

Sustainability Reporting and Corporate Financial Performance: Moderating Effect of Financial Slack Resource

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Abstract

Considering the growth of sustainability reporting practices over the recent years in South Africa, we investigated the relationship between sustainability reporting and financial performance of South African listed firms. We also investigated the moderating effect of financial slack resource (FSR) on the link between sustainability reporting and financial performance. A 10-year panel data of 110 firms were sourced from the Refinitiv Eikon database. We applied Feasible Generalised Least Squares (FGLS) regression and Correlated Panels Corrected Standard Errors (PCSE) regression (as robustness check) on balanced panel data and found a significant negative relationship between sustainability reporting and return on asset (ROA). We also found that the relationship between sustainability reporting and Tobin's Q was positive but insignificant. Moreover, while a high level of financial slack resource has a significant positive moderating effect on the relationship between sustainability reporting and financial performance, a low level of it has a negative moderating effect on this relationship. The negative association between sustainability reporting and financial performance may be explained that the firms have not been able to strategically execute their sustainability initiatives to the levels required to get the expected benefits.

Therefore, managers of these firms should evaluate their sustainability activities and re-strategize. Moreover, since a high level of FSR positively moderates the relationship between sustainability reporting and financial performance, the firms should nurture more FSR to enable them to invest more in sustainability initiatives to reap the expected benefits.

Keywords: Sustainability disclosure, ESG, Financial resource slack, Feasible generalised least squares (FGLS), South Africa

Introduction

Since the concept of sustainable development became topical in the late 1980s, much advocacies have been done by countries and international organisations to encourage firms to embrace the concept in their operations (Haywood et al., 2019). The cardinal aim of sustainable development is to encourage present generation to use the world's resources for development in such a way that future generation will also be able to get access to resources for their own needs (WCED, 1987). From the background of sustainable development agenda emerged the concept of sustainability reporting. This concept requires firms to report on their impact, both positive and negative, on the natural environment, economy, society and corporate governance system as well as steps being taken to address the negative impacts (Christofi et al., 2012; Global Reporting Initiative, 2023; Gokten et al., 2020). Sustainability reporting has assumed global importance because of issues such as climate change, environmental degradation, social problems and corporate scandals and failures across the globe (Abeysekera, 2022). By requiring firms to report impact of their activities on environment and society, they are somehow compelled to take measures to remedy any negative effect from their operations on the environment and society. The importance of sustainability reporting currently is attested by sustainability reporting standards being issued by international organisations such as Global Reporting Initiative (GRI), International Sustainability Standards Board (ISSB) under IFRS Foundation and EFRAG (for European Commission) to guide firms in preparing their sustainability reports

Sustainability reporting by firms, which started on a low key note, has gained widespread adoption among firms globally especially in the developed world (KPMG International, 2022). Whilst some argue that firms stand to gain financially from adoption of sustainability reporting (Berthelot et al., 2012; Khattak, 2021; Shin et al., 2022), others posit that firms' involvement in sustainability reporting activities create additional expenses that negatively affect corporate financial performance (Barauskaite & Streimikiene, 2021; Buallay, Fadel, Alajmi, et al., 2020; Fahad & Busru, 2020). Therefore, the relationship between sustainability reporting and financial performance has been a subject of research interest among academics and practitioners over the years.

The knowledge of the relationship between sustainability reporting and firm financial performance is of importance to the firms themselves and other stakeholders such as governments. With respect to the firms, knowledge of positive association between sustainability reporting and financial performance may provide managers of the firms the confidence and motivation to commit appreciable corporate financial resources into sustainability reporting activities. On the other hand, negative association may convince the managers of the firms to shy away from committing any meaningful resources, even in the regimes of compulsory reporting, especially in the developing economies like African countries where financial resources are scarce (Boso et al., 2017). With respect to governments or policymakers, the finding of negative relationship between these variables, may influence national policies such as granting tax breaks and rebates to firms to incentivise

them to commit to the sustainable development agenda. Therefore, the determination of the association between sustainability reporting and financial performance is very essential. There have been several empirical studies that examined the relationship between sustainability reporting and financial performance with the aim of identifying financial implications for engaging in sustainability practices by firms (Al-Jalahma et al., 2020; Al Amosh et al., 2022; Buallay, Fadel, Al-Ajmi, et al., 2020; Chen & Xie, 2022; Ghardallou, 2022; Husnaini & Basuki, 2020; Laskar & Gopal Maji, 2018; Weber, 2017). There are two main outcomes from these studies; some of them reported positive relationship between sustainability reporting and financial performance (Alareeni & Hamdan, 2020; Chininga et al., 2023; De Klerk et al., 2015; J. Kim et al., 2019; Laskar & Gopal Maji, 2018; Loh et al., 2017; Rahman et al., 2023; Velte, 2019). These positive results suggest that sustainability activities are sources of innovation that create extra revenue that can cover the additional costs incurred on those activities. On the other hand, some studies found negative relationship between sustainability reporting and financial performance (Al-Jalahma et al., 2020; Bătae et al., 2021; Buallay, Fadel, Alajmi, et al., 2020; Dincer et al., 2023; Duque-Grisales & Aguilera-Caracuel, 2019; Fahad & Busru, 2020; Mohamed Buallay et al., 2023; Yuen et al., 2022; Zhang et al., 2020). These negative results are in line with the thinking that sustainability activities bring additional cost which exceed any expected benefits. These conflicting results may be explained by various factors but one may argue that there is no conclusive evidence on the subject matter.

The conflicting evidence on the relationship between sustainability reporting and financial performance provides an avenue for further interrogations into the matter. Literature show that studies on the subject matter have been sparse in the African context because most firms in Africa have not fully embraced the concept of sustainability reporting (Igwe et al., 2023). This current study therefore used South Africa, which has the most developed sustainability reporting culture in Africa (Tilt et al., 2020), to provide more empirical evidence on the subject from the African perspective.

Further, financial resource is very important to every organisation in executing its objectives. In allocation of corporate financial resource, managers usually prioritise the core business of the entity. Most activities under the sustainability initiatives bring in additional cost to the firm. Therefore, in economic environments such as African countries where financial resources to most firms are very limited, managers are more likely to commit corporate financial resources to sustainability activities in a meaningful manner only when there is slack resource at their disposal (Boso et al., 2017). Thus, from the viewpoint of slack resource theory, firms with financial slack resource (FSR) will have the flexibility to commit more financial resources into sustainability activities (Cheng et al., 2014). It is therefore expected that FSR will play a moderating role in the relationship between sustainability reporting and financial performance.

To the best of our knowledge, we have not sighted an empirical study that examined the moderating role of FSR in the link between sustainability reporting and firm financial performance in the context of South Africa. Principally, our results show that sustainability reporting has significant negative relationship with the firms' return on assets (ROA) but insignificant positive relationship with Tobin's Q (TQ). Also, we found that high-level of financial slack resource positively moderates the relationship between sustainability reporting and financial performance (both ROA and TQ).

We have contributed to the existing literature in two aspects. Firstly, the study contributes to literature by investigating the relationship between sustainability reporting and financial

performance in South Africa, a developing country in sub-Saharan Africa, a region where studies on the subject has been very minimal. Secondly, the study contributes to theory by proposing a relevant moderation variable in the analysis as the prior literature mostly concentrated on investigating the direct relationship between sustainability reporting and financial performance. The rest of the article is organised as following; section 2 reviews literature leading to hypothesis development, section 3 covers methods and data, section 4 presents the study's results and its discussion and section 5 presents the conclusion, theoretical and practical implications, and recommendations.

Literature Review and Hypothesis Development

Relationship between sustainability reporting and financial performance

A firm's sustainability reporting (through ESG model) is the disclosure of its impact, positively or negatively, on natural environment, society and corporate governance as well as the activities undertaken to address the negative impacts. Under the pillar of environment, three main categories of issues addressed are emissions, innovation and resource use. Whilst issues concerning community, human rights, product responsibility and workforce are disclosed under social pillar, issues concerning corporate social responsibility (CSR) strategy, management and shareholders are disclosed under corporate governance (Refinitiv, 2022). The issue of whether firms' investments in sustainability reporting activities have positive or negative impact on firm financial performance has been debated for some years now and it continues to attract attention of researchers across the globe (Apergis et al., 2022; Eliwa et al., 2021).

The two main opposing theories that are used to explain the relationship between sustainability reporting and financial performance are the shareholder supremacy theory and stakeholder theory (Chen & Xie, 2022). Shareholder supremacy views sustainability expenditure as something that damages shareholder value (Friedman, 1970) because managers of firms may use sustainability initiatives as a vehicle to pursue personal gains by way of excessive investment in these activities that will eventually damage shareholder wealth (Nekhili et al., 2021). Moreover, embarking on sustainability schemes involves incurring additional cost such as environmental clean-up (Al-Jalahma et al., 2020; Buallay et al., 2020; Fahad & Busru, 2020; Lin et al., 2021; Yoon et al., 2018).

The stakeholder theory refutes the shareholder supremacy theory by emphasising on business and social ethics in operations of firms suggesting that sustainability reporting practices improve firm financial performance and value (Freeman, 1984). Stakeholder theory is one of the main theories used as an underpinning theory in the studies examining the relationship between corporate sustainability reporting and firm financial performance. Freeman (1984) in his stakeholder theory admonishes firms to actively try to understand their stakeholders' interests and incorporate them into their business strategies and design necessary programs to address them. He described stakeholders as parties who may affect or be affected by a firm's decisions, including employees, customers, suppliers, service providers, shareholders, lenders, special interest groups and nongovernmental. A variant of the theory, instrumental stakeholder theory (Donaldson & Preston, 1995) has the core hypothesis that by developing stakeholder relationships characterised by ethical behaviours such as fairness, loyalty, trustworthiness, care and mutual respect will lead to improved financial performance. Jones (1995) adds that firms that strategically contract with their stakeholders through cooperation and mutual trust will have competitive advantage over their peers who do not do so.

A firm's sustainability reporting regime is a way of engaging its stakeholders. Firms get support of stakeholders by disclosing sustainability information under the premise of information asymmetry in the capital market (Chen & Xie, 2022) since information in sustainability reports consider the environment, social responsibility and governance efficiency. Frydman & Wang (2020) suggest that firms that disclose sustainability information become more transparent and reduce investment risks and thereby attract risk-averse investors. There have been several studies supporting positive relationship between sustainability reporting and financial performance (Alareeni and Hamdan, 2020; De Klerk et al., 2015; J. Kim et al., 2019; Laskar and Gopal Maji, 2018; Loh et al., 2017; Velte, 2019).

From value-enhancing theory perspective, these studies indicate that ESG practices create competitive advantages to the firms and that positively influence financial performance and shareholder value. For example; in the airline industry Abdi et al. (2022) observed positive relationship between sustainability reporting and financial efficiencies. Spending on sustainability practices improve financial performance of automobile firms (Chandrasekaran, 2022). Also, mandatory ESG disclosures lower the likelihood of stock price crashes (Flammer, 2015; Krueger et al., 2021; Statman & Glushkov, 2008). Moreover, firms' sustainability efforts help in efficient management of corporate resources leading to more competitiveness and better financial performance (Mohammad & Wasiuzzaman, 2021). Furthermore, sustainability reporting (ESG) performance of manufacturing companies in China has a significant positive effect on corporate value (Duan et al., 2023).

Previous studies also argue that sustainability reporting reduces financial risk (Atif & Ali, 2021; Feng & Wu, 2021), increase firm valuation relative to its real value (Bofinger et al., 2022). Moreover, it has been found that some consumers are even willing to pay more for products with green labels (Austmann & Vigne, 2021). Firms that ignore sustainability factors and concentrate on short-term benefits are more likely to be punished by investors (Shakil, 2021). However, firms that implement ESG policies mitigate corporate risks such as reputational, financial and litigation risks and achieve better financial performance (Godfrey et al., 2009). Based the stakeholder theory and empirical evidence in literature, the following hypotheses are formulated:

***H1:** Sustainability reporting has significant positive relationship with financial performance:*

***H1.1:** Sustainability reporting has significant positive relationship with ROA*

***H1.2:** Sustainability reporting has significant positive relationship with TQ*

Moderating effect of financial slack resource on the relationship between sustainability reporting and financial performance

The relationship between financial slack resource (FSR) and firm performance in terms of financial performance, environmental management performance and other sustainability practices of firms has attracted attention of researchers in academia. For example, Symeou et al. (2019) studied US manufacturing firms and reported that unabsorbed FSR enhanced the environmental performance of the firms. FSR is desirable because with it, firms are able to adjust quickly to take advantage of business opportunities as well as dealing with debilitating risks that may crop up in course of their operational activities (Shahzad et al., 2016) which eventually enhance firm performance. For example, Rafailov (2017) studied firms in Bulgaria

and found that FSR improves performance of smaller firms, explaining that this may be the case because it serves as a buffer which enables firms to become adaptable and more robust in the constantly changing business environment. Also, Lefebvre (2021) reported positive impact of FSR on firm performance in a study of French companies, though this positive relationship has an optimal level, suggesting that holding too much FSR leads to decline in performance. However, others are of the opinion that FSR in organisations exposes inefficiencies in management of resources and that FSR reduces firm performance. The proponents of negative relationship between FSR and firm performance are of the opinion that slack resources usually encourage satisficing, politics and self-serving managerial conducts that lead to pursuit of self-serving projects that eventually hurt firm performance (Jensen, 1986; March and Simon, 1958 quoted in Daniel et al., 2004)

However, in the midst of these opposing views on FSR, as a result of pressure from environmental and social activists, most governments have put social and environmental issues at the centre of their various national policies (Boso et al., 2017; Doh & Guay, 2006). Though government policies may influence a firm's sustainability practices, activities of pressure groups such as environmental non-governmental organisations (NGOs) in some cases result in what Baron (2009) calls moral management. This is where firms go beyond normal business activities and compliance with laws to engage in sustainability practices to reduce negative impact of their operations on environment and society as well as instituting effective and robust corporate governance mechanisms.

Per the stakeholder theory, firms that take care of needs of their stakeholders are expected to do well financially (Freeman, 1984). However, consumers in developing economies mostly tend to put economic issues above sustainability issues (Sudarmadi et al., 2001). Managers of firms in developing economies are therefore less likely to spend non-slack resources on sustainability activities, especially where such activities are voluntary (Danso et al., 2022). Slack resource theorists argue that availability of slack resources, financial or others, afford firms the ability to invest in environmental, social and other sustainability activities (Waddock & Graves, 1997). Higher levels of sustainability activities such as environmental and social matters are likely to be achieved with greater financial slack resource at disposal of firms (Chang et al., 2017; Xiao et al., 2018).

Accordingly financial slack resource is used in this study as a moderating variable in the relationship between sustainability reporting and financial performance for two main reasons. Firstly, firms with financial slack resource feel confident in pursuing other interest aside their core business activities (Bourgeois & Singh, 1983). Secondly, firms may not be seriously challenged to deploy financial slack resource, especially the unabsorbed ones. Thus, when financial resources are unabsorbed, as a result of moral management or intensive pressure from stakeholders, they may be applied to a range of sustainability activities. Also, firms that have greater financial slack resource may be incentivised to deploy them towards sustainability initiatives especially where there is an anticipated potential gains to the firms in future (Boso et al., 2017). It is therefore the researcher's expectation that FSR, especially higher levels of it, will boost firms' investment in sustainability activities, culminating in scoring high marks for sustainability reporting, which will eventually lead to better financial performance of the firms. Based on the above submissions, the following hypotheses are formulated:

H2: *High-level of financial slack resource has significant positive moderating effect on relationship between sustainability reporting and financial performance:*

H2.1: *High-level of financial slack resource has significant positive moderating effect on relationship between sustainability reporting and ROA*

H2.2: *High-level of financial slack resource has significant positive moderating effect on relationship between sustainability reporting and TQ*

Theoretical framework

Based on the discussions on the theoretical framework and prior studies leading to the development of the research hypotheses, Figure 1 is used to show the hypothesised relationships of sustainability reporting, financial slack resource and financial performance. Stakeholder theory is used to explain hypothesised relationship between sustainability reporting and financial performance. Slack resource theory is used to explain the probable investments in more sustainability activities when a firm has financial slack resource which is expected to induce improved financial performance.

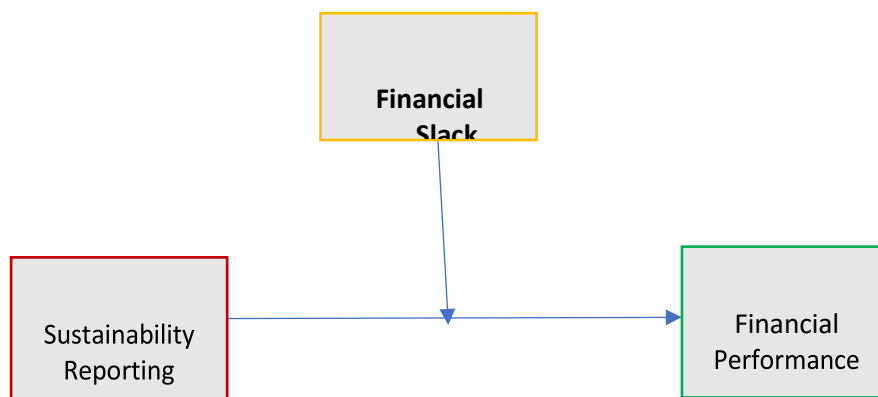


Figure 1. Theoretical framework of the study (Source: Authors' construction).

Methodology

Sample selection and Data

The study considered all public companies listed on the Johannesburg Stock Exchange as captured in the Refinitiv Eikon Database at the end of 2021 which totalled 261 firms. The study covered data for 10-year period (2012 to 2021). The criterion for a firm's selection was availability of data for all the variables for the years in the 2012-2021 period. This procedure resulted in selection of 110 firms with a balanced panel of 1,100 observations. Using The Refinitiv Business Classification (TRBC), the breakdown of the sample into economic sector classifications are as presented in table 1.

Table 1:

Economic sector classification of sample firms

TRBC of Firms	Number of Firms	No. of observations	Percentage
Basic Materials	22	220	20.0
Consumer	29	290	26.4
Financial	22	220	20.0
Industrial	19	190	17.2
Real Estate	9	90	8.2
Technology	9	90	8.2
Total	110	1,100	100

Source: Refinitiv Eikon Database

All the data for the study's variables were retrieved from Refinitiv Eikon Database. We chose ESG scores of the firms as proxy for corporate sustainability reporting (independent variable) from Refinitiv as it is arguably the most trusted data source of ESG metrics (Bătae et al., 2021) hence its usage in empirical studies by many researchers including Bodhanwala & Bodhanwala (2018); Duque-Grisales & Aguilera-Caracuel (2019); Shakil et al. (2019); Abdi et al. (2020); Al-Jalahma et al. (2020); Melinda & Wardhani (2020); Partalidou et al. (2020); Bătae et al. (2021); and Nekhili et al. (2021). Financial information of the sample firms used for computing the proxies for financial performance (dependent variable), financial slack resource (moderating variable) and control variables were also sourced from the Refinitiv database. However, following the work of Grosse et al.(2022), annual financial reports sourced from the respective websites of the firms concerned were used to obtain few financial information that were missing from the Refinitiv database within the time period 2012-2021.

Measurement of Study Variables

Dependent Variable

Based on the empirical literature, return on asset (ROA) and Tobin's Q (TQ) were used as proxies for the firms' financial performance. ROA measures the firms' accounting performance whilst TQ mainly measures the market performance of the firms. Whilst market-based performance measures reflect market perception about the firms' future prospects, the accounting-based measures assess the internal efficiency with which management have managed assets of the firms (Matar and Eneizan, 2018). ROA is measured as net income divided by total assets. This ratio shows how efficient management have used both tangible and intangible assets to generate returns to the firm. TQ is measured in this study as a ratio of market capitalization of firm plus total liabilities to total assets. This ratio proxies a firm's performance in the market. When the value is less than 1 it means the market price of the firm's assets is less than the cost of replacement and a value above 1 indicates that the market value of the firm's assets is more than the replacement cost.

Independent Variable

The main independent variable for the study is sustainability reporting. The sample firms' sustainability reporting performances are proxied by their ESG scores computed by Refinitiv,

which is one of the credible sustainability reporting rating agencies (Rau & Yu, 2023). A firm's ESG score is an index of the firm's score for reporting on its impact, both negative and positive, on the natural environment, society and corporate governance system. Refinitiv (2022) thus explains that a firm's ESG score is its total score from environment score (assessed under main categories of emission, innovation and resource use), social score (assessed under main categories of community, human rights, product responsibility and workforce) and governance score (assessed under main categories of corporate social responsibility (CSR) strategy, management and shareholders). Several studies used Refinitiv ESG scores as proxies for sustainability reporting performance including; Johnson et al (2019), Velte (2019), Al-Jalahma et al (2020), Azmi et al (2021), Nekhili et al (2021), Mohamed Buallay et al.(2023) and Rahman et al. (2023). Table 2 explains Refinitiv's classification of firms' ESG performance scores.

Table 2:

Refinitiv ESG score classification

Score Range	Description
0 - 25	Scores in this range imply poor relative ESG performance and insufficient transparency in the public disclosure of relevant ESG data.
26 - 50	Scores in this range imply satisfactory relative ESG performance and moderate transparency in the public disclosure of relevant ESG data.
51 - 75	Scores in this range imply good relative ESG performance and above average transparency in the public disclosure of relevant ESG data.
76 - 100	Scores in this range imply excellent relative ESG performance and high degree transparency in the public disclosure of relevant ESG data.

Source: Refinitiv

Moderating Variable

Financial slack resource (FSR), which refers to liquid corporate assets that are not committed to any cause and may be used for a wide range of any corporate activities, is used as a moderating variable. In this study, the focus is on available or unabsorbed FSR, liquid enough to enable managers have the flexibility and discretion to redeploy them for desirable purposes such as investing in sustainability activities. Therefore, following Duque-Grisales and Aguilera-Caracuel (2019), FSR is measured as a firm's current ratio, that is current assets divided by current liabilities. Current ratio is chosen since it is a measure that truly shows how a firm's short-term resources are able to meet and exceed its short-term commitments, thereby creating surplus financial resource to take advantage of any business opportunity and investing in sustainability initiatives.

Control Variables

Following examples in literature, firm growth (Conca et al., 2021; Lu, 2021), firm size (Albitar et al., 2020; Azmi et al., 2021a; B. Kim & Lee, 2020) and firm financial leverage (Alareeni & Hamdan, 2020; Shakil et al., 2019; Wasara & Ganda, 2019) were used as control variables in the study. The annual percentage growth in sales revenues measured as current year sales revenue minus the previous year sales revenue divided by the previous year sales revenue multiplied by 100 is used as proxy for firm growth. Growth in firms' sales revenues is expected to contribute to their profitability. A firm's annual total assets value is used as proxy for the firm's size and it is measured as the natural log of the firm's total assets value. The size of a

firm may also have influence on its profitability since larger firm, for example, may be able to make purchases in large quantities and attract significant discounts. The last control variable is a firm's financial leverage, measured in this study as total debts divided by total assets. The larger the debt of a firm the higher interest expense charged to income statement and vice versa. This is expected to affect the determination of net income. Summary of definitions of the study's variables are provided in table 3.

Table 3:*Summary of Variable definitions*

Type of variable	Name of variable	Symbol	Definition
Dependent variables	Return on Assets	ROA	Net income divided by total assets
	Tobin's Q	TQ	Market capitalization plus total liabilities divided by total assets
Independent variable	Sustainability reporting	ESG	Total score from environment, social and corporate governance reporting awarded by Refinitiv
Moderating variable	Financial slack resource	FSR	Current assets divided by current liabilities
Control variables	Firm size	Fsz	Natural log of a firm's total assets value
	Financial leverage	FL	Total debts divided by total assets
	Firm growth	FG	Annual percentage growth in sales revenues

Source: Authors' construction

Model specification

To estimate the relationship between sustainability reporting and financial performance as well as an estimation of moderating effect of financial slack resource (FSR) on this relationship, we construct the following regression model:

$$ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 FSR_{it} + \beta_3 ESG_{it} * FSR_{it} + \beta_4 FSz_{it} + \beta_5 FL_{it} + \beta_6 FG_{it} + \varepsilon_{it} \quad (1)$$

$$TQ_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 FSR_{it} + \beta_3 ESG_{it} * FSR_{it} + \beta_4 FSz_{it} + \beta_5 FL_{it} + \beta_6 FG_{it} + \varepsilon_{it} \quad (2)$$

where the subscripts i and t represent firm and year respectively, return on assets (ROA) and Tobin's Q (TQ) are proxies for firm performance (dependent variable), ESG is a proxy for sustainability reporting (independent variable), financial slack resource (FSR) is the moderating variable and ESG*FSR is an interaction of ESG and FSR. Firm size (FSz), firm growth (FG) and financial leverage (FL) are control variables and ε is the random error term.

Results and Discussion

Descriptive Statistics and Correlation Analysis

The descriptive statistics and pairwise Pearson correlation analysis for the study's variables are presented in table 4 and table 5 respectively.

Table 4

Descriptive Statistics of the study's variables

Variable	Obs	Mean	Std. Dev.	Min	Max
ESG	1100	48.345	18.063	6.704	82.64
FSR	1100	1.900	3.173	0.088	28.966
ESG*FSR	1100	80.970	75.634	1.870	517.215
FG	1100	9.754	32.191	-99.889	184.026
FSz	1100	23.976	1.539	20.892	28.324
FL	1100	0.226	0.187	0.000	0.842
ROA	1100	5.292	8.680	-25.038	33.904
TQ	1100	1.500	0.898	0.536	5.482

The summary statistics of the study's variables as shown in table 4 indicate that the average value for ESG was 48.345% with minimum and maximum values of 6.704% and 82.640% respectively indicating that whilst some firms performed poorly in terms of engaging in sustainability initiatives, others performed creditably. Financial slack resource (FSR) of the firms on average was about 90% of the current liabilities of the firms and this may have given managers of the firms some leeway to pursue sustainability initiatives. Firm growth (FG) for the firms, on average was 9.754% with a standard deviation of 32.191% indicating that there were wide variations in the firm growth figures. The average firm size, measured by natural log of total assets was 23.976 and the average financial leverage (FL) value of the firms was 0.226 meaning that on average the total debt of the firms was about 23% of the firms' total assets. Return on Assets (ROA) had minimum and maximum values of -25.038% and 33.904% respectively with an average value of 5.292 indicating that some of the firms had made losses in some of the financial years. Tobin's Q (TQ) had an average value of 1.500 that means that sum of total market capitalisation and total liabilities of the firms were on average 150% of the total assets of the firms. High volatility is noticed in the case of firm Growth (FG) and Return on Assets (ROA) represented by their respective standard deviations.

Table 5:

Pairwise Pearson correlations matrix for independent variables

Variables	ESG	FSR	ESG*FSR	FG	FSz	FL
ESG	1.000					
FSR	-0.206***	1.000				
ESG*FSR	0.244***	0.779***	1.000			
FG	-0.048	0.040	0.053*	1.000		
FSz	0.393***	-0.130***	-0.029	0.003	1.000	
FL	-0.060**	-0.176***	-0.260***	-0.046	-0.092***	1.000
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$						

The Pearson correlation matrix of the panel data for the study are presented in Table 5. It reveals that the correlations among the variables are low and significant in most cases at 1% level of significance. The independent variable pairs show significant correlations ranging from 0.3 % to 78%. The highest correlation coefficient is for the interaction variable (ESG*FSR) and FSR ($r = 0.779$) which is acceptable (Sultanuzzaman et al., 2019)

Diagnostic Tests

In order to get unbiased regression estimations and also use the appropriate regression technique for the data analysis, multicollinearity, heteroscedasticity, autocorrelation and cross-sectional dependence tests were conducted on the models. The data were also checked for outliers.

Multicollinearity test

Multicollinearity among the independent variables in multiple regression models makes the regression coefficients unreliable (Chan et al., 2022) and therefore it must be assessed in a model to check its absence before any credible analysis can be done (Mohammadi, 2022). To check multicollinearity among the variables, we conducted variance inflation factor (VIF) test, the results of which is presented in table 6. Multicollinearity is present in a model if VIF for a variable is more than 5 (moderate) and more than 10 (severe) (Kim, 2019).

Table 6:

Variance inflation factor (VIF) for the study's variables (in both Model 1 and Model 2)

	VIF	1/VIF
ESG*FSR	4.885	0.205
FSR	4.545	0.220
ESG	2.240	0.447
FSz	1.252	0.799
FL	1.095	0.914
FG	1.012	0.988
Mean VIF	2.505	.

Source: Statistical output from Stata 17 software

As shown in table 6, the variance inflation factor (VIF) values of the predictor variables for each of the study's models range from 1.012 to 4.885 which are below 5 indicating that there are no multicollinearity problems for our models.

Heteroscedasticity test

In linear regression models, residuals or the error terms are assumed to have common (constant) variance (homoscedasticity) and violation of this assumption (heteroscedasticity) results in inefficient regression coefficients estimation (Zhou et al., 2015; Tan et al., 2021). We used Breusch–Pagan/Cook–Weisberg test to check for heteroscedasticity in the models with a null hypothesis that the error variances are constant (presence of homoscedasticity). The test results are as presented in table 7.

Table 7:*Breusch-Pagan/Cook Weisberg test for heteroskedasticity*

Model	Variable	Chi2	Prob (Chi2)
Model 1	Fitted Values of ROA	38.26	0.0000
Model 2	Fitted Values of TQ	190.88	0.0000

Source: Statistical output from Stata 17 software

The results of the test for models 1 and 2 indicate chi-square test statistic of 38.26 with p-value of 0.0000 for model 1 and chi-square test statistic of 190.88 with p-value 0.0000 for model 2 respectively. The above results mean we fail to accept the null hypothesis of constant variance and accept the alternative hypothesis that the variances are not constant. This means that heteroscedasticity problem is present in the models.

Autocorrelation test

Autocorrelation is the degree of correlation between nearby observations (Sharma et al., 2021). Linear regression, as in most cases of parametric statistical procedures, assumes the independence of the errors (residuals) in a model and when this assumption is violated in time series or panel designs, the errors are said to be autocorrelated (Huitema & Laraway, 2006). The occurrence of autocorrelation in ordinary least square (OLS) regression model makes the outcome and the conclusion drawn from the analysis likely to be misleading since it reduces the precision of the estimates of the OLS regression (Üstündağ Şiray et al., 2014). We used Wooldridge test for autocorrelation in panel data to test whether there is autocorrelation problem in our model with a null hypothesis that there is no first-order autocorrelation in the model against the alternative hypothesis that there is first-order autocorrelation in the model. The test result is as presented in table 8.

Table 8:*Wooldridge test for autocorrelation in panel data*

Model	F Statistic	Prob (F Statistic)
Model 1	23.612	0.0000
Model 2	63.355	0.0000

Source: Statistical output from Stata 17 software

The test result for model 1 shows F statistic of 23.612 with p-value of 0.000 and for model 2 the result shows F statistic of 63.355 with p-value of 0.000 meaning that we fail to accept the null hypothesis and accept the alternative hypothesis that there is first-order autocorrelation problem in our panel data.

Cross-sectional Dependence test

As a result of some unobserved factors common to all units, panel data may be subject to a problem of cross-sectional dependence where all the units in the cross-section are correlated (Henningsen & Henningsen, 2019). It is therefore important in panel data analysis to consider the possibility of interdependence of the individual units (cross-sectional dependence), which may be weak or strong, that may impact adversely on the parameter estimations and inference (Sarafidis & Wansbeek, 2012). Since our panel data structure has small time (T) and large units (N) we used Pesaran (2015, 2021) and Fan et al (2015) CD tests with the null hypothesis that there is a weak cross-sectional dependence among the units against an alternative hypothesis that there is a strong cross-sectional dependence among the units. The

results are as presented in table 9. With the test statistics of 19.14 (p-value < 0.05) and 34.57 (p-value < 0.05) for model 1 and model 2 respectively in the Pesaran test as well as test statistics 3825.10 (p-value < 0.05) and 6092.41 (p-value < 0.05) for model 1 and model 2 respectively in Fan et al test, we failed to accept the null hypothesis and conclude that there is a strong cross sectional dependence problem in the models.

Table 9

Cross sectional dependence test for panel data

Model	Variable	Pesaran (2015, 2021) CD Test		Fan et al (2015) CD Test	
		Test statistic	Prob	Test statistic	Prob
Model 1	residuals	19.14	0.000	3825.10	0.000
Model 2	residuals	34.57	0.000	6092.41	0.000

Source: Statistical output from Stata 17

Dealing with Outliers

One of the problems associated with OLS estimations is large deviation of an observation or observations in the dataset called outliers since outliers distort estimates of regression coefficients. Thus, outliers cause wrong prediction and estimation results in regression models (Birch & Fleischer, 1984; Dünder, 2021). Graphical method of boxplots was used to identify outliers in the dataset for the variables. The boxplots showed some few data sets deemed to be outliers at both ends of the data distributions. Therefore, to eliminate the possible adverse effect of outliers in our data on the estimations, we followed the work of Al-Shaer & Hussainey, 2022 and Mu et al. (2023) and winsorized the data at 1st and 99th percentiles.

Results

When a panel model has heteroskedasticity, autocorrelation and cross sectional dependence problems, Parks (1967), Baltagi & Wu (1999), Hansen (2007) and Islam et al. (2021) recommend feasible generalised least square (FGLS) method for estimations in regression analysis. In panel data estimations, FGLS is more efficient than ordinary least squares (OLS) when heteroskedasticity, serial and cross-sectional correlations are present in a model (Bai et al., 2021). We therefore followed the work of Tlili et al. (2019) Le and Nguyen (2019), Appiah et al. (2019), Ha (2023), Sadiq et al. (2022), Hung et al. (2023), Le (2021), Oware & Worae (2023) and Afonso et al. (2021) and used feasible generalized least squares (FGLS) estimation technique for our analysis. Another recommended estimation method in the presence of heteroskedasticity, autocorrelation and cross-sectional dependence in a model is the panel corrected standard errors (PCSE) technique. PCSE estimation technique was used as robustness check, but the discussions of the results are based on the FGLS estimation results. The regression estimates from Stata 17 statistical software are presented in table 10 (Model 1) and table 11 (Model 2) (FGLS method) and table 12 (Model 1) and table 13 Model 2) (PCSE method).

Table 10:*Cross-sectional time-series FGLS regression - Model 1*

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
ESG	-0.046	0.011	-4.33	0.000	-0.067 -0.025	***
FSR	-0.837	0.170	-4.94	0.000	-1.170 -0.505	***
ESG*FSR	0.037	0.006	6.14	0.000	0.025 0.049	***
FG	0.029	0.003	8.22	0.000	0.022 0.036	***
FSz	-1.219	0.122	-10.01	0.000	-1.458 -0.981	***
FL	-10.126	0.924	-10.96	0.000	-11.937 -8.315	***
Constant	37.214	2.930	12.70	0.000	31.471 42.956	***
Mean dependent var	5.292		SD dependent var	8.680		
Number of obs	1100		Chi-square	345.295		

*** $p < .01$, ** $p < .05$, * $p < .1$ **Table 11:***Cross-sectional time-series FGLS regression - Model 2*

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
ESG	0.001	0.001	1.46	0.143	0.000 0.003	
FSR	-0.026	0.009	-2.89	0.004	-0.043 -0.008	***
ESG*FSR	0.001	0.000	2.24	0.025	0.000 0.002	**
FG	0.000	0.000	1.59	0.112	0.000 0.001	
FSz	-0.121	0.009	-13.04	0.000	-0.140 -0.103	***
FL	-0.324	0.055	-5.91	0.000	-0.432 -0.217	***
Constant	4.356	0.239	18.22	0.000	3.887 4.824	***
Mean dependent var	1.500		SD dependent var	0.898		
Number of obs	1100		Chi-square	181.126		

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 12:*Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) Model 1*

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig	
ESG	-0.028	0.026	-1.10	0.273	-0.079	0.022	
FSR	-0.788	0.235	-3.35	0.001	-1.249	-0.327	***
ESG*FSR	0.036	0.011	3.33	0.001	0.015	0.058	***
FG	0.040	0.007	5.75	0.000	0.026	0.053	***
FSz	-0.525	0.296	-1.77	0.076	-1.105	0.055	*
FL	-13.836	2.186	-6.33	0.000	-18.12	-9.552	***
Constant	20.436	7.466	2.74	0.006	5.804	35.069	***
Mean dependent var	5.292		SD dependent var	8.680			
R-squared	0.192		Number of obs	1100			
Chi-square	82.532		Prob > chi2	0.000			

*** $p < .01$, ** $p < .05$, * $p < .1$ **Table 13:***Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) – Model 2*

TQ	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig	
ESG	0.004	0.003	1.42	0.157	-0.002	0.010	
FSR	-0.048	0.013	-3.83	0.000	-0.073	-0.024	***
ESG*FSR	0.002	0.001	2.94	0.003	0.001	0.003	***
FG	0.000	0.000	1.00	0.318	0.000	0.001	
FSz	-0.165	0.024	-6.99	0.000	-0.211	-0.119	***
FL	-0.548	0.138	-3.96	0.000	-0.819	-0.277	***
Constant	5.455	0.604	9.03	0.000	4.271	6.638	***
Mean dependent var	1.500		SD dependent var	0.898			
R-squared	0.594		Number of obs	1100			
Chi-square	94.622		Prob > chi2	0.000			

*** $p < .01$, ** $p < .05$, * $p < .1$ **Discussion of Results****Relationship between sustainability reporting and financial performance**

Table 10 and Table 11 show results of the relationship between sustainability reporting (ESG) and financial performance of listed firms in South Africa. The regression models assessed relationship between sustainability reporting (ESG), Financial Slack Resource (FSR), as well as interaction term of sustainability reporting and Financial Slack Resource (ESG*FSR) and Return on Assets (ROA) in model 1 and Tobin's Q (TQ) in model 2. The study's hypotheses predicted a positive relationship between sustainability reporting and financial performance (ROA and TQ) as well as positive moderation effect of FSR on the relationship between sustainability reporting and financial performance. In model 1, the result contradicts the hypothesis of positive relationship between sustainability reporting and financial performance as there is a significant negative relationship between ESG and ROA (coefficient

of -0.046 with p -value $p < 0.05$). In model 2, there is a marginal positive relationship between ESG and TQ but not significant at any level of significance.

The significant negative relationship between sustainability reporting (ESG) and ROA for the South African listed firms suggests that the firms have not been rewarded enough in terms of their efforts in engaging in sustainability activities as costs exceeded benefits. It could be that the firms may have diverted resources required for their normal operations to sustainability activities but they were not financially rewarded by their stakeholders as posited by the stakeholder theory. Thus, the result is in support of the trade-off hypothesis which suggests that firms' resources spent on environmental and social sustainability issues such as pollution control, waste treatment, sponsorship and community donations increase corporate expenditure and lower profitability (Galant & Cadez, 2017). Another possible explanation for this significant negative association between sustainability reporting and financial performance (ROA) is that the firms' sustainability reporting may have been seen by stakeholders as mere greenwashing activities and did not engender consumer confidence in the firms' brand and products leading to the negative impact on financial performance (Andreoli et al., 2017).

Thus, this negative relationship result is at variance with the instrumental stakeholder theory which posits that a firm stands to benefit financially if it effectively deals with its stakeholders' needs (Donaldson & Preston, 1995; Jones, 1995). However, this result is in line with the results obtained by Fahad & Busru (2020) who used listed firms in India and Fen Zhang et al. (2020) using A-share listed firms in China. A negative relationship between sustainability reporting and ROA was also found among banks by Bătae et al. (2021) in Europe, Buallay et al. (2020) in eighty countries worldwide, and Al-Jalahma et al. (2020) in Gulf Cooperation Council (GCC) countries. Our result is also in line with the findings of Duque-Grisales & Aguilera-Caracuel (2019) in the context of Latin American countries. Again, our result affirms the negative association between ESG and ROA found by Zahid et al. (2022) who used firms in Western Europe and explained the finding as supporting the exchange hypothesis which suggests that investments in sustainability activities increase cost of doing business.

Our result however conflicts with the findings of Brogi & Lagasio (2019a), Alareeni & Hamdan (2020), and Kim et al. (2019) all in USA who argue that ESG activities enhances firm profitability (ROA). Similarly, Tunio et al. (2020) and Khattak (2021) found that Banks profitability (ROA) is enhanced by their engagements in sustainability initiatives. It also not in line with the findings of Yuen et al. (2022) who reported positive association between ESG and ROA in Pakistan as well as results by Chininga et al. (2023) who studied South African firms.

In model 2, the relationship between sustainability reporting and Tobin's Q (TQ) is positive with coefficient of 0.001 but statistically insignificant (P -value > 0.05), which means that either there is truly no association between sustainability reporting activities and Tobin's Q or there is an association but there is not enough evidence to support the hypothesis in the population. This finding also does not support our hypothesis of positive relationship between sustainability reporting and TQ. One possible reason for the scenario of possible association between variables in a sample but not in the population is the smallness of effect size of the relationship (Visentin et al., 2020). It is therefore not surprising that the association between ESG and TQ is non-significant considering its regression coefficient value of 0.001. This insignificant result is in line with the findings of Atan et al. (2018) who studied Malaysian listed firms and reported non-significant relationship between ESG and TQ. Our result also

collaborates the findings of Sampong et al. (2018) in South Africa and Kim & Lee (2020) who used publicly-traded restaurant firms in USA.

For the control variables, the regression results for model 1 as presented in table 10 show that FSz and FL have significant negative relationship with ROA whilst FG has significant positive association with ROA. For model 2 results presented in table 11, whilst FSz and FL have significant negative association with ROA, FG has no association with TQ as both the FG's regression coefficient and the standard error are zero (0).

The moderating effect of financial slack resource on relationship between sustainability reporting and financial performance

In interpreting results of moderation modelling, the primary focus should be on the statistical significance of the interaction term's relationship with the dependent variable (Baron & Kenny, 1986; Hair et al., 2021; Memon et al., 2019). Since the coefficient of the interaction term (ESG*FSR) of 0.037 in model 1 and 0.001 in model 2 are statistically significant at 1% and 5% respectively, we can say that FSR is a statistically significant moderator of the linear relationship between sustainability reporting and financial performance (ROA and TQ). The positive coefficient of the interaction term (ESG*FSR) suggests that the relationship between sustainability reporting (ESG) and financial performance (ROA and TQ) will become positive as FSR increases. The significant interaction term (ESG*FSR) indicates that the effect of ESG on the dependent variables (ROA in model 1 and TQ in model 2) differs across the range of the moderator variable FSR (Dawson & Richter, 2006). To determine the direction and strength of this moderating effect, we used recommended simple slope plots (Dawson, 2014; Memon et al., 2019) for visual inspection of the direction and strength of the moderating effect as shown in figure 2 and figure 3.

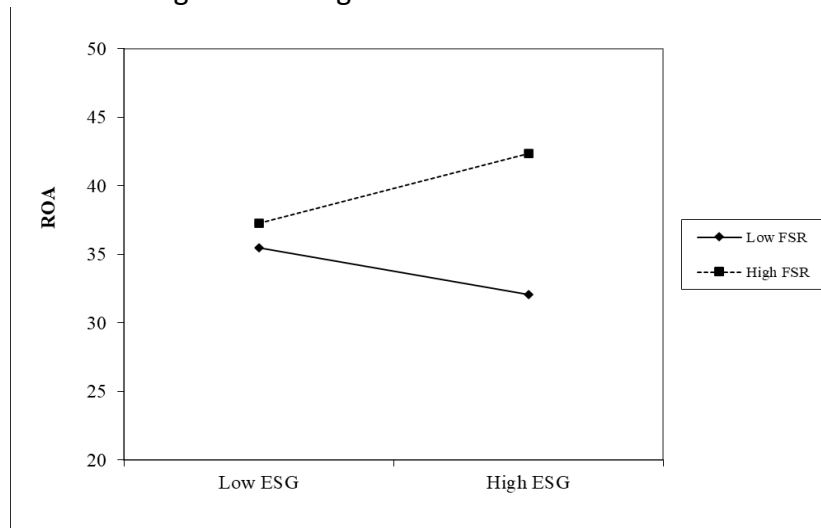


Figure 2: Moderation of Financial Slack Resource (FSR) on relationship between ESG and ROA

Figure 2 demonstrates that the interaction of high level of FSR (which is defined as one standard deviation above mean value of FSR) and high level of ESG (which is defined as one standard deviation above mean value of ESG) has positive effect on ROA but the interaction of low level of FSR (which is defined one standard deviation below mean value of FSR) and high level of ESG produces negative effect on ROA. Thus, availability of high level of FSR that leads to high level sustainability (ESG) investments will induce improved financial performance (ROA).

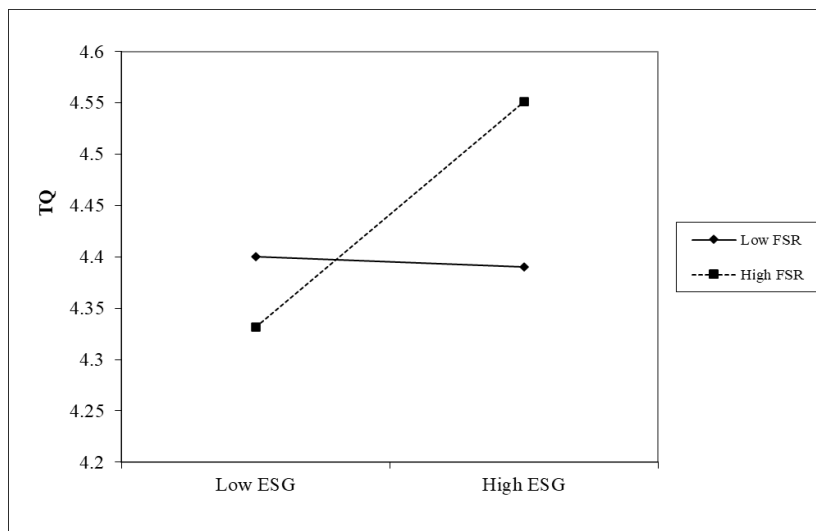


Figure 3: Moderation of Financial Slack Resource (FSR) on relationship between ESG and TQ

In figure 3, high level of FSR (which is defined as one standard deviation above mean value of FSR) has positive association with TQ as ESG increases but low level of FSR (which is defined as one standard deviation below mean value of FSR) has very minimal negative association with TQ as ESG increases.

We can therefore conclude that, though FSR seems to positively moderate the relationship between sustainability reporting and financial performance (from the moderated regression analysis), low level of FSR has negative moderation effect on the relationship between sustainability reporting and financial performance of South African firms. The high level of FSR having positive moderation effect on the relationship between sustainability reporting (ESG) and Financial performance is in line with the findings of Duque-Grisales & Aguilera-Caracuel (2019) who studied multinationals operating in South America and Mexico.

The study's finding on the positive moderation role of financial slack resource in the nexus between sustainability reporting and financial performance is consistent with slack resource theory which lend support to the instrumental approach of the stakeholder theory such that the development and implementation of effective sustainability reporting strategy (Rahman et al., 2021) backed by higher levels of unencumbered financial resources (Duque-Grisales and Aguilera-Caracuel, 2019) will assist firms to achieve higher financial performance. Thus, socially responsible firms (firms with high ESG scores, mostly likely to be contingent on availability of high levels of FSR) are more likely to achieve improved financial performance. By supporting the moderation effect, the findings imply that availability of high levels of FSR amplifies positive relationship between sustainability reporting and financial performance, since FSR is facilitator of more investments in sustainability initiatives.

By way of concluding the discussions of the results, the status of the study's hypotheses are summarised in the table 14.

Table 14:
Status of the Study's Hypothesis

Hypothesis	Decision
H1.1: Sustainability reporting has significant positive relationship with ROA	Rejected (negative significance)
H1.2: Sustainability reporting has significant positive relationship with TQ	Rejected (positive insignificance)
H2.1: High-level of financial slack resource has significant positive moderating effect on relationship between sustainability reporting and ROA	Accepted
H2.2: High-level of financial slack resource has significant positive moderating effect on relationship between sustainability reporting and TQ	Accepted

Source: Authors' compilation

Robustness of results

As a robustness check, we employed PCSE estimation technique for our models and the results are as presented in table 12 (Model 1) and table 13 (Model 2). For Model 1, sustainability reporting (ESG) has negative relationship with ROA though not statistically significant ($\beta = -0.028$ $p > 0.05$). The interaction of ESG and FSR (ESG*FSR) has significant positive relationship with ROA ($\beta = 0.036$ $p < 0.05$), suggesting that FSR has positive moderating effect on the nexus between sustainability reporting and financial performance. For the control variables, the results are also similar to the FGLS results with FSz ($\beta = -0.525$ $p = 0.076$) and FL ($\beta = -13.836$ $p < 0.05$) having significant negative association with ROA and FG ($\beta = 0.040$ $p < 0.05$) having significant positive association with ROA.

In Model 2, similar results to the FGLS estimations were obtained. Sustainability reporting (ESG) has an insignificant positive association with TQ ($\beta = 0.004$ $p > 0.05$). The interaction of ESG and FSR (ESG*FSR) has significant positive relationship with TQ ($\beta = 0.002$ $p < 0.05$). For the control variables, FSz ($\beta = -0.165$ $p < 0.05$) and FL ($\beta = -0.548$ $p < 0.05$) having significant negative association with TQ and FG ($\beta = 0.000$ $p > 0.05$) having no linear relationship with TQ. With the results of the PCSE estimation technique largely confirming the results of the FGLS estimation technique, we can justifiably conclude that our study's results are robust.

Conclusions, Implications, Limitations and Recommendations

Conclusions

We used the stakeholders' theory to investigate relationship between sustainability reporting (ESG) and financial performance of South African listed firms as well as the slack resource theory to assess moderating role that financial slack resource (FSR) plays in that relationship. The major findings of the study are that there is significant negative association between sustainability reporting and ROA of South African firms but an insignificant positive association between sustainability reporting and TQ. This statistically significant negative relationship between sustainability reporting and ROA is inconsistent with the instrumental stakeholder theory. FSR has significant moderation effect on the relationship between sustainability reporting (ESG) and the financial performance. In terms of the strength and direction of the moderating effect of FSR, it was found that whilst high level of FSR positively

moderates the relationship between ESG and ROA as well as TQ, low level of FSR negatively moderates the relationship between ESG and ROA as well as TQ. Since the relationship between ESG and ROA is negative and statistically significant, it may be argued that the firms may not have generated higher levels of FSR for investment in sustainability reporting activities. To the best of our knowledge, we have not seen a prior empirical study that investigated the potential moderation effect of FSR on the relationship between sustainability reporting and financial performance of South African firms.

Theoretical and practical Implications of the findings

The study has some theoretical and practical implications. For theoretical implication, the study did not support the instrumental stakeholder theory which postulates that firms stand to gain financially from attending to the needs of their stakeholders, which is the subject of sustainability reporting. Some empirical studies supported the instrumental stakeholder theory in other economic environments. This suggest that the instrumental stakeholder theory do not work in all different populations and therefore the theory may need modification.

For practical implications, based on the result of negative association between sustainability reporting and profitability of the firms, the finding suggests that sustainability reporting does not help the managers of the firms to achieve better financial performance though sustainability practices and its reporting enable them to operate in peaceful atmosphere. However, considering the importance of the concept of sustainable development and to encourage firms to embrace the concept appreciably, the Government of South Africa may, by way of a national policy, create incentive programmes for the firms. Such programmes may include tax breaks, tax rebates and subsidies for firms that engage in best practices of sustainable development. This may go a long way to encourage more firms to address the increasing environmental and social problems confronting the country.

Moreover, though the study's findings indicate a significant negative association between sustainability reporting and profitability of the firms, the managers of the firms should consider sustainability reporting activities as investments for their own survival rather than as expenses. By addressing the environmental and social needs of their various stakeholders, the firms would be able to carry on their operations in tranquil atmosphere. Also, by improving their sustainability practices they are likely to become more competitive which will result in enhanced financial performance in the long term. Again, since good sustainability practices build good image and reputation for firms, improve transparency in corporate activities, and attract investors, managers of the firms should continue to engage in good sustainability practices in spite of the negative association between sustainability reporting and financial performance. The reputation for sustainable development in the end may help the firms to enhance their financial performance. However, this requires a long-term planning and dedication of appreciable resources towards their sustainability activities.

Finally, the study's conclusion that a high level of FSR positively modifies the relationship between sustainability reporting and financial performance suggests that using FSR as a financial tool can assist businesses in achieving high levels of sustainability reporting, which will improve financial performance. Therefore, FSR must be incorporated into firms' strategic planning to ensure that funding will be available for them to carry out their sustainability initiatives successfully. Thus, in order to increase their ability to engage in strategic sustainability programmes that are highly valued by their key stakeholders, the companies may need to consciously foster more FSR.

Limitations of the study and recommendations

The study has some limitations. Firstly, the study did not examine relationship between the individual pillars of sustainability reporting and financial performance. Though the study found significant negative relationship between ESG and ROA, the relationship between each pillar of ESG and financial performance may be different. We therefore suggest that future studies should investigate the relationship between the individual pillars of ESG (environment, social, and governance) and the financial performance. Again, the study did not examine sectorial differences in the relationship between sustainability reporting and financial performance. Since economic sectors have unique characteristics, firms' sustainability reporting may have different impact. We therefore suggest that future study examine sectorial differences in relationship between sustainability reporting and financial performance. Finally, the study only investigated relationship (correlation) between sustainability reporting and financial performance and therefore it is not known whether sustainability reporting performance causes financial performance or financial performance causes sustainability reporting performance. Future study may investigate the causality between the two phenomena.

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