



**NEXUS BETWEEN CORPORATE SOCIAL RESPONSIBILITY INITIATIVES AND THE FINANCIAL
PERFORMANCE OF COMPANIES IN THE SOUTH AFRICAN MINING SECTOR**

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A thesis presented to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

February 2025

ABSTRACT

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Thesis Title: Nexus Between Corporate Social Responsibility Initiatives and the Financial Performance of Companies in the South African Mining Sector

The nexus between Corporate Social Responsibility (“CSR”) and corporate financial performance (“FP”) of companies remains a subject of extensive academic enquiry. Critics argue that CSR is a burdensome initiative, while others view it as a strategic investment, with long-term economic, environmental and social benefits.

The research assessed whether mining companies engaging in CSR initiatives experience enhanced FP and if these companies integrate CSR strategies into their overarching corporate strategic objectives. Employing a quantitative methodology, the study analysed secondary data between 2014 and 2023 from 19 Johannesburg Stock Exchange (“JSE”)-listed mining companies. CSR performance was measured using a self-developed scorecard, while FP was measured through a total of four accounting and market-based performance metrics.

Research findings found a positive correlation between social CSR (“CSRS”) initiatives and all four FP metrics. Environmental CSR (“CSRE”) initiatives also correlate positively with these metrics, except for Return on Assets (“ROA”). Furthermore, the research found that 95% of the sampled companies incorporate CSR strategy into their broader corporate strategic objectives.

CSRS initiatives were found to improve employee and community relations, leading to increased productivity and operational stability, which in turn enhances FP. The observed negative correlation between CSRE and ROA is attributable to the substantial upfront capital investments required for such initiatives and the delayed realisation of improved asset efficiency benefits. However, CSRE positively influences market-based FP metrics by reducing environmental compliance risk, improving business continuity and bolstering investor confidence.

The study concludes that CSR is a value-accretive strategy for JSE-listed mining companies, with the potential to generate long-term economic value and enduring competitiveness. To fully realise these benefits, it is imperative that CSR strategy is embedded into the broader corporate strategic objectives and forms part of the core business ethos.

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LIST OF ACRONYMS

AFS	Annual Financial Statements
CSR	Corporate Social Responsibility
CSRE	Environmental Corporate Social Responsibility
CSRS	Social Corporate Social Responsibility
DMPR	Department of Mineral and Petroleum Resources
ESG	Environmental, Social, and Governance
FEM	Fixed Effects Model
FP	Financial Performance
GRI	Global Reporting Initiative
HPR	Holding Period Return
ICMM	International Council on Mining and Metals
IR	Integrated Report
JSE	Johannesburg Stock Exchange
MPRDA	Mineral and Petroleum Resources Development Act, 2002
REM	Random Effects Model
ROA	Return on Assets
ROE	Return on Equity
ROI	Return on Investment
SDGs	Sustainable Development Goals
SRI Index	Socially Responsible Investment Index
TBL	Triple Bottom Line
TCFD	Task Force on Climate-related Financial Disclosures
Tobin's Q	Tobin's Q Ratio

1. CHAPTER 1: INTRODUCTION

1.1. Background

Corporate Social Responsibility (“CSR”) has become central to the mindsets of many corporations, globally (Hildebrand *et al.*, 2011). The key emphasis of CSR is that its activities are viewed as a means to support the overall sustainability of society directly or indirectly (Siueia *et al.*, 2019). CSR is essential for any organisation as it demonstrates the social care value an organisation holds towards its host communities and the environment (Nicole *et al.*, 2022). At the core of CSR lies the “triple bottom line” (“TBL”) principle. This highlights the importance for companies to focus on social and environmental concerns, just as much as they focus on profitability (Elkington, 1998). This is commonly represented by the “three Ps”: People, Planet, and Profit. Extant literature in South Africa (“SA”) and internationally has investigated CSR in its various ways and explored whether CSR leads to any effect on companies’ financial performance (“FP”). Nguyen *et al.* (2021) argue that companies that are engaged in CSR activities can achieve a competitive advantage over those that neglect the significance of CSR. This is supported by Freeman’s (1994) assertion that CSR is good for profits.

Numerous studies have examined the relationship between CSR initiatives and FP, yielding a diverse range of findings. The variability in these findings has been attributed to differing CSR performance measurement methodologies (Demetriades & Auret, 2014), underscoring the need for continued research on this subject, using varied CSR performance metrics. This study addressed this limitation through the use of a self-developed CSR performance measurement scorecard to provide a more detailed and objective assessment of CSR performance.

1.2. Problem statement

Shareholder wealth destruction often presents itself as a barrier to implementing CSR initiatives. This perspective is accentuated by the shareholder primacy doctrine. This asserts that the primary social responsibility of a business is to maximise profits solely for the benefit of its shareholders (Friedman, 1970). This perspective potentially leads to the disregard of other stakeholders' interests, other than those of shareholders (Smith. & Rönnegard, 2016), jeopardising the benefits inherent from effective implementation of CSR initiatives within organisations.

Companies should not consider CSR as a cost, but rather as an investment opportunity, allowing them to make a positive contribution towards a more sustainable world, while also achieving improved financial outcomes (Coelho *et al.*, 2023). Corporates that disregard CSR often experience criticism from governments, suffer strained community relations, risk revocation of regulatory licenses to operate, and heightened investment risks (Hamann, 2003).

1.3. Research objectives

The research examines the FP of mining companies engaged in CSR initiatives (including both social and environmental CSR initiatives), analysing the nexus between CSR performance and FP to determine its impact. Specifically, the study aims to:

- i. Assess whether engaging in CSR initiatives enhances the FP of mining companies.
- ii. Determine whether mining companies align CSR initiatives with their corporate strategic objectives.

1.4. Hypotheses

Based on the research objectives, the following hypotheses are formulated for the study:

- 1.4.1.** H₀₁ (Null Hypothesis): There is no significant relationship between social CSR initiatives and the FP of JSE-listed mining companies.
- 1.4.2.** H₁₁ (Alternative Hypothesis): There is a positive relationship between social CSR initiatives and the FP of JSE-listed mining companies.
- 1.4.3.** H₀₂ (Null Hypothesis): There is no significant relationship between environmental CSR initiatives and the FP of JSE-listed mining companies.
- 1.4.4.** H₁₂ (Alternative Hypothesis): There is a positive relationship between environmental CSR initiatives and the FP of JSE-listed mining companies.

1.5. Rationale

The research provides the South African mining industry with insights into the return on investment realisable from the implementation of CSR-related initiatives, encouraging strategic resource allocation towards CSR and integration of CSR into strategic objectives of companies. Furthermore, it highlights the benefits of undertaking voluntary CSR initiatives beyond regulatory requirements.

1.6. Delimitations of study

The scope of the study is limited solely to JSE-listed mining companies that have operations in SA, excluding those in exploration and project development phases. CSR performance was evaluated using a self-developed rating scorecard, instead of utilising existing CSR reputation indices, which exclude some JSE-listed companies. FP was evaluated through four financial analysis metrics: Return on Asset ("ROA"), Return on Equity ("ROE"), share performance (measured by the Holding Period Return ratio ("HPR") and Tobin's Q ratio.

2. CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

CSR has played a pivotal role in the corporate world, shaping global business practices, since it was first conceptualised by Bowen (1953) as an obligation on businesses to strive for commercial strategies and opportunities that do not violate core societal values and goals. Jo & Harjoto (2011) further expanded this view, defining CSR as corporate actions that extend beyond legal obligations to enhance the wellbeing of communities within which companies operate.

Hamann (2003) argues that CSR should extend beyond philanthropy and be differentiated from Corporate Social Investment, which entails investments of a percentage of companies' profits into social development. To be effective, CSR should be embedded in the corporate's strategic objectives (Nicole *et al.*, 2022). Chandler (1963) defines strategy as setting long-term goals and allocating resources necessary to achieve them. Integrating CSR into corporate strategic objectives ensures that it is not merely greenwashing, but a core part of business activities and is central to the corporate values and culture (Siltaloppi *et al.*, 2021). Such integration improves corporate accountability, fostering stakeholder scrutiny into the operations of the business (Freeman *et al.*, 2010).

When implemented effectively, CSR benefits both companies and stakeholders. Księżak (2016) asserts that CSR strengthens corporate brand image and reputation, signalling a commitment to responsible business practices. This enhances revenue growth and improves FP.

2.2. CSR as social licence to operate

The mining sector in SA operates within a stringent regulatory regime that mandates CSR activities on mining companies for the benefit of host communities and environmental conservation (Nyembo & Lees, 2020). A key driver of CSR in this sector is the social licence to operate, an essential requirement to secure and maintain mineral rights, administered by the Department of Mineral and Petroleum Resources ("DMPR") (Corrigan, 2019).

Mining companies are required to comply with DMPR's regulations, including the 2018 Mining Charter and the Mineral and Petroleum Resources Development Act ("MPRDA"), in order to obtain and maintain regulatory licences.

- The DMPR, through the MPRDA, mandates Social and Labour Plans ("SLPs") as a precondition for securing and renewing mineral licences (MPRDA, 2022). SLPs largely address social elements of CSR, requiring companies to outline social initiatives that they will implement for socio-economic development of host communities (Maseko & Nkosi, 2024).
- The Mining Charter reinforces social CSR by mandating diversity, equity and inclusion compliance, including equity ownership representation by historically disadvantaged individuals ("HDIs") as a condition for obtaining and maintaining mineral right licences (Mining Charter, 2018).

While regulatory frameworks establish a strong foundation for CSR, Carroll (1991) asserts that legal compliance alone is insufficient to fulfil broader social contract obligations that exist between businesses and society. Businesses must aim to proactively implement CSR initiatives that extend beyond legal requirements in order to create shared value, enhance competitiveness, and drive long-term sustainability (Carroll & Shabana, 2010; Porter & Kramer, 2011).

2.3. Comparative impacts of social and environmental CSR on FP

The TBL principle advocates for businesses to balance profitability with social and environmental considerations. The Global Reporting Initiative ("GRI") strengthens this approach by providing a CSR reporting framework that standardises social and environmental CSR reporting in corporate publications. Further to the GRI, other global Environmental, Social, and Governance ("ESG") frameworks such as the International Council on Mining and Metals ("ICMM"), and the United Nations Sustainable Development Goals ("SDGs") have also played a critical role in elevating the TBL principles in business. These frameworks promote the integration of social and environmental sustainability with financial profitability (GRI, 2021, ICMM, 2020, United Nations, 2015).

Social CSR includes employee and community relations, encompassing employee health and safety, as well community environmental and social elements. Poor community relations often lead to community activism, operational disturbances or even mine closures, resulting to immediate revenue losses for mining companies (Humphreys, 2000). Conversely, strong community relations enhance corporate reputation and positively influence FP.

Glavas & Piderit (2009) found that good corporate citizenship that focused on employee relations improves profitability. Similarly, Hamann (2003) highlights that stable community relations guarantee uninterrupted operations, while employee satisfaction boosts employee loyalty and productivity, directly benefiting the FP of companies.

Environmental CSR addresses long-term sustainability challenges, including biodiversity preservation, carbon emission reductions, energy and water sustainability. These initiatives are critical for mitigating business continuity risks and aligning with global sustainability trends (Milstein & Hart, 2003). While environmental CSR has the potential to enhance FP, its impact is more long-term and less immediate than social CSR (Barauskaite & Streimikiene, 2020). The long-term financial benefits typically emerge through factors such as lowered cost of capital, improved regulatory compliance and enhanced investor confidence (Dhaliwal *et al.*, 2011).

Overall, social CSR initiatives have a more immediate and tangible impact on FP, while environmental CSR initiatives contribute to long-term sustainability of the business, through reduced risk and enhanced investor confidence.

2.4. CSR and its impact on FP

Previous studies on the CSR-FP relationship have yielded mixed findings. Chetty *et al.* (2015) found mixed results for this relationship for firms in different sectors in SA, largely concluding that there is no notable impact of CSR on the FP of companies. They highlighted that the absence of a correlative link between CSR and FP results from the lack of consensus on the measurement criteria for CSR and FP, leading to inconsistent comparisons.

A significant correlative relationship between CSR disclosures and Return on Investment (“ROI”) was observed by Wasara & Ganda (2019) in their study that focused on JSE-listed mining companies. However, their findings may be influenced by the measurement parameters they adopted for CSR, as they assessed CSR performance based on the wordcount in the CSR reports of companies. Hamann (2003) critiques this approach, arguing that too much emphasis is placed on CSR reporting, while core focus should be placed on CSR performance.

In their study that involved 40 listed Nigerian firms, Uadiale & Fagbemi (2012) observed that CSR positively impacted the firms’ FP. The wordcount approach was also followed as a measure for CSR performance. They advocate for Nigerian corporations to actively participate in CSR initiatives to enhance their corporate image and drive financial returns.

2.5. Measurements for CSR performance

CSR performance assessment remains a significant challenge as there is no singular CSR performance measurement framework. Barauskaite & Streimikiene (2020) identified four commonly used frameworks: reputation indices, content analysis, questionnaire surveys, and one-dimensional measures. Notable reputation indices include the FTSE4Good Index Series, the MSC Kinder Lydenberg Domini 400 Social Index, S&P 500 Scored & Screened Index and the Fortune Magazine Reputation Index.

South African-developed indices include the Socially Responsible Investment Index (“SRI Index”), founded by the JSE in 2004. The JSE subsequently developed the FTSE/JSE Responsible Investment Top 30 Index, derived from the larger FTSE/JSE Responsible Investment Index, all developed in 2015 (JSE, 2024).

Chetty *et al.*, (2015) and Demetriades & Auret (2014) relied on the SRI Index, employing a binary approach to assess CSR performance, where dummy variables (0 or 1), were assigned if a company was listed on the index, “1”, and “0” if it was not. Their studies showed mixed results, where a positive CSR and ROE relationship was

observed on some models, with other models failing to establish any notable correlation between these variables.

While these indices serve as reliable proxies for assessing CSR performance, they vary in their criteria and methodologies to assess CSR performance, which some researchers criticise for potential bias. This criticism stems from the belief that these methodologies do not necessarily employ scientific rigour and may not be entirely objective (Galant & Cadez, 2017). These limitations in the assessment of CSR performance underscore the need for continued research on this subject, using varied CSR performance metrics.

2.6. Measurements for FP

Past researchers have generally measured FP using accounting-based, market-based, or combined measures (Wasara & Ganda, 2019; Demetriades & Auret, 2014). The commonly used FP measures for these studies are presented on Figure 1 below:

Figure 1: FP Indicators.

Accounting-based	Market-based
ROA - return on assets	Stock returns
ROE - return on equity	Market value of company
ROS - return on sales	Changes in stock returns
ROCE - return on capital employed	Tobin's Q
Net operating income	
Net income	

2.7. Analytical framework

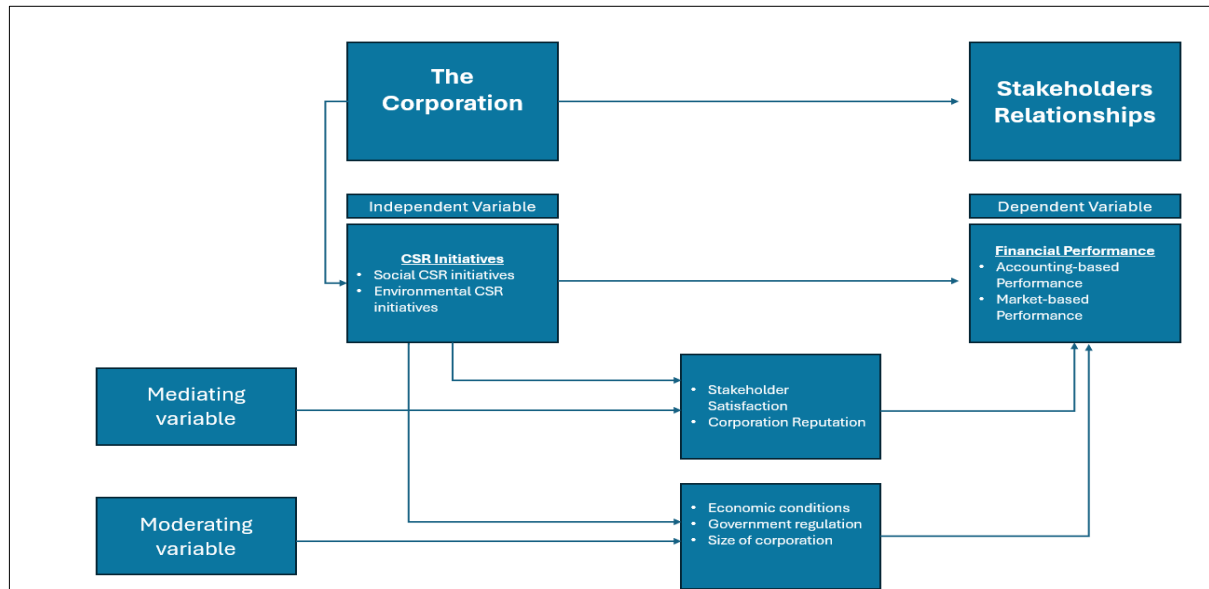
2.7.1. Theoretical framework

CSR is a concept that is largely founded on the TBL theory, and this theory forms the foundation of this research. It is a theory that was largely popularised by Elkington (1998) as a framework that integrates corporate economic activities with social, and environmental impacts. The theory encourages companies to integrate responsible practices into their strategy and operations, and to consider the wellbeing of their stakeholders (Žak, 2015).

2.7.2. Conceptual framework

The diagram below presents the study's key concepts, showing its variables and their interrelationships.

Figure 2: Conceptual Framework



This framework positions the corporation at the centre of CSR, directly and effectively engaging with its stakeholders such as customers, communities, investors, employees, and regulatory authorities to drive operational efficiency and enduring stability. The corporation is responsible for CSR-related initiatives, which are hypothesised to positively influence the corporation's FP. The framework details the independent (CSR initiatives) and dependent (FP) variables, with mediating variables impacting the strength of CSR initiatives on the FP. Moderating variables, including economic conditions, size of corporation and government regulations are expected to likely have an influence on whether CSR initiatives impact PE positively.

3. CHAPTER 3: RESEARCH METHODOLOGY

3.1. Research approach

A quantitative research methodology was employed for this study, utilising secondary data to analyse the nexus between CSR and FP. This data was obtained from the companies' CSR and financial disclosures contained in their Annual Integrated Reports ("IRs") and Annual Financial Statements ("AFS"). Following a deductive approach, the study evaluates the premise that there is a positive correlation between CSR performance and FP.

3.2. Research design

To analyse the secondary data on CSR initiatives undertaken by mining companies, a content analysis method was employed in this the study. It incorporated the analysis of extant research literature, industry reports and grey literature to address the research objectives, alongside financial analysis of firm's FP using data obtained from their AFS.

This analysis design is suitable for this research, given the structured availability and transparency of the data, as JSE-listed companies are mandated to publish AFS and IRs annually. However, a limitation of using content analysis for CSR is the lack of a standardised format for CSR disclosures, as companies have a discretion over reporting, which may lead to situations where not all relevant CSR data is fully disclosed.

3.3. Data collection methods

CSR-related secondary data was obtained from the companies' AFS and IRs. Market-performance data, including historical share prices, dividends and historical accounting data was sourced from Bloomberg.

AFS and IRs are produced annually and audited by independent auditors in accordance with JSE regulations, ensuring data reliability. Bloomberg is a reputable, widely used provider of market data of listed entities, ensuring data credibility and accuracy.

3.4. Population and sample

The population was based purely on JSE-listed mining companies. As of 24 September 2024, the JSE had 314 listed companies, with 45 in the Basic Materials industry, which includes mining companies and industrial materials suppliers.

The sample focused purely on companies that are directly involved in mining activities (i.e. mining right holders carrying out extraction of mineral resources). Excluded from the sample are industrial materials suppliers, companies with no mining operations in SA, and those still in the development and exploration phases of their operations. As a result, the final research sample consists of 19 JSE-listed companies.

Data was extracted over a ten-year period (2014 to 2023). The selection of companies for the sample did not consider inclusion in the SRI Index, however, 10 out of the 19 sampled companies are part of the index.

3.5. Research instrument

The study utilised a research instrument that was designed to systematically collect, analyse, and interpret secondary data on CSR initiatives and the FP of the companies.

CSR initiatives were assessed on the basis of a total of 12 social and environmental initiatives, detailed on Table 1 below.

Table 1: CSR Initiatives

Social CSR Initiatives	Environmental CSR Initiatives
1. Labour/management relations initiatives	1. Energy use efficiency
2. Health and safety initiatives	2. Greenhouse gas emissions
3. Diversity and inclusion initiatives	3. Water use efficiency
4. Environmental Impact on Local Communities	4. Land, resources use and biodiversity conservation
5. Social Impact on Local Communities	
6. Customer health and safety	
7. Forced or Compulsory Labour and Child Labour	
8. Freedom of association and collective bargaining	

Companies were assessed on whether they account for these CSR initiatives in their CSR strategy. This methodology builds upon the framework developed by Karagiorgos (2010) and subsequently adopted by Chen *et al.*, (2015), where CSR performance

was rated based on specific CSR initiatives. A 0-to-3 measurement scale was used to rate each company's CSR performance for each CSR initiative. Where companies did not account for a specific CSR initiative, they were rated "0" for that. A rating of "1" or "2" was assigned based on how widely companies described their CSR initiatives. A rating of "3" was given where companies provided detailed descriptions of their initiatives.

This study employed a self-constructed balance scorecard to assess CSR performance of the companies. A rating of "0" was given where there is no mention of a CSR initiative, with a "1" given where a company simply mentions an initiative without giving any substantive detail (e.g., *We care for human rights and are opposed to child labour*). A rating of "2" where information provided lacks measurable outcomes. A rating of "3" is for detailed descriptions with specific and measurable data, linked to specific timelines and outcomes, e.g., *"We achieved a 15% reduction in total emissions against the 2019 baseline, and are committed to reducing emissions by 50% by 2035 and achieving net zero by 2050"* (Glencore, 2022).

A self-constructed balance scorecard was employed to ensure a broader and more representative sample than previous studies, which predominantly focused on firms included listed on the SRI Index. Reputation indices only include companies that meet certain predetermined criteria, which may bias results towards large companies. By incorporating firms outside of the SRI index, the self-constructed balance scorecard approach provides a more comprehensive evaluation of CSR performance across a wider array of mining companies. This approach aligns with Demetriades & Auret (2014) who argue that CSR performance should be assessed using more than simple binary indicators such as inclusion in the SRI Index.

The analysis of FP employed both accounting and market-based metrics. A mixed-method approach was adopted to counter shortcomings presented by accounting-based metrics which are derived from historical financial data. Unlike accounting-based metrics, market-based metrics present real-time financial data, allowing for quicker market adjustments as CSR initiatives change.

Table 2 below presents the FP metrics that this study used to measure FP. These metrics are broadly recognised in financial analysis for their ability to provide an appropriate assessment of the financial strength of companies and are commonly used in studies examining the nexus between CSR and FP.

Table 2: Research Variable Measurements

Research Variable	Measurement	Unit of Measure
<u>Independent Variables</u>		
CSR Initiatives – Social	Quantitative Content Analysis	CSR rating score
CSR Initiatives – Environmental	Quantitative Content Analysis	CSR rating score
<u>Dependent Variables</u>		
Return on Assets	(Net Income / Average Total Assets)	%
Return on Equity	Net Income / Average Equity)	%
Holding Period Return (HPR)*	$(P_1 - P_0 + D_1) / P_1$	%
Tobin's Q	Total Market Value of Firm / Total Asset Value of Firm	%

*HPR: P_0 = Share price at beginning of year, P_1 = Share price at end of year, D_1 = Dividend received between beginning and end of year

For research objective 2 – examining CSR and corporate objective alignment, a quantitative scoring approach was followed. This included the use of a structured quantitative rating system to assess CSR alignment. The strategic objectives of the companies were extracted from the companies' vision and mission statements as well as the granular corporate strategic pillars contained in the companies' IRs.

A rating matrix was designed to systematically assess CSR alignment with corporate strategic objectives. The 12 CSR initiatives were mapped against the strategic objectives of companies. A binary rating system was used to score the alignment of CSR and strategic objectives alignment. A rating of "1" was given where there is alignment and a "0" where there is no alignment.

For instance, a strategic goal like "*Drive decarbonization and energy transition*" aligns with environmental CSR initiatives. The total aligned initiatives were counted and expressed as a percentage score, representing each company's CSR alignment level.

3.6. Data collection procedure

Data was systematically extracted from publicly available IRs and AFS reports from company websites. Data on CSR initiatives were sourced from IRs and Sustainability Reports, while accounting-based and market-based metrics were obtained from Bloomberg and company AFS.

3.7. Data analysis strategies and interpretation

In analysing the nexus between CSR initiatives and the FP of companies, this study employed panel data regression analysis, which integrates cross-sectional data (multiple companies) and time-series data (ten-year period). Panel regression offers several advantages:

- (i) Controls for firm-specific heterogeneity – Reduces bias from omitted variables by tracking how variables evolve over time, unlike cross-sectional data (single time point) or time series (single variable over time) (Hsiao, 2014).
- (ii) Enhances model accuracy – Limits collinearity, improving result precision by enabling clearer interpretation of each variable's contribution to FP.
- (iii) Controls for omitted variables – Helps detect and mitigate econometric issues caused by omitted variables correlated with explanatory variables.

3.7.1. Diagnostic tests

To maintain the accuracy and reliability of data analysis, while minimising bias, these diagnostic tests were performed on the raw data prior to the regression analysis being performed:

- i. **Panel unit root test** – assesses panel data series for stationarity to prevent spurious regression results, as non-stationary data can produce misleading correlations between variables even where no such causal relationship exists.
- ii. **Panel cointegration test** – assesses long-run equilibrium, between CSR and FP.
- iii. **Correlated Random Effects Hausman Test** – determines the appropriate panel regression model between the Random Effects Model (“REM”) or Fixed Effects Model (“FEM”).

3.8. Limitations

The lack of standardised CSR disclosures format poses a challenge as IRs vary in their disclosure format, unlike the AFS which follow International Financial Reporting Standards. This inconsistency complicates data collection and comparability. To address any gaps, supplementary data contained in the Sustainability Reports and ESG Reports was used, where available.

3.9. Quality assurance

- External validity – The research includes a diverse sample of JSE-listed mining companies, varying in size and commodity focus, ensuring that findings are broadly applicable to other mining companies in SA.
- Internal validity – Control variables for market condition and company size were incorporated in order to account for external factors that influence FP.
- Reliability – Data collection and analysis followed a standardised process, with standard formulas applied for financial metrics such as ROA and ROE. CSR-related data was sourced from publicly available IRs of the companies and analysed as per the CSR dimensions detailed in Appendix 1.

3.10. Ethical considerations

The study employed publicly available secondary data, and it posed no risk that compromised any ethical research practices during the collection of data and the data analysis process.

4. CHAPTER 4: DATA ANALYSIS AND INTERPRETATION OF RESULTS

4.1. Introduction

This section details the results from the regression models that were performed to assess the nexus between CSR initiatives and FP of mining companies (Objective 1). Furthermore, it outlines results relating to findings on whether mining companies align CSR initiatives with their strategic corporate objectives and provides an analysis of the factors that influence mining companies to pursue CSR initiatives (Objective 2).

4.2. Descriptive statistics

This descriptive statistics summary on Table 3 provides a comprehensive overview from the statistical analysis of the research. The panel data is captured from 19 mining companies, between years 2014 to 2023, leading to a total of 190 observations.

The summary reveals a mean score of 18.85 for social aspects of CSR (“CSRS”) and a mean score of 11.54 for environmental aspects of CSR (“CSRE”) from the sampled companies. This highlights a moderate engagement in CSR activities by the companies. The score variability between minimum and maximum CSR scores is an indication of the expansive CSR reporting and related CSR initiatives that companies carry out, relative to their peers.

Table 3: Descriptive Statistics

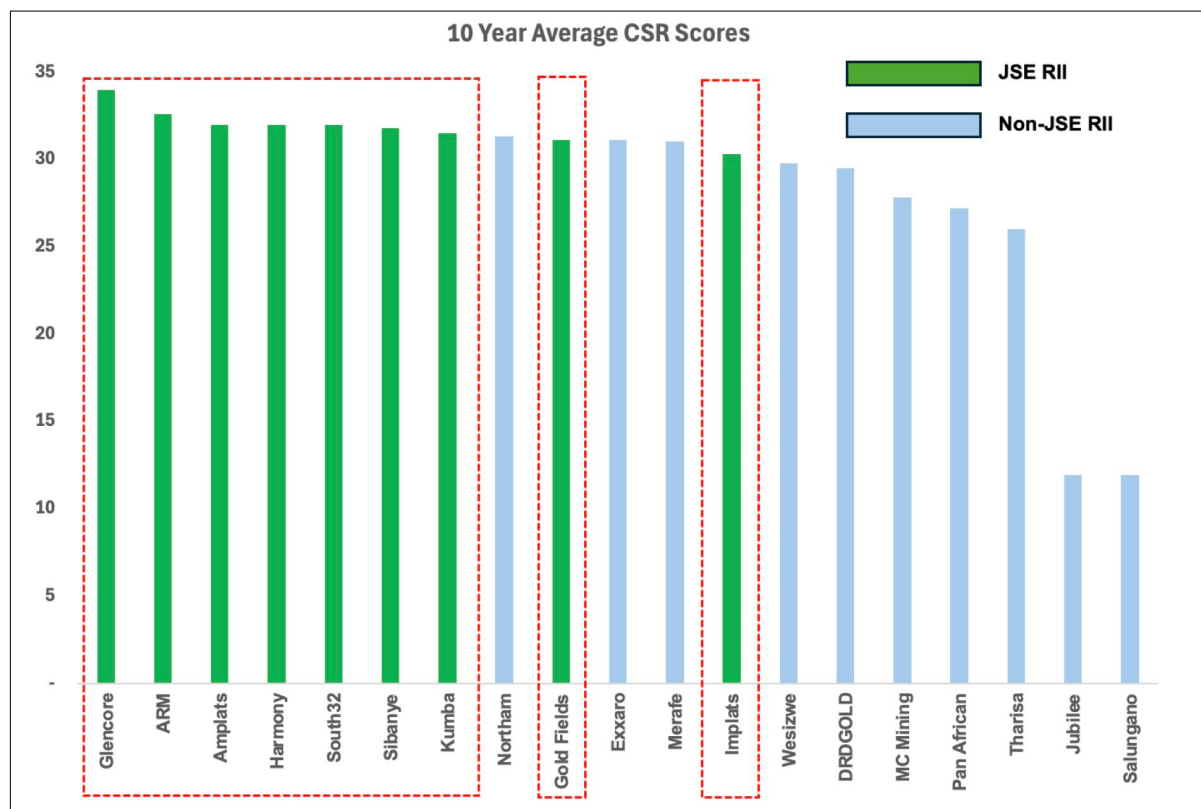
Variable	Mean	Median	Standard Deviation	Minimum	Maximum
HPR	0.0149	0.1056	0.2345	-4.8228	2.5005
ROA	0.1152	0.0362	1.9136	-12.6153	17.9497
ROE	0.0864	0.0757	3.1725	-17.8109	26.9031
Tobin’s Q	4.3695	1.1000	0.5000	0.0308	96.0670
GDP	5363190	5625207	934115	4133873	7023994
CSRS	18.85	19	4.4141	0	23
CSRE	11.54	12	2.6557	3	12
Revenue	180800	15081	660974	0	4191862

Source: Researcher’s Analysis using E-Views 10

When scrutinizing the raw data set from the CSR scorecard that is discussed in 3.5, it becomes apparent that those entities that are on the JSE’s Responsible Investment Top 30 Index (“JSE RII”) are the ones with a high average CSR score over a ten-year

period). Figure 3 below depicts the average CSR scores and highlights the companies that are on the JSE Top 30 RII.

Figure 3: Average CSR Scores



4.3. Diagnostic Tests

In eliminating any bias in the final results of the model, diagnostic tests were conducted on the panel series, with the intention to guarantee the suitability of the data for analysis and ensure that it can produce reliable results.

4.3.1. Panel unit root test results

The stationarity test for the variables was performed by using these tests: the Levin, Lin and Chu (“LLC”); Im, Pesaran and Shin (“IPS”); Augmented Dickey Fuller (“ADF”) Chi-square and Phillips-Perron (“PP”) Chi-square tests. The LLC and IPS tests detect unit roots in panel data, while ADF Fisher Chi-square and PP Fisher Chi-square tests detect unit roots in the individual time series.

The number of times the data must be differenced in order to become stationary depends on the order of integration (“ $I(d)$ ”). If data is already stationary (“ $I(0)$ ”), no

differencing is required. First differencing (“I(1)”) shows that data was non-stationary and needed differencing, to become stationary. Test results for stationary for the four regression models are presented on the tables below.

Table 4: Stationarity Test Results – ROA

Variable	Levin, Lin & Chu Statistic	Im, Pesaran & Shin Statistic	ADF Fisher Chi-square Statistic	PP Fisher Chi-square Statistic	Order of Integration
ROA	-2.5600	-1.8300	43.2100	35.6700	I (0)
CSRS	-1.2300	-0.5600	21.1100	17.4500	I (1)
CSRE	-1.4500	-0.7300	25.6700	20.8900	I (1)
Revenue	-3.2100	-2.1500	51.2300	42.1900	I (0)
GDP	-4.5600	-3.2100	63.4500	53.2100	I (0)

Table 5: Stationarity Test Results – ROE

Variable	Levin, Lin & Chu Statistic	Im, Pesaran & Shin Statistic	ADF Fisher Chi-square Statistic	PP Fisher Chi-square Statistic	Order of Integration
ROE	-2.3500	-1.8200	15.6100	18.2200	I (0)
CSRS	-1.4500	-1.1000	12.4600	14.5700	I (1)
CSRE	-3.1200	-2.4600	20.1200	22.4600	I (0)
Revenue	-2.9000	-2.2300	18.9000	20.2300	I (0)
GDP	-1.2300	-0.9200	10.2200	12.1100	I (1)

Table 6: Stationarity Test Results – HPR

Variable	Levin, Lin & Chu Statistic	Im, Pesaran & Shin Statistic	ADF Fisher Chi-square Statistic	PP Fisher Chi-square Statistic	Order of Integration
ROE	-2.3500	-1.8200	15.6100	18.2200	I (0)
CSRS	-1.4500	-1.1000	12.4600	14.5700	I (1)
CSRE	-3.1200	-2.4600	20.1200	22.4600	I (0)
Revenue	-2.9000	-2.2300	18.9000	20.2300	I (0)
GDP	-1.2300	-0.9200	10.2200	12.1100	I (1)

Table 7: Stationarity Test Results – Tobin's Q

Variable	Levin, Lin & Chu Statistic	Im, Pesaran & Shin Statistic	ADF Fisher Chi-square Statistic	PP Fisher Chi-square Statistic	Order of Integration
ROE	-2.3500	-1.8200	15.6100	18.2200	I (0)
CSRS	-1.4500	-1.1000	12.4600	14.5700	I (1)
CSRE	-3.1200	-2.4600	20.1200	22.4600	I (0)
Revenue	-2.9000	-2.2300	18.9000	20.2300	I (0)
GDP	-1.2300	-0.9200	10.2200	12.1100	I (1)

The stationarity test results indicate that some variables were stationary with an order of integration of I(0), where no differencing was required, as there was no presence of unit roots. However, other variables were non-stationary and became stationary after first differencing, with an order of integration of I(1). The process of differencing the panel data transforms non-stationary data into stationary data, ensuring the removal of trends that may result in misleading outcomes from the regression analysis.

4.3.2. Panel cointegration test

The Pedroni Residual Cointegration Test was conducted to assess if the panel variables are cointegrated and share a long-term equilibrium, despite possible short-run fluctuations between these variables. Although CSR and FP may not be correlated in the short-term, the cointegration test assesses if there is a long-run relationship between these variables.

The Panel v-Statistic and Panel rho-Statistic test for cointegration in a panel data setting, allowing for heteroscedasticity and autocorrelation. The panel PP-Statistic and panel ADF-Statistic test for cointegration in a panel data setting, testing for non-stationarity and cointegration.

Table 8 below presents the results of the cointegration test that was conducted.

Table 8: Pedroni Residual Cointegration Test Results

Variable	Test	Statistic	Probability	Weighted Statistic
ROA	Panel v-Statistic	-2.560	0.010	-3.210
	Panel rho-Static	-1.830	0.060	-2.150
	Panel PP-Static	-2.910	0.003	-3.450
	Panel ADF Static	-3.210	0.001	-3.670
ROE	Panel v-Statistic	-2.345	0.034	-1.821
	Panel rho-Static	-1.456	0.021	-1.102
	Panel PP-Static	-3.421	0.002	-2.901
	Panel ADF Static	-3.512	0.001	-2.934
HPR	Panel v-Statistic	-2.560	0.010	-1.230
	Panel rho-Static	-2.150	0.030	-1.450
	Panel PP-Static	-2.340	0.020	-1.830
	Panel ADF Static	-2.510	0.010	-1.830
Tobin's Q	Panel v-Statistic	-3.250	0.004	-2.900
	Panel rho-Static	-1.950	0.055	-1.600
	Panel PP-Static	-3.800	0.001	-3.400
	Panel ADF Static	-3.500	0.002	-3.100

The null hypothesis, which holds that there is no long-run relationship between the dependent variables (FP indicators) and the explanatory independent variables (CSRS, CSRE, Revenue and GDP) is rejected, based on the panel cointegration tests results that show p-values of less than 0.05 for most of the tests. This suggests that although there may be fluctuations between the FP indicators (dependent variables) and the independent variables, these are co-integrated, indicating a strong long-term relationship. The existence of co-integration leads to the conclusion that the independent variables are not merely independent factors but indicate the existence of their long-run influence on the FP these firms.

4.3.3. Hausman test for Random Effects

The selection of the appropriate panel regression model (between FEM and REM) was determined through the Hausman test. This test holds the null hypothesis that company-specific characteristics are uncorrelated with the independent variables, indicating that REM is appropriate.

Table 9: Hausman Test Results

Test	Statistic	p-value	Model
Hausman Test (HPR)	12.56	0.0001	FEM
Hausman Test (ROA)	12.43	0.0001	FEM
Hausman Test (Tobin's Q)	15.24	0.0043	FEM
Hausman Test (ROE)	12.56	0.0140	FEM

The Hausman test results show p-values below 0.05 for all four models, leading to the rejection of the null hypothesis and the conclusion that the FEM is determined to be the appropriate estimation model for the regression analysis.

4.4. Presentation of regression results

The regression analysis of research tested if CSR performance (represented by CSR scores for CSRS and CSRE) is positively correlated with the FP of mining companies. FP is measured by accounting-based indicators: ROA and ROE and market-based indicators: HPR ratio and Tobin's Q.

The FEM multi-regression equation used for analysis is:

$$FP_{i,t} = \beta_{0i} + \beta_1 CSRS_{i,t} + \beta_2 CSRE_{i,t} + \beta_3 FirmSize_{i,t} + \beta_4 GDP_{i,t} + \epsilon_{i,t}$$

Where:

$FP_{i,t}$ = Financial performance measure.

β_{0i} = Company-specific intercept.

$\beta_1 CSRS_{i,t}$ = Social CSR score.

$\beta_2 CSRE_{i,t}$ = Environmental CSR score.

$\beta_3 FirmSize_{i,t}$ = Total revenue.

$\beta_4 GDP_{i,t}$ = GDP of SA.

$\epsilon_{i,t}$ = error term (capturing unobserved factors affecting the CSR-FP relationship).

Firm size and GDP were incorporated in the regression models as control variables in order to remove any external factors that may influence CSR performance. Total revenue generated by each sampled company was used as proxy for firm size.

4.4.1. ROA Model

The FEM regression equation for ROA is:

$$ROA_{i,t} = 0.05 + 0.015 \times CRS_{i,t} - 0.00001 \times CSRE_{i,t} + 0.000002 \times FirmSize_{i,t} + 0.0000001 \times GDP_{i,t} + \epsilon_{i,t}$$

Table 10: Regression Results: ROA

Variable	Coefficient	Standard. Error	t-Statistic	p-Value
CSRS	0.01500	0.00400	3.75000	0.00020
CSRE	-0.00001	0.00001	-2.00000	0.04550
Revenue	0.00000	0.00000	4.00000	0.00010
GDP	0.00000	0.00000	2.00000	0.04550
Constant	0.05000	0.02000	2.50000	0.01250

The model summary statistics presented from the FEM model indicate that all variables, apart from CSRE, have positive coefficients, meaning that an increase in these variables positively impacts the ROA. With an R-squared of 0.75, the model holds a strong explanatory power of the variations in the ROA. With an adjusted R-squared of 0.7, the model remains robust as it is still able to explain 70% of the variations in the ROA.

The results depict that the ROA increases by 1.5%, for every unit increase in CSRS, while ROA decreases by 0.001%, for every unit increase in CRSE. Although this is a small impact, a p-value of 0.0455 suggests the statistical significance of the coefficient.

Durbin-Watson Statistics (1.83) indicates no serial correlation in the residuals. The independent variables have a significant effect on the ROA, as indicated by the F-Statistic of 23.45 and p-value of 0.0001.

4.4.2. ROE Model

The FEM regression equation for ROE is:

$$ROE_{i,t} = 0.121 + 0.015 \times CSRS_{i,t} + 0.010 \times CSRE_{i,t} + 0.006 \times FirmSize_{i,t} + 0.002 \times GDP_{i,t} + \epsilon_{i,t}$$

Table 11: Regression Results: ROE

Variable	Coefficient	Standard. Error	t-Statistic	p-Value
CSRS	0.0150	0.0040	3.7500	0.0002
CSRE	0.0100	0.0040	2.5100	0.0133
Revenue	0.0060	0.0030	2.1300	0.0343
GDP	0.0020	0.0010	1.5600	0.1201
Constant	0.1210	0.0500	2.4000	0.0170

The summary on the table above indicate that CSR-related initiatives enhance the ROE of the companies. A unit increase in each of the CSRS and CSRE initiatives leads to a 1.5% and 1% increase in the ROE, respectively. The independent variables in the model are able to explain 85% of the variability in the ROE, as indicated by the R-squared of 0.85. The model's adjusted R-squared is 0.83, indicating the that the model independent variables remain strong predictors of variability in the ROE.

4.4.3. HPR Model

The FEM regression equation for HPR is:

$$HPR_{i,t} = 0.0567 + 0.0123 \times CSRS_{i,t} + 0.0156 \times CSRE_{i,t} + 0.0456 \times FirmSize_{i,t} + 0.0234 \times GDP_{i,t} + \epsilon_{i,t}$$

Table 12: Regression Results: HPR

Variable	Coefficient	Standard. Error	t-Statistic	p-Value
CSRS	0.0123	0.0032	3.8500	0.0001
CSRE	0.0156	0.0045	3.4500	0.0005
Revenue	0.0456	0.0121	3.7600	0.0002
GDP	0.0234	0.0056	4.1700	0.0001
Constant	0.0567	0.0129	4.3900	0.0001

The model summary presents results from the FEM regression analysis, supported by the findings of the Hausman test that FEM is appropriate for the data analysis. The regression results provide strong evidence that the independent variables are statistically significant predictors of HPR. The coefficients of these variables are positive, indicating their positive impact on the HPR, with each unit increase in the variables. Increasing CSRS and CSRE by one unit, has a 1.23% and 1.56% increase in the HPR, respectively.

HPR is significantly impacted by increases in revenue and GDP. A unit increase in revenue and GDP results in a 4.56% and 2.34% increase in HPR, respectively. Revenue and GDP are therefore strong predictors of HPR. Controlling for these variables is therefore justifiable in order to moderate any confounding effects arising from these variables.

The model resulted to an R-squared of 0.85, suggesting that the variables are strong predictors of the HPR. With an adjusted R-squared of 0.83, the model highly maintains its explanatory power of the impact that the independent variables have on the HPR.

No serial correlation in the residuals was observed, evidenced by the Durbin-Watson Statistics of (1.85). The F-Statistic (12.42) and p-value (0.0001) indicate a strong relationship between independent variables and HPR as the model is statistically significant,

4.4.4. Tobin's Q Model

The Tobin's FEM regression equation is:

$$\text{Tobin's } Q_{i,t} = 0.85 + 0.025 \times \text{CSRS}_{i,t} + 0.018 \times \text{CSRE}_{i,t} + 0.000002 \times \text{FirmSize}_{i,t} + 0.000001 \times \text{GDP}_{i,t} + \epsilon_{i,t}$$

Table 13: Regression Results: Tobin's Q

Variable	Coefficient	Standard. Error	t-Statistic	p-Value
CSRS	0.0250	0.0080	3.1300	0.0090
CSRE	0.0180	0.0060	3.0000	0.0060
Revenue	0.0000	0.0000	4.0000	0.0000
GDP	0.0000	0.0000	3.5000	0.0000
Constant	0.8500	0.1500	5.6700	0.5500

The model yielded an R-squared of 0.68 and an adjusted R-squared of 0.67, indicating that 68% of the variance in the Tobin's Q is explained by the independent variables. The adjusted R-squared of 0.67 further suggests that the model highly maintains its explanation of the correlation of the independent. Increasing CSR-related initiatives show a positive impact of a total of 4.3% to Tobin's Q.

4.5. Results interpretation

The ROA model results confirm that social CSR initiatives positively impact ROA, while environmental CSR initiatives exhibit a negative correlation with ROA. These findings align with those of Wasara & Ganda (2019), who found a positive correlation between social CSR disclosures and return on investment ("ROI"), while observing that environmental CSR disclosures negatively impacted the ROI.

Similarly, Demetriades & Auret (2014) found that SRI Index-listed mining firms had a lower ROA than those not on the index, indicating that CSR initiatives may not necessarily result in improved overall asset efficiency. A key reason for this is due to the high operating costs and large upfront investments associated with environmental CSR initiatives, such as the construction of water treatment plants for the treatment of mine-affected water. While these initiatives provide long-term sustainability benefits, their financial returns are often delayed, making their short-term impact on asset efficiency less apparent.

In contrast, social CSR initiatives tend to have a more immediate impact on FP. These initiatives enhance employee productivity and retention, while strengthening community relations, ensuring operational stability for mining companies (Humphreys, 2000; Hamann, 2003). Collectively, these benefits enhance operational efficiency, guaranteeing optimal asset utilisation, ultimately raising the ROA of companies (Harrison & Freeman, 1999).

The findings from ROE regression analysis indicate a positive relationship between CSR initiatives and ROE, with the model revealing a 2.5% uplift in the ROE for each unit increase in CSR performance. This confirms that CSR-related initiatives enhanced FP and shareholder value. These findings align with Uadiale & Fagbemi's (2012) study on Nigerian firms that observed a positive CSR and ROE correlation. Ningsih *et al.* (2022) also found a positive link between CSR initiatives and ROE in Indonesian companies.

Companies that engage in CSR initiatives are able to reduce operational risks and improve long-term sustainability. Dhaliwal *et al.* (2011) emphasise that with lowered operational risk and long-term sustainability, these entities are able to reduce their cost of capital, allowing them to source financial capital at competitive rates. A lower cost of capital allows for efficient capital raising, providing these companies with the flexibility to take advantage of financial leverage when seeking growth and operational financial capital. Mining companies that prioritise CSR initiatives enhance their appeal to socially responsible institutional investors, expanding their access to sustainable funding sources, ensuring continued growth and sustainability for the companies.

The research findings also observed that CSR initiatives have a positive impact on the companies' Tobin's Q and HPR market-based financial indicators. These results align with previous studies, including Dhaliwal *et al.* (2011), who highlighted that CSR-focused companies benefit from a lower cost of capital due to enhanced investor confidence and reduced investment risk.

Firms that engage in CSR initiatives are perceived as low-risk investments as they are shielded from reputational risks associated with environmental and social

mismanagement. Furthermore, these companies mitigate financial risks by avoiding substantial legal fines and penalties by regulatory bodies for the violation of environmental and social regulatory standards. In extreme cases, the violation of these regulatory standards can even lead to the revocation of mineral right licences by the authorities, posing a significant business continuity risk.

A lower investment risk enhances shareholder confidence, increases demand for company shares, which ultimately raises share prices and improves HPR. This effect is further reflected through higher Tobin's Q values, showing higher market valuations, as the market rewards CSR-focused companies. These findings are supported by Margolis & Walsh (2003) who present an argument that CSR-focused entities tend to trade at higher market multiples, as investors recognise this as a long-term value creation strategy. This perspective also aligns with Porter & Kramer's (2011) shared value theory, which emphasises that entities that have engraved CSR practises into their strategic objectives achieve long-term competitiveness and improved market valuations.

Environmental CSR are essential for managing and reducing rehabilitation and closure liabilities, which represent substantial financial obligations for mining companies. Proactively implementing environmental CSR initiatives ensures the gradual reduction of rehabilitation and closure liabilities, serving as a long-term risk mitigation strategy for companies. This improves the risk profile for these companies, leading to better shareholder confidence and enhanced share performance. Hart & Milstein's (2003) support this view, asserting that environmental CSR initiatives can mitigate against long-term business continuity risks, reinforcing its long-term positive impact on the sustainability of companies.

4.6. Alignment of CSR initiatives with strategic corporate objectives

Objective 2 of the study is to assess whether the mining companies align CSR initiatives with their strategic corporate objectives. This section discusses the findings relating to this objective.

The literature review provided extensive evidence of the benefits of aligning CSR initiatives with the strategic corporate objectives. Hamann (2003), Nicole *et al.* (2022)

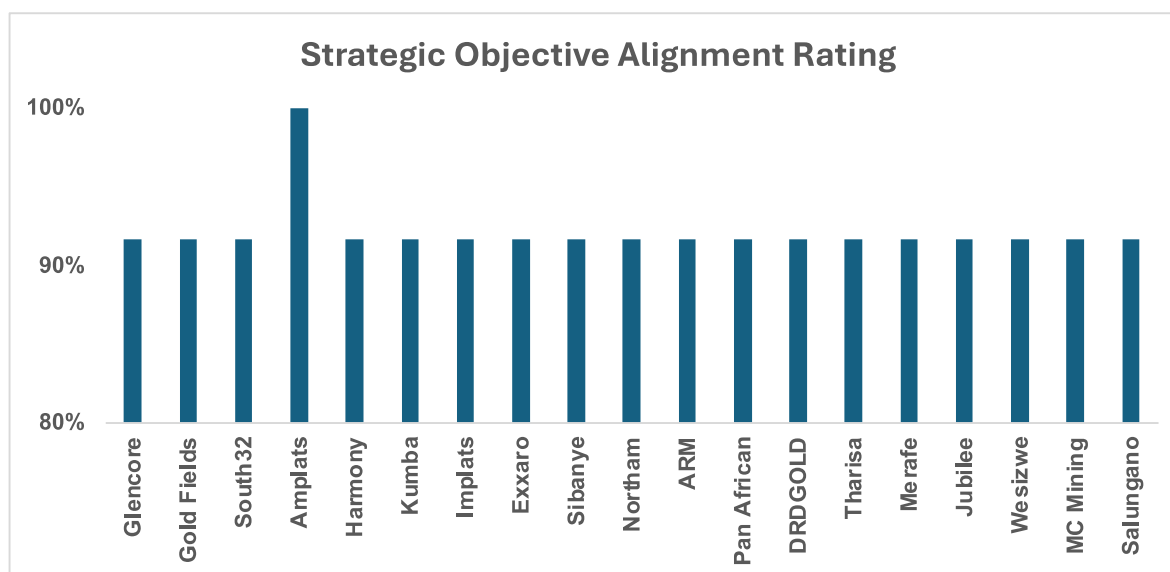
and Siltaloppi *et al.* (2021) are all aligned on the criticality of having CSR initiatives being embedded in the strategic corporate objectives. They emphasize that this alignment ensures transparency of the mining activities, improves accountability and ensures that CSR initiatives are an ethos of the company culture and value system, as opposed to mere greenwashing.

The process followed to assess CSR alignment was achieved through the analysis of the companies' IRs, identifying their strategic objectives based on their vision, mission, values and objective statements. The process further included the analysis of the granularity of these statements and the granular detail that outline further what the companies actually mean from what they state in their vision, mission, values and objective statements.

4.6.1. Analysis of strategic alignment findings

This analysis revealed that 95% of the companies account for 92% of the 12 CSR initiatives in their strategic objectives. Where all companies have fallen short in terms of the alignment to strategic objectives is with the customer health and safety initiatives. Only Anglo-American Platinum ("Amplats") accounts for this initiative in their strategic objectives. One of the company's strategic priorities is "Stimulating new markets and leveraging new capabilities" (Amplats, 2023). This strategic priority leads to the company's pursuit of new markets while ensuring the safety and reliability of its PGM products applications. The findings of all the companies is depicted on Figure 4 below.

Figure 4: CSR Initiatives and Strategic Alignment



The high CSR alignment is expected when observing the array of industry standards and regulatory requirements that require corporations to entrench the TBL theory in their conduct of business. These standards encourage companies to establish a balanced approach between profits and social and environmental considerations. Hildebrand *et al.* (2011) also asserted that the global focus on CSR and sustainability has occupied the mindsets of many corporations and has started playing a critical role in shifting the perceptions of corporations in the ways they do business.

The literature review highlighted Freeman’s (1994) advocacy for stakeholder primacy, encouraging overall stakeholder wealth maximisation. Bowen (1953) had encouraged businessmen to pursue policies and decisions that are aligned with the values of society. The TBL theory further cements the above, encouraging stakeholder benefit over pure shareholder wealth creation focus. Some of the strategic objectives of the companies in the study explicitly mention and uphold these theories. One of Kumba Iron Ore Ltd.’s “Kumba” nine strategic initiatives is “*Societal Value*” which upholds social and environmental sustainability practices for its stakeholders. Pan African Ltd. (“Pan African”) explicitly states “*Social and Relationship Capital*” as one of its six strategic pillars. This encompasses the creation of sustainable value for its stakeholders. Merafe Resources Ltd.’s (“Merafe”) explicitly states that “*The aim of our business model and strategy is to ensure that our ferrochrome interests are profitable and sustainable and that they add value to all our stakeholders.*” (Merafe, 2023).

The above highlight how critical CSR initiatives are to the mining companies as they (mining companies) have gone to the extent of ensuring that these initiatives become a part of their corporate strategic initiatives.

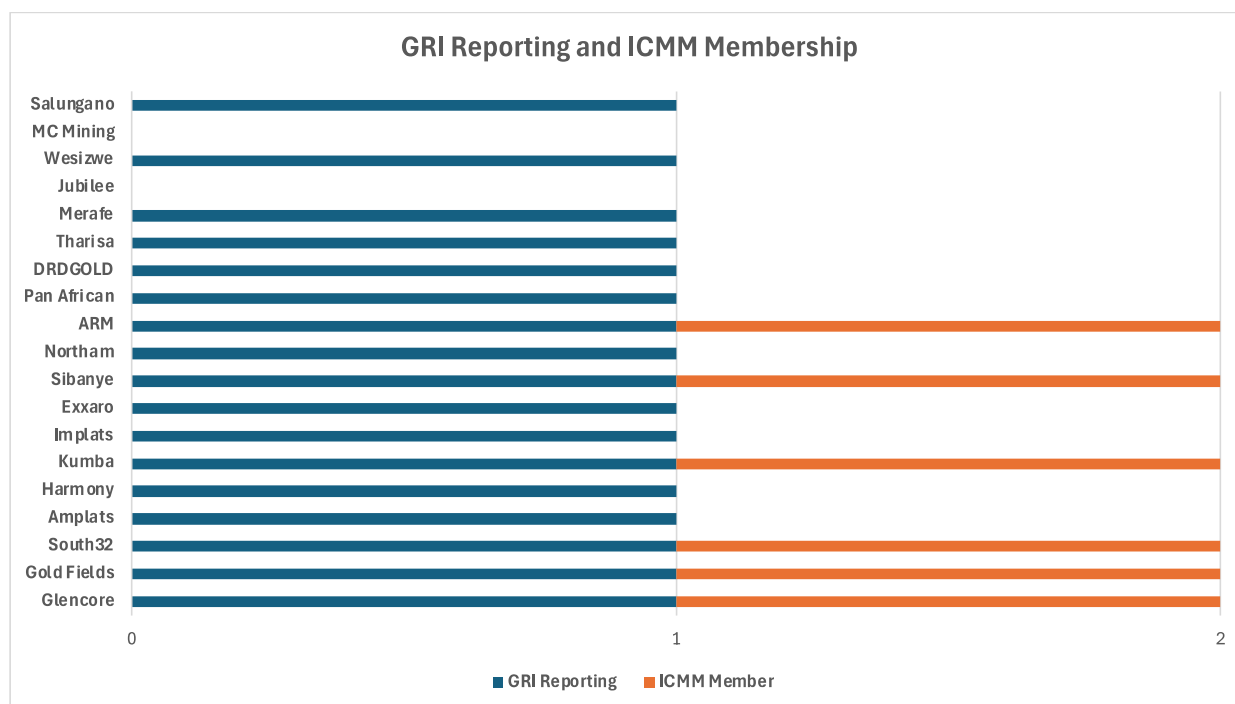
4.6.2. Industry standards driving CSR alignment

Mining companies operate in the context whereby adherence to sustainability standards is non-negotiable. Mining operations inherently have a high potential to significantly disturb the livelihoods of host communities and the surrounding environment. These inherent nuisances in the sector necessitated the development of global industry standards that require mining companies to be cognisant of the social and environmental repercussions of their operations, and for them to respond to such with equity and fairness. Adherence to the GRI standards for sustainability reporting has been a growing trend within JSE-listed mining companies.

According to GRI, the disclosure of material information relating to ESG is considered a crucial step in the sustainability strategy of any business due to its ability to influence and direct corporate strategy (GRI, <https://www.globalreporting.org/news/news-center/gri-global-adoption-by-top-companies-continues-to-grow/>, 2024). Amongst the mining companies that are sampled in this research, 17 of them prepare their CSR disclosures using the GRI guidelines (refer to Figure 5 for the companies that have adopted GRI reporting standards). This underscores the significance of CSR in the sector and the commitment that mining firms demonstrate towards it.

The role of the ICMM has been paramount in encouraging ethical business practices which include both social and environmental considerations by mining companies. Member companies of the ICMM are required to ensure their corporate strategic objectives are aligned with their CSR initiatives. From the sampled companies, 6 of them are ICMM members (Figure 5). Of the 13 non-member companies, 8 of them explicitly state that even while they are non-ICMM members, they already follow ICMM protocols in their operations and sustainability reporting.

Figure 5: GRI Reporting and ICMM Membership



Further to the standards discussed above, mining companies have also been instrumental in the advancement of the SDGs. These have shaped how these companies structure their CSR initiatives. Amongst the companies in the sample, 89% have reported that they partake in addressing at least 2 of the 17 SDGs. Another key standard that has received a notable interest from the mining companies is the Task Force on Climate-related Financial Disclosures (“TCFD”), which was established to develop reporting frameworks on climate-related financial risks inherent in the sector. One of the four recommendations of the TCFD is for companies to ensure that climate-related risks (environmental CSR initiatives) are accounted for in the strategic objectives of the companies (TCFD, 2017). The adoption of TCFD recommendations is widespread in the mining industry to the extent that 80% of the sampled companies reported that they adopt TCFD recommendations and tailor their climate-related initiatives and disclosures in accordance with these recommendations.

These findings underscore the influence that industry standards like the GRI, ICMM, SDG and TCFD have had in influencing CSR practices and aligning these with the strategic objectives of the mining companies. The high percentage of CSR initiatives that are aligned with corporate strategic objectives and the high level of adoption of these industry standards attest to the commitment that mining companies have

towards CSR initiatives. The influence of the ICMM standards on the mining companies is of paramount interest as 8 of the 13 non-ICMM member companies have reported that they have voluntarily adopted ICMM's recommendations on CSR practises. As sustainability practises continue shaping the mining industry, these standards will remain instrumental in guiding CSR strategies of mining companies.

5. CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

These findings drawn from this study are summarised in this section. This section furthermore outlines conclusions drawn from the data analysis of the study. Additionally, it provides recommendations to mining companies, policy makers and future studies that will focus on CSR and its impact on mining companies' FP.

The study examined the nexus between the CSR initiatives implemented by JSE-listed mining companies and their FP. It further assessed if these companies align their CSR initiatives with their corporate strategic goals. The study followed a panel data regression method to examine the correlation between CSR initiatives and FP. For the strategic goal alignment objective of the study, a quantitative scoring approach was followed, making use of a structured quantitative rating system to assess the level of strategic alignment.

5.2. Summary of key findings

The findings of the study present compelling evidence that when CSR is implemented effectively in the mining sector and when it is interwoven with the corporate strategic objectives, companies benefit from long-term financial operational and financial sustainability, translating to improved stakeholder value.

5.2.1. Research objective 1: Nexus between CSR initiatives and FP

The findings of this research have proven that social CSR initiatives enhance the FP of mining companies. Social CSR initiatives undertaken by companies were found to positively impact both the accounting and market-based FP indicators of the companies. This is attributable to operational stability resulting from enhanced community relations, improved employee productivity resulting from robust employee engagement initiatives.

Environmental CSR initiatives were however found to negatively impact the ROA of the mining firms. The conclusion drawn from this impact is that environmental CSR initiatives generally require significant upfront capital (e.g., emissions reductions may

require construction of solar farms and water treatment plants). These investments do not necessarily translate to improved asset efficiency in the immediate term and their impact may only be realised in the long term. Environmental CSR initiatives however contribute positively to market-based FP measures (HPR and Tobin's Q), as companies benefit from reduced long-term environmental risk, improved business continuity risk which all enhance investor confidence.

Companies actively engaged in CSR exhibit better FP than their peers. Being engaged in CSR initiatives ensures operational sustainability and shields the companies from community-driven operational disruptions, labour unrests, and potential operational stoppages by regulatory authorities. The risk profile of these companies is considered low as they are not exposed to reputational risks, are able to preserve their social license to operate and guarantee the security of tenure of their mineral rights licences. The long-term financial sustainability of these corporates is enhanced by their ability to raise financial capital more effectively due to their low risk profile which reduces their cost of capital and retains them as a compelling investment case for both existing and potential investors.

5.2.2. Research objective 2: CSR alignment with corporate strategic objectives

The study revealed a strong alignment between CSR initiatives and corporate strategic goals. Specifically, 95% of the companies examined align at least 92% of their CSR initiatives with their strategic objectives. However, gap was identified in customer health and safety initiatives, with only one company, Amplats, overtly accounting for these initiatives in its strategic objectives.

Industry standards emerge as a major driver, influencing the alignment of CSR initiatives with strategic objectives. Sustainability disclosure frameworks (e.g., GRI guidelines) have garnered significant adoption, with 89% of companies preparing their CSR disclosures according the GRI guidelines. Industry bodies like the ICMM have also played a crucial role in mandating adherence to these guidelines by its members and requiring that its members align their CSR initiatives with their strategic objectives. Notably, while not all companies in this study are ICMM members, 8 non-member companies voluntarily adhere to ICMM protocols in their sustainability practices.

Furthermore, the UN's SDGs have also played a critical role in driving CSR strategies in this sector, with 89% of the companies reporting that they address at least 2 of the 17 SDGs, underscoring the critical role being played by industry standards in shaping CSR strategies within companies.

5.3. Conclusion

This study has confirmed that JSE-listed mining companies not only view CSR as an ethical obligation but perceive it as a value-accretive business imperative that generates long-lasting competitiveness for the businesses. Although environmental CSR initiatives do not yield immediate financial benefits, these initiatives have the ability to future-proof the business, lowering the long-term business continuity risk. The study confirms that mining companies that implement CSR initiatives in their organisations realise financial performance benefits that are seen through improved ROA, ROE, share performance and market valuations.

Although there may have been earlier concerns that CSR initiatives are a shareholder wealth destructive activity, the study shows that when CSR strategy is implemented properly and is aligned with corporate strategic objectives, it results in an enhanced FP for the businesses, creating a sustainable economic benefit, not only for the shareholders, but for the overall stakeholders of the companies.

5.4. Recommendations

5.4.1. The study makes recommendations to mining companies to interweave CSR into the core strategic objectives of their businesses, ensuring that it is not merely a compliance exercise but rather a strategy that it is aligned with the company's values. Furthermore, companies are encouraged to increase their voluntary sustainability practices and go beyond what is legally mandated for them.

- 5.4.2.** While social CSR initiatives often yield more immediate financial benefits for companies, it is essential to recognise that environmental CSR, despite its potentially higher initial costs, plays a critical role in ensuring long-term business sustainability. Therefore, environmental CSR should not be deprioritised but rather receive equal consideration alongside social CSR.
- 5.4.3.** Policymakers to devise mechanisms that reward good corporate citizens with incentives that include tax benefits and ensure that the granting of mineral right licences and the renewal thereof is driven by good corporate citizenship of businesses.
- 5.4.4.** The study provides valuable insights into the CSR-FP relationship for JSE listed mining companies. Future research could expand this scope to include unlisted mining companies that engage in CSR initiatives. Reputation indices generally exclude non-listed companies, resulting in limited insight into their CSR practises on the financial outcomes. Furthermore, future research should incorporate alternative CSR performance metrics and also potentially adopt a mixed-methods study approach that encompasses both a qualitative and quantitative analysis.

5.5. Limitations

The focus of this study is limited exclusively to JSE-listed mining companies that have operations in SA, and it relied solely on publicly available secondary data containing CSR-related and financial disclosures of these companies. The study measured CSR performance using a self-constructed balance scorecard and only used four indicators for FP. Future research could expand the scope to include non-listed entities and incorporate additional FP indicators. A research method that incorporates both quantitative and qualitative methods (e.g., stakeholder and management interviews) could help mitigate potential bias that is introduced by reliance on secondary data.

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APPENDICES

Appendix 1: Measurement scale for corporate social responsibility indicators

Company XXX

Corporate Social Responsibility Dimension	Rating Matrix (Financial Year 20XX)				
	0	1	2	3	
	No account of indicator	Indicator is mentioned	Indicator is mentioned and describe minimally	Detailed description of initiatives	Total Rating
(A rating of 0 to 3 is given based on the above guidance)					
Social CSR Performance Indicators					6
<u>Labour practices and decent work</u>			2		2
Labour/management relations		1			1
Health and safety				3	3
Diversity and inclusion					
<u>Society</u>					5
Environmental Impact on Local Communities				3	3
Social Impact on Local Communities			2		2
<u>Product responsibility</u>					0
Customer health and safety	0				0
<u>Human rights</u>					0
Forced or Compulsory Labour and Child Labour		1			1
Freedom of association and collective bargaining	0				0
Environmental CSR Performance Indicators					6
Energy use efficiency				3	3
Greenhouse gas emissions			2		2
Water use efficiency	0				0
Land and resources use-biodiversity-conservation		1			1