a higher portion is probably allocated to achieving E KPIs (see section 4.2). In contrast, CEOs of companies within the High S impact group seem to be financially incentivised much less, with only 3% of remuneration allocated to achieving ES KPIs. This may imply that, unlike E issues, S issues are less quantifiable in terms of impact on a company's profits, hence less allocation of remuneration percentage. CEOs of companies with a High combined ES impact demonstrate a similar trend to high S impact CEOs. This could be due to the complex integration of ES factors within this industry group and a nuanced

approach to ES KPIs which is not directly reflected in remuneration frameworks. However, given the high average remuneration of CEOs in High combined ES impact companies, a higher allocation of the remuneration to ES KPI would have potentially been appropriate. CEOs of companies within the “Other” category allocate 12% of remuneration to achieving ES KPIs, which is high in comparison to High S and combined ES impact CEOs. This could imply an increasing recognition of ES-based remuneration across all industries regardless of the level of E and S impact.

According to Table 24, CEOs of companies within the medium market capitalisation category have a higher allocation of remuneration, 26%, towards achieving ES KPIs than high (9%) and low (3%) market capitalisation CEOs. This could reflect how the strategic initiatives of these companies are a distinguishing factor within the market through strong and clear ES practices. Or that there is a stronger response to increased ES regulation and demands by investors for medium market capitalisation companies. The low allocation of remuneration to ES KPIs within the lower-sized companies could reflect the early stages of ES-linked remuneration within these companies.

CEOs of companies with high volumes of share transactions allocate a high percentage of remuneration to ES KPIs (15%), which potentially indicates a positive correlation between market activity and ES performance (see Table 25). Active trading within the market indicates high investor interest, which pushes companies to prioritise ES factors even more, to attract and retain investors. The lower allocation amongst the CEOs of companies within the medium and low volume of share transactions categories indicates a slow but progressive approach to fully adopting ES-based remuneration because these companies receive less pressure from investors on ES matters and have lower market visibility.

5. Conclusion

The study investigated the incorporation of ES KPIs in executive remuneration across companies listed on the AIM of London, JSE AltX of South Africa and Bovespa Mais of Brazil stock exchange. The results obtained from the study shed light on the disparity in the usage and disclosure of ES-based remuneration among these companies. The differences in disclosure and adoption of advanced sustainability practices such as ES-based remuneration were attributed to a variety of factors, including operating in a developed vs developing economy, resource capacity, regulatory environment, and market scrutiny.

5.1 Research question 1: To what extent do AIM-listed, JSE AltX-listed, and Bovespa-listed companies utilise ES KPIs to remunerate executive directors and prescribed officers?

Amongst all three stock exchanges investigated, AIM companies display a commendable level of ES KPI integration into executive remuneration compensation structures. This practice is potentially driven by the advanced regulatory framework within the UK, which fosters and advocates for integrated thinking, transparency, and long-term value creation (Insights, 2023; Keasey et al., 2005; Roberts et al., 2020). In contrast, JSE AltX and Bovespa Mais listed companies show little to no disclosures of ES-KPI linked to remuneration. Within the JSE AltX, detailed disclosures of ES KPIs are absent despite two companies mentioning ES KPIs incorporated within their remuneration frameworks. Bovespa Mais listed companies reports were not easily obtainable; as such, no evidence was found of ES KPIs linked to remuneration disclosure. This highlights an opportunity for sustainability practice enhancement and growth for companies within stock exchanges in developing countries and markets. Further research would need to be performed into what extent SMEs in developing markets should incorporate ES KPIs into executive remuneration. The scale of operations, size of the company and life stage of the company would need to be considered when determining the necessary extent of ES-based remuneration adoption. This is crucial as SMEs play a key role in stimulating the economy through job creation and driving economic growth. This key role needs to be balanced with ensuring SMEs report on the sustainability of their operations. The ES impact of these SMEs is relevant and should be considered in further research.

The underlying reasons for the absence of ES KPIs in both developed and developing markets are likely multifaceted. This paper only identifies a few potential factors, but more research is needed to test whether the identified factors are true and whether there are other factors which hold true. The UK has stringent regulatory frameworks such as the UKCGC and the QCACGC which indirectly encourage the incorporation of ES factors within executive directors' compensation structures. Despite South Africa having the King IV code which encourages

sustainability disclosures (IoD, 2016), other factors such as limited financial resources, lack of market scrutiny and smaller visibility within the market slow down the progression towards disclosure of sophisticated remuneration practices. The Bovespa Mais-listed companies included in the study do not produce sustainability disclosures. This demonstrates how far behind these companies are on the journey towards adopting complex and sophisticated sustainability disclosures which encompass ES-based remuneration.

Collectively, these findings underscore how distinct regulatory frameworks, resource availability, and market scrutiny collectively shape sustainability practices among smaller listed companies (Harwood & Konidaris, 2015). The comparatively advanced uptake observed on the AIM stock exchange appears consistent to the influence of robust governance codes in developed markets, while minimal adoption on the Bovespa Mais and JSE AltX highlights recognised barriers in emerging economies, such as weaker regulatory enforcement and limited investor pressure (Hartikainen et al., 2021; Kaur, 2021b). By drawing attention to these contextual disparities, this study extends earlier literature on ES-based remuneration, illustrating how SMEs in resource-constrained environments may encounter practical hurdles in integrating ES KPIs into compensation structures.

The study further investigated factors that influence the frequency of ES KPIs linked to remuneration. These factors include industry, market size, volume of share transactions, and which executive directors (CEO, CFO, COO, or other directors) have ES-KPIs. This analysis was performed for AIM-listed companies because the integrated annual and remuneration reports of JSE AltX and Bovespa Mais listed companies did not disclose ES KPIs linked to remuneration.

5.2 Research question 2.1: Is there a difference in the frequency of ES KPIs in executive directors' remuneration based on industry?

Concerning industry groups, companies with high E impact are more inclined to adopt E KPIs linked to remuneration and allocate a significant portion of total executive director remuneration to ES targets. This demonstrates a proactive stance towards addressing E issues such as greenhouse gas emissions. These companies potentially have high public accountability in relation to E issues and frequent interaction with E-sensitive stakeholders. Companies with high S impact and low E and S impact have a more conservative approach towards E KPIs linked to remuneration. Companies with high combined ES impact allocate a much lower portion of total executive remuneration to ES targets, indicating a preference for financial targets that align with the strategic objectives of the company and possibly shareholder needs. The findings reveal that despite these variations, there are no significant

differences in the frequency of ES KPI linked to remuneration across the industry groups. This suggests a consistent approach adopted by these companies to incorporate ES-based remuneration aligned with integrated reporting and sustainability goals.

5.3 Research question 2.2: Is there a difference in the frequency of ES KPIs in executive directors' remuneration based on size?

Concerning market capitalisation, the integration of ES KPIs into executive compensation structures across the market capitalisation groups revealed distinct trends. The larger-sized companies focus on more S KPIs, as they are driven by the need to maintain a positive reputation within the public and strengthen their stakeholder relations. Contrastingly, the smaller-sized companies lean more towards E and combined ES KPIs, likely due to the lower costs and simpler measurement processes associated with E KPIs. Medium-sized companies allocate a higher portion of remuneration to the achievement of ES goals despite disclosing fewer KPIs compared to the other market capitalisation groups. This indicates a strategic focus to prioritise disclosing impactful ES goals rather than disclosing multiple goals with low impact. Further research is required to test whether there is a relationship between the size of the company, ES impact and ES performance.

The composition and structure of remuneration committees of AIM-listed companies were examined to determine whether the level of ES-based remuneration adoption is linked to these factors. A high adherence rate within the AIM companies was noted, which indicates strong corporate governance. Deviations such as the board chairman being part of the remuneration committee are common within the companies and raise concerns about the independence of the remuneration committee in overseeing ES KPIs linked to remuneration implementation. Contrastingly, there is no correlation between remuneration committee guideline compliance and the adoption of ES-based remuneration amongst AltX-listed companies. This questions whether strong and complex governance structures and remuneration policies result in the adoption of advanced sustainability practices such as ES-based remuneration. Perhaps SMEs on smaller-sized stock exchanges don't need to implement robust remuneration policies to start adopting ES-based remuneration or perhaps the right time to adopt such practices might be when they intend on listing on a main board exchange. More research is required on whether SMES must have strong governance structures (specifically the remuneration committee) to implement advanced sustainability practices linked to remuneration. This questions whether strong governance structures truly lead to advanced remuneration sustainability practices.

5.4 Research question 2.3: Is there a difference in the frequency of ES KPIs in executive directors' remuneration based on the volume of share transactions?

Further analysis of the results reveals that companies with a high volume of share transactions show a stronger commitment to E KPIs, with the highest frequency of E KPIs. Moreover, these companies allocate a larger portion of remuneration to the achievement of ES goals. This could be driven by high market visibility, increased investor expectations of advanced sustainability disclosures and the pressure to maintain a favourable image in the public and boost investor confidence. Companies with high share trading volumes potentially lean towards disclosing more E KPIs than S KPIs as a differentiation strategy in the market. On the other hand, the distribution of S KPIs is evenly distributed across all companies in the different trading activity groups.

5.5 Research question 2.4: Is there a difference in the frequency of ES KPIs in executive directors' remuneration based on being a CEO, CFO, COO or other director?

Within the company governance structure, the CEO and CFO are responsible for the implementation and execution of ES strategies. This study highlights how crucial the role of the CEO and other top executive directors is in driving the company's sustainability agenda. Interestingly, the allocation of ES KPIs in total remuneration is higher for COOs than CEOs, highlighting the operational focus of ES practices. The findings suggest that the integration of ES KPI in executive compensation contracts varies across different leadership roles, reflecting the diverse responsibilities and influence of each leadership role in promoting the ES objectives of the company.

The findings of this study highlight the limited adoption of aligning executive director remuneration frameworks with corporate sustainability goals as a sustainability practice and the need for further research in this area. This practice could possibly make it easier for companies to meet the broader stakeholder expectations for companies to have responsible and sustainable business practices. The study contributes to existing literature on sustainable corporate governance practices and provides empirical evidence on the level of ES-based remuneration by SMEs in alternative stock exchanges in developed and developing markets.

The study is limited by its focus on three specific stock exchanges and a small sample size. Its heavy reliance on publicly available information, such as annual reports and data on companies' websites, is an additional limitation, as there is a risk that companies have already adopted ES-based remuneration but have not disclosed it. These limitations prohibit the study from fully capturing the level of ES KPI integration in the remuneration

policies and frameworks of the companies explored in the study. Additionally, the research highlights how specific contextual factors such as regulatory frameworks, market scrutiny and resource constraints may influence the pace and depth of ES-based remuneration adoption. Such contextual insights not only support more nuanced governance reforms but also guide practitioners seeking to embed sustainability metrics into performance pay structures more effectively.

The researcher recommends further analysis and investigation on the impact of regulatory frameworks and environment on the level of adoption of ES-based remuneration for executive directors, in both main board and alternative stock exchanges, as well as a qualitative study that investigates the decision-making process of integrating ES KPI into remuneration policies and frameworks. Due to the study's limitations regarding the Kruskal-Wallis test, future research should include a larger number of companies and multiple reporting years, as this would not only help substantiate or challenge the AIM-specific Kruskal-Wallis results, but would also clarify whether differences based on industry, market capitalisatiom or trading volume emerge under broader conditions. Potential areas for future research also include investigating the extent to which SMEs in both developed and developing markets should adopt ES-based remuneration. Additionally, identifying factors beyond industry, size, volume of shares traded and executive director position which could influence the frequency of ES KPI linked to remuneration. Comparative or longitudinal studies could further clarify how E and S factors evolve under different market conditions, while interviews with boards and directors would illuminate the real-world challenges of implementing ES-based remuneration. Comparative studies on the adoption of ES-based remuneration in other developed and developing markets outside of London, South Africa and Brazil. Furthermore, examining the impact of corporate governance structure on ES-based remuneration adoption.

6. Appendix 1: Research disclosure checklist

This appendix demonstrates the column headings used in the Microsoft Excel data collection instrument, under which data was collected and classified.

Company name	Company listing code	Dual listed (Yes-1/No-0)	Initial listing year	Year of secondary listing	Country of primary listing	Country of secondary listing	Financial year end	Reporting year	Industry	Sector

High E impact=1; High S impact= 2; High ES impact= 3; High combined ES impact=4	Volume of share transactions	Volume of share transactions group (High=1; medium=2; small=3)	Market capitalisation	Market capitalisation group (Large=1, medium= 2. Small= 3)	ESG/ Sustainability disclosure (Yes=1; No=0)	Disclose ES KPI= 1; Mention ES KPI but no disclosure=2; No mention nor disclosure of ES KPI=0	CEO=1; CFO=2; COO=3; Other director= 4	Executive director=1; Non-executive director=2	Number of E KPIs

Number of S KPIs	Number of combined ES KPIs	Total number of ES KPIs	Description of E, S or combined ES KPI	Long term incentive = LT; Short term incentive = ST	Annual bonus (Rands/Pounds / Brazilian Real)	Remuneration linked to ES KPIs (Rands/Pounds / Brazilian Real)	Percentage of ES KPI remuneration of total annual bonus	Total remuneration (Rands/Pounds / Brazilian Real)	Percentage of ES KPI remuneration of total remuneration

UKCGC=1; QCACGC=2	Remuneration committee composition compliance. Yes=1; No=0

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