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Corporate Attributes and the Extent of Environmental Reporting: An Empirical Analysis of JSE-Listed Firms

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Abstract

The study seeks to explore the impact of business attributes namely company size, firm age, leverage, and profitability, on environmental information disclosure by publicly listed firms in South Africa. This paper focuses on firm-level factors to improve understanding of how organisational attributes influence the extent and quality of environmental openness in a developing economy. It employs a quantitative research methodology that integrates empirical and statistical techniques to examine the relationship between corporate attributes and the extent of environmental reporting among firms listed on the Johannesburg Stock Exchange (JSE). The study covers a five-year period (2020–2024), chosen to illustrate the effects of South Africa's growing environmental regulations and the widespread implementation of integrated reporting following the enactment of the King IV Code of Corporate Governance. The model's overall significance ($p = 0.000$) demonstrates that firm-specific variables together affect environmental reporting behaviours. Profitability exhibits a robust positive and statistically significant correlation with environmental disclosure, indicating that financially stable companies are more inclined and capable of revealing sustainability information. Firm age shows a strong negative association, which means that younger organisations are more flexible, open, and sensitive to ESG trends than older, more established ones. The results also support both Voluntary Disclosure Theory (profitability-driven transparency) and parts of Institutional and Legitimacy Theories, which show that younger, more progressive companies are adapting to new reporting standards.

Keywords: *corporate attributes, environmental reporting, stakeholder theory, and corporate leverage.*

Introduction

Countries globally endeavour to enhance their economies by rapid industrialisation, technological advancement, and corporate expansion(Ruziwa and Nomlala, 2025). However, these processes frequently harm the environment, resulting in pollution, resource depletion, and climate change, which pose significant challenges for both the ecosystem and civilisation(Debeila et al., 2024). The heightened awareness of environmental degradation has concerned governments, international organisations, and civil society. They are insisting that firms enhance their accountability and transparency regarding their operations(Hariram, 2023). Consequently, firms are increasingly required to demonstrate their commitment to environmental and social responsibility by disclosing the impact of their actions on the environment. The expectation has become environmental information disclosure (EID) an essential component of the accounting information system (Sunday and Kwenda, 2021).

Over the past two decades, corporate social and environmental reporting has garnered significant attention from both scholars and practitioners (Erin and Adegboye, 2022). Environmental disclosure is a crucial component of the broader discourse on corporate sustainability and accountability. Various stakeholders, including shareholders, creditors, regulators, employees, consumers, and the general public, seek access to credible environmental information to assess a company's conduct and its effectiveness in achieving sustainable growth objectives. Muzanya (2022) asserts that corporate environmental disclosure is a significant element of social reporting. It mostly includes non-financial data that illustrates a company's environmental policies, initiatives, and outcomes.

The necessity to disseminate environmental information has intensified in recent years due to the deteriorating global ecological condition. Governments, investors, the media, and communities are increasingly pressuring corporations to include environmental transparency into their governance and reporting frameworks (Moloi et al., 2021). As a result, EID has emerged as a crucial element of annual reports, corporate social responsibility (CSR) statements, and sustainability disclosures (Tjano, 2021). These

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reports enhance the legitimacy of organisations and demonstrate to stakeholders that the company is environmentally conscious and accountable.

Academic research continues to investigate the determinants and implications of environmental disclosure within the broad framework of corporate social responsibility. While extensive study exists on this subject in affluent nations, there is a paucity of studies in developing countries. Prior studies by Moloto et al. (2025)demonstrate that disclosure practices in developing contexts are influenced by insufficient regulatory frameworks, reduced stakeholder pressure, and constrained resources, which may hinder consistent environmental transparency. This research gap underscores the need for empirical studies that examine the impact of firm-level determinants on environmental reporting procedures in emerging economies.

In this context, South Africa exemplifies a very persuasive case. South Africa is among Africa's most robust economies and has committed to global sustainability initiatives such as the United Nations Sustainable Development Goals (SDGs) and the King IV Report on Corporate Governance(Nxumalo et al., 2025). The nation has significantly advanced in integrating sustainability disclosure within corporate governance frameworks. The Johannesburg Stock Exchange (JSE) requires listed businesses to provide environmental, social, and governance (ESG) data. This enhances transparency and accountability. Despite these legislative improvements, the quality and extent of environmental disclosures across publicly listed corporations remain variable, warranting empirical study.

This study seeks to examine the impact of business attributes, namely company size, firm age, leverage, and profitability, on environmental information disclosure by publicly listed firms in South Africa. This research focuses on firm-level factors to improve understanding of how organisational attributes influence the extent and quality of environmental openness in a developing economy. The rest of this article is organised as follows: Section 2 encompasses the literature review and the development of hypotheses. Section 3 delineates the research methodologies employed in the study. Section 4 addresses the empirical findings. Section 5 presents the conclusion, while Section 6 addresses the limits and proposes avenues for future research.

Literature review

Information disclosure for transparency has emerged as a crucial component of global environmental governance initiatives (Dambuza, 2022). Governments, investors, and other stakeholders are increasingly demanding that firms assume greater responsibility for their environmental impact. In this context, the environmental standards established by the International Organisation for Standardisation (ISO), particularly ISO 14000, have served as the foundation for several research on environmental responsibility and sustainability reporting. Sosola (2024) asserts that the disclosure of environmental information enhances corporate reporting transparency, hence fostering trust between corporations and their stakeholders.

Social and environmental disclosure is theorised to influence a corporation's economic, financial, environmental, and social performance (Daniels and Smit, 2023). Thus, sustainability reporting may serve as a mechanism for improving corporate behaviour and aligning company practices with broader social and environmental benchmarks. To understand this connection, many theories namely Stakeholder Theory, Legitimacy Theory, and Voluntary Disclosure Theory provide conceptual frameworks for understanding the determinants of environmental information disclosure (EID).

Theoretical Framework: Stakeholder Theory

Stakeholder Theory asserts that firms operate within a network of interdependent relationships with various stakeholder groups, including shareholders, employees, customers, governmental bodies, and communities, all of which can influence or be influenced by corporate operations (Kitulazzi et al., 2025a). The concept posits that environmental disclosure serves as a communication conduit between firms and their

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stakeholders, indicating the firm's commitment to responsible environmental practices. Stakeholder Theory expands the narrow perspective of Agency Theory, which primarily examines the relationship between shareholders and management as principle and agent (Moloto et al., 2024). Agency Theory aims to mitigate conflicts of interest via transparency, but Stakeholder Theory broadens this obligation to include societal and environmental duties. In South Africa, this theory holds particular significance as companies listed on the Johannesburg Stock Exchange (JSE) face increasing pressure from institutional investors, environmental advocates, and regulatory authorities to ensure their reports fulfil the requirements of all stakeholders, as mandated by frameworks such as the King IV Code of Corporate Governance.

The Theory of Legitimacy

Legitimacy Theory embraces a holistic social perspective, asserting that companies strive to legitimise their activities by aligning their behaviour with societal norms and expectations (Frans, 2024). The concept is founded on the premise of a social contract between enterprises and the local populations in their operational areas (Ojeyinka and Matemane, 2025). When enterprises engage in actions that contravene societal norms, such as environmental degradation, they jeopardise their legitimacy, potentially damaging their brand and financial standing. To maintain legitimacy, corporations commonly utilise environmental disclosure to demonstrate adherence to societal standards and environmental regulations (Denhere, 2024). In South Africa, where mining, manufacturing, and energy production have adversely affected the environment and generated public apprehension, enterprises are increasingly dependent on transparent environmental reporting to satisfy the public and regulatory authorities.

Theory of Voluntary Disclosure

The Voluntary Disclosure Theory advances previous ideas by focussing on the significance and quality of information disclosure, rather than only its presence. Baba et al. (2023) contend that firms voluntarily disclose environmental information to alleviate knowledge asymmetry between management and external stakeholders. Companies may demonstrate their environmental stewardship and ethical conduct by providing accurate and reliable information. This can enhance investors' confidence in their ventures and facilitate access to capital. Donkor et al. (2021) contend that voluntary disclosure reduces agency costs and strengthens stakeholder relationships. A company's capacity and inclination to provide environmental information may be influenced by its size, age, leverage, and profitability (Baba et al., 2023). Larger or more affluent organisations may possess greater resources to produce comprehensive sustainability reports and may derive enhanced reputational advantages from openness.

These theories collectively create a strong conceptual framework for analysing the impact of corporate attributes on the extent of environmental information disclosure, particularly in the South African context, where companies are increasingly expected to adhere to international sustainability standards and national governance frameworks.

Corporate Attributes and the Revelation of Environmental Data

Company Size and Extent of Environmental Information Disclosure

The size of a corporation is a prevalent variable that academics examine to determine the extent of environmental information disseminated by the organisation. Several research have established a favourable association between firm size and the extent of environmental reporting (Magau, 2025). Large corporations are often more prominent in the public eye, resulting in heightened scrutiny from stakeholders and authorities. Erin (2025) and Cormier and Matemane et al. (2025a) assert that large corporations disseminate more environmental information to maintain legitimacy and demonstrate accountability. FASUA (2025) contend that large firms prioritise their reputation and are predisposed to enhance environmental disclosure to cultivate stakeholder trust and enhance financial performance.

Certain research, however, indicate that there is no significant correlation between a company's size and the extent of its environmental disclosures (Rastogi and Soriya, 2025). This indicates that the kind of

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industry or the rigour of regulatory enforcement may influence the extent of a company's disclosures. In South Africa, larger JSE-listed corporations often spearhead sustainability reporting due to heightened investor scrutiny, adherence to King IV reporting standards, and the necessity to remain competitive in increasingly ESG-focused global markets.

The Duration of a Company and the Extent of Its Environmental Disclosures

Firm age refers to the duration in years that a firm has been operational, which may influence the extent of information it disseminates. Established organisations often possess more structured governance frameworks and acquire institutional knowledge that enhances their efficiency and compliance (Rastogi and Soriya, 2025). Empirical studies demonstrate a favourable association between the age of a business and its environmental disclosure, since established firms often provide more information to protect their reputation and fulfil stakeholder expectations (Hove, 2025). In South Africa, established enterprises may face elevated expectations from both domestic and international stakeholders about their leadership in sustainable practices. These firms often maintain enduring relationships with government authorities, investors, and communities. To maintain credibility and legitimacy, they are compelled to be transparent on environmental concerns.

Corporate Leverage and the Revelation of Environmental Data

The debt-to-equity ratio is a method for evaluating financial leverage. This may also influence the extent of information a corporation disseminates. Agency Theory posits that heightened leverage compels creditors to scrutinise corporations more rigorously, hence exerting pressure on firms to provide additional information to mitigate agency costs (Chawarura et al., 2025). Studies by Chininga (2022) demonstrates a favourable association between leverage and transparency. They assert that firms with high debt levels are more likely to provide environmental information to reassure creditors on their financial soundness and ethical responsibilities. Chininga et al. (2024) contend that enhanced openness mitigates possible agency problems between managers and financiers.

Conversely, other studies NYAHUNA and DOORASAMY (2023) illustrate a negative association, suggesting that firms with substantial debt may limit transparency to avoid creditor examination. Nel et al. (2022) assert that indebted firms may restrict information to control expenditures. Specific studies, such those by Madwe et al. (2024), demonstrate a lack of a significant correlation. In South Africa, as banks and investors increasingly prioritise ESG considerations in their lending and investment decisions, heightened leverage may result in more comprehensive environmental disclosures to demonstrate the company's financial and ethical integrity.

Profitability of a Business and the Disclosure of Environmental Information

Profitability is a crucial indicator of a business's performance and its sustainability (Madwe et al., 2024). Agency Theory asserts that profitability reflects management's effectiveness in maximising shareholder value, hence reducing the likelihood of agency conflicts (Kitulazzi et al., 2025b). The empirical data about the relationship between profitability and environmental disclosure remains ambiguous. Some study indicates a negative or insignificant connection (Nwaigwe et al., 2022), while other studies suggest a beneficial correlation. Capuano and Carabelli (2023) assert that successful firms are more likely and able to bear the costs of environmental disclosure to enhance their public image, recruit investors, and demonstrate accountability. In South Africa, enterprises seeking foreign investment in a sustainability-conscious global economy may find that profit serves both as a motivation and a means to disseminate environmental knowledge. In markets that value integrity and sound business practices, high-performing organisations often employ sustainability reporting to differentiate themselves from competitors.

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Synopsis and Research Hypotheses

The literature review indicates that business attributes such as size, age, leverage, and profitability significantly influence the extent of environmental information disclosed by a corporation. These relationships are shaped by a combination of economic incentives, stakeholder expectations, and legitimacy issues, which are especially prominent in the South African corporate environment.

Consequently, the subsequent assumptions are proposed:

H1: A significant association exists between the size of a corporation and the dissemination of environmental information.

H2: A significant correlation exists between a company's age and the volume of environmental information it disseminates.

H3: A robust correlation exists between a company's financial leverage and the extent of environmental information it discloses.

H4: A robust correlation exists between a company's profitability and the extent of environmental information it disseminates.

Research methods

This study employs a quantitative research methodology that integrates empirical and statistical techniques to examine the relationship between corporate attributes and the extent of environmental reporting among firms listed on the Johannesburg Stock Exchange (JSE). The quantitative method enables the objective assessment of hypotheses and the use of measurable indicators to evaluate disclosure practices inside businesses. The analysis utilises secondary data from various sources, including companies' annual reports, sustainability or integrated reports, and the ESG (Environmental, Social, and Governance) Disclosure Database, accessible through the JSE and the Integrated Reporting Committee of South Africa (IRCSA). Supplementary information is sourced from the Disclosure Book and data gathered from commercial financial information providers like IRESS or Bloomberg, which offer standardised firm-level financial and governance data.

The study covers a five-year period (2020–2024), chosen to illustrate the effects of South Africa's growing environmental regulations and the widespread implementation of integrated reporting following the enactment of the King IV Code of Corporate Governance. The study's population includes all companies listed on the main board of the JSE, while the sample consists of the Top 50 most active firms, identified by trading volume and market capitalisation, which are assumed to have increased visibility and stakeholder pressure to disclose environmental information.

Instruments and Techniques for Statistical Analysis

This study utilises descriptive statistics, correlation analysis, and multiple regression analysis to empirically evaluate the research hypotheses. Descriptive statistics summarise the data and clarify the primary trends and variability of environmental disclosure practices. Correlation analysis evaluates the strength and direction of relationships among variables, while multiple regression analysis (Ordinary Least Squares – OLS) examines the proposed connections between corporate attributes (independent variables) and the extent of environmental disclosure (dependent variable). The statistical analysis is conducted using software such as SPSS (Version 27) or STATA, enabling diagnostic tests for multicollinearity, heteroskedasticity, and normality checks to ensure the robustness and validity of the results.

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Dependent Variable: Environmental Information Disclosure (EID)

The dependent variable in this study is the degree of Environmental Information Disclosure (EID). Environmental disclosure pertains to the degree to which corporations convey information on their environmental policy, performance, and initiatives in public reports. Milne and Patten (2002) contend that environmental information assists both corporations and stakeholders in understanding the ecological impacts of commercial activities. The research delineates two principal methodologies for quantifying EID. The initial approach is quantitative textual analysis, which enumerates the number of pages, sentences, or words addressing environmental issues to assess the extent of disclosure. This technique has limitations since it disregards the quality and relevance of disclosures and excludes non-textual material such as images or numerical data (Capuano and Carabelli, 2023).

The second, more prevalent method is the disclosure index rating system, which assesses the inclusion of specific environmental problems in corporate reports. This study employs a content analysis scoring methodology based on the Global Reporting Initiative (GRI) Standards and prior environmental disclosure indices adapted to South African reporting contexts, referencing the research of (Thompson et al., 2022). A checklist of 26 disclosure items, derived from Matemane et al. (2025b), is employed to evaluate each company's environmental report. The index comprises 16 components from the primary annual or integrated report and 10 items from supplementary annexes or sustainability disclosures. A corporation receives a score of 1 for exposing an item and a score of 0 for not doing so. To ascertain the EID index score for each corporation,

$$\textit{EID Score} = \frac{\textbf{Total disclosed items}}{\textbf{Total possible disclosure items (26)}}$$

This index offers a standardised assessment of the scope of environmental reporting, facilitating comparisons across companies and over time.

Independent Variables: Corporate Attributes

The study examines essential corporate attributes that may affect the extent of environmental reporting. These comprise:

Firm Size: Calculated as the natural logarithm of total assets. Larger organisations are anticipated to disclose greater information owing to increased visibility and stakeholder expectations.

Profitability: Assessed through Return on Assets (ROA). Firms with higher profitability may disclose greater information to demonstrate responsible corporate conduct.

Leverage: Calculated as the proportion of total debt relative to total assets. Organisations with elevated debt levels may disclose additional environmental information to mitigate perceived risks.

Industry Type: A binary variable that differentiates between high-impact and low-impact sectors (e.g., mining versus financial services).

Ownership Structure and Board Composition: Included to assess the influence of governance on disclosure practices.

Research Framework.

To investigate the influence of corporate attributes on environmental disclosure, a multiple regression analysis is employed. The model is defined as follows:

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$$EID=B_o + \beta_1 SIZE_i + \beta_2 PROFi + \beta_3 LEV_i + \beta_4 IND_i + \beta_5 OWN_i + \beta_6 BOD_i + \varepsilon_i$$

Where:

- EIDi: Environmental Disclosure Index for firm *i*
- SIZEi: Firm size;
- PROFi: Profitability;
- LEVi: Leverage
- INDi: Industry classification;
- OWNi: Ownership structure;
- BODi: Board composition;
- εi: Error term

This model facilitates empirical analysis of the impact of company attributes on environmental reporting procedures within JSE-listed companies.

Results and discussion

Hypothesis testing with SPSS entails doing descriptive statistics, followed by correlation analysis, and then regression analysis.

Summary Statistics

This study aims to delineate the variables by presenting the mean, lowest and maximum values, and the standard deviation of both the dependent and independent variables.

Table 1: Descriptive analysis

	N	MINIMUM	MAXIMUM	MEAN	Std. Dev
EID	301	.00	.99	.3285	.33763
FSIZE	301	20.558745	26.387748	32.218585	2.798513
FAGE	301	15	15	34.87779	6.988515
FLEV	301	.000000	.000000	.31876285	.319376892
FPROF	301	-30.0000	-30.0000	15.858168	19.3216173

Table 1 shows the descriptive statistics for the dependent and independent variables that are used to look at business qualities and how they affect environmental information disclosure (EID) among companies listed on the Johannesburg Stock Exchange (JSE). The goal of this research is to give an overview of the main features of the collected data and to show how environmental disclosure methods differ and are spread out among South African companies. The average environmental information disclosure (EID) score for the studied JSE-listed enterprises is 0.3285, or around 32.85%, with a low of 0% and a high of 99%. This study indicates that, on average, South African companies reveal around one-third of the environmental information items that are part of the disclosure index. The smallest value of 0% means that some companies don't provide any environmental information. The greatest value of 99% means that certain companies are near to complete compliance with disclosure requirements. These companies are probably in high-impact industries like mining, energy, or manufacturing.

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This degree of disclosure shows that South African companies are moderately open about their environmental practices compared to other emerging nations. The disclosure rate surpasses that of Egyptian companies, which previous comparative studies deemed poor at 22%. But it is still far lower than the numbers that Mushwana et al. (2024) recorded for Turkey (93.55%), Nel et al. (2024) for Thailand (96%), and Longston et al. (2025) for Bahrain (37%). These variances show that different regions and institutions have different ways of disclosing information. For instance, Turkey and Thailand have stricter rules for environmental governance and require companies to disclose their sustainability practices, but South Africa's environmental reporting system is mostly voluntary and follows the King IV Code of Corporate Governance and Global Reporting Initiative (GRI) principles.

The low-to-moderate average EID value also shows that even while the JSE pushes for Environmental, Social, and Governance (ESG) integration, there is still no law that requires corporations to report environmental information in a consistent way. This might cause inconsistencies and selective disclosure, when companies selectively share information that makes them look good and boosts their reputation. Furthermore, the standard deviation (0.3376) of EID reveals substantial variety among firms' disclosure methods, showing that although some corporations have implemented rigorous sustainability reporting, others lag behind. The heterogeneity seen may arise from disparities in corporate governance maturity, industry classification, resource availability, and management dedication to environmental stewardship.

When we look at the independent variables, we see that the average firm size (FSIZE) is 32.22, with a minimum of 20.56 and a maximum of 26.39. The standard deviation is 2.80. These numbers show that majority of the companies in the sample are big enterprises. This fits with the study's focus on top JSE-listed companies, which are more prominent and face more scrutiny from stakeholders. According to Stakeholder and Legitimacy Theories, larger companies should provide more information on the environment since they are more visible to the public and have more resources. The average age of the businesses in the sample is 34.88 years, with a range of 15 to 37 years and a standard deviation of 6.99. This means that the sample comprises both older and newer enterprises. The inclusion of mature enterprises indicates that these organisations have garnered expertise and institutional stability that may affect disclosure practices. Older companies frequently have reputations that they try to safeguard by being open about their environmental impact. This trend corresponds with empirical studies Mohale (2025) indicating that firm age is strongly correlated with the level of environmental disclosure.

The average value for financial leverage (FLEV) is 31.88%, with a range of 0% to 99% and a standard deviation of 31.94%. This large range suggests that the enterprises in the sample have quite different financial structures. Some businesses have very little or no debt, while others have a lot of debt. Agency Theory posits that companies with substantial debt may face intensified demands from creditors and investors to improve their openness, including environmental reporting, as a method of indicating financial soundness and ethical accountability. The descriptive data also show that some organisations with a lot of debt may limit what they say about their finances to avoid people thinking they are financially weak.

The mean for profitability (FPROF) is 15.86%, with a wide range from -30% to 30% and a standard deviation of 19.32%. This diversity shows that companies may have very different levels of success, with some losing money and others gaining a lot of money. According to Voluntary Disclosure Theory, companies that are more profitable are more inclined to share information about the environment to show how well they are doing financially and ethically and to attract investors who care about companies that are environmentally friendly. On the other hand, companies who are having trouble with money may limit disclosures because of the expense or because they want to be smart about what they share.

When we look at these statistics next to those from Egypt and other developing countries, we see that South African companies are more open about their environmental impact and have better financial metrics at the business level. For instance, Egyptian companies had an average EID of just 22%, whereas South African companies had an average of 32.85%. This shows that institutional governance frameworks like the King IV Code and the JSE sustainability reporting criteria have improved disclosure levels. However, the results also show that South African companies still have trouble with regular and complete reporting,

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unlike those in Thailand and Turkey, where disclosure is almost universal. In conclusion, the descriptive study shows that JSE-listed companies don't always share environmental information, and when they do, it's mostly up to them. This is because of variances in the companies themselves and the rules that apply to them. Some companies have included sustainability reporting to their corporate governance standards, but others still only give very little information on the environment. The overall findings show that South Africa needs better enforcement, sector-specific norms, and alignment with global sustainability reporting requirements to make environmental disclosures more consistent, comparable, and trustworthy for stakeholders.

Table 2: correlation Analysis

	EID	FLEV	SIZE	FAGE	FPROF
EID	1				
FLEV	.330**	1			
SIZE	.118	.371**	1		
FAGE	-.311**	-.088	-.457**	1	
FPROF	.392**	.134	.287**	-.298**	1

The Pearson's Correlation Coefficient was used to look at the connections between the study variables and see if there was or wasn't multicollinearity in the research model. Table 2 shows how strong and in what direction the correlations are between the dependent variable, Environmental Information Disclosure (EID), and the independent variables, Firm Size (FSIZE), Firm Age (FAGE), Leverage (FLEV), and Profitability (FPROF).

Bryman and Cramer (1997) say that correlation coefficients higher than 0.80 between independent variables might mean a multicollinearity problem. This is because large intercorrelations can make regression results less reliable and make the model less useful. However, Table 2 shows that all the correlation values between the independent variables are below 0.80, which means that multicollinearity is not a problem in this dataset. So, the model's explanatory variables are independent enough from each other that they may be used in future regression studies.

The direction and strength of correlations

The findings in Table 2 demonstrate many significant and theoretically relevant connections among the variables. There is a positive and statistically significant association between Environmental Information Disclosure (EID) and Leverage (FLEV) ($r = 0.330$). This indicates that companies with elevated debt ratios are inclined to reveal greater environmental information. This finding is consistent with Agency Theory, which posits that leveraged enterprises encounter intensified scrutiny from creditors, necessitating more open reporting to mitigate perceived risks and agency costs (Greeff, 2025). In South Africa, where investors and banks are putting more weight on Environmental, Social, and Governance (ESG) factors when making lending and investment decisions, firms may be more likely to improve their disclosure practices to show that they are stable and responsible.

There is a greater positive link between EID and Profitability ($r = 0.392$), which means that companies that make more money tend to provide more information about the environment. This association corroborates the Voluntary Disclosure Theory, which posits that financially prosperous enterprises are more inclined and equipped to absorb the expenses linked to sustainability reporting (Nel et al., 2025). Companies may invest in environmental projects and reporting systems because they are profitable. Also, sharing information about the environment may help a company's reputation, make it more legitimate, and attract investors and stakeholders who care about sustainability.

The relationship between EID and Firm Size ($r = 0.118$) is favourable but not very strong. This indicates that larger companies are more likely to provide environmental information than smaller ones. However, size alone does not substantially predict disclosure behaviour in South Africa. This study partially corroborates Stakeholder and Legitimacy Theories, which contend that larger enterprises, owing to their

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enhanced visibility and societal influence, encounter more demand from stakeholders to disclose their environmental practices (Nel et al., 2025). However, the weak correlation may also indicate that even smaller or medium-sized JSE-listed firms are adhering to external expectations, regulatory frameworks such as the King IV Code, and the global initiative for integrated reporting, thus diminishing the variation in disclosure levels among firm sizes.

Conversely, the correlation between EID and Firm Age (r = –0.311) is negative and statistically significant, indicating that younger enterprises are more likely to share environmental information compared to older firms. This outcome contrasts with the findings of Dombeu et al. (2025), which indicated that older enterprises release more information owing to their expertise, stability, and motives related to reputation maintenance. In South Africa, on the other hand, newer companies may be more equipped to adapt to international reporting requirements and meet investor expectations for ESG performance. As part of their development and differentiation plan, they typically use modern governance frameworks and sustainable business practices (Aliamutu, 2024). Older companies, on the other hand, may stick to conventional compliance-driven disclosure methods or stay conservative.

Links Between Independent Variables

Looking at how the independent variables are related to each other gives us more information on business qualities. Firm Size has a moderate positive correlation with both Leverage (r = 0.371) and Profitability (r = 0.287). This means that bigger companies usually have an easier time getting loans and making money. Investors are likely to trust these kinds of companies and keep the resources they need to voluntarily provide information about their environmental impact. The observed pattern aligns with prior research Dombeu et al. (2022) indicating that business size serves as a proxy for visibility, resource capability, and public accountability all elements that promote increased environmental transparency.

There is a negative association between Firm Age and Firm Size (r = –0.457) and between Firm Age and Profitability (r = –0.298). This means that older businesses are not always bigger or more lucrative. This could mean that older businesses in South Africa, especially in mature fields like mining, manufacturing, and utilities, have hit operational plateaus. On the other hand, younger businesses, especially in finance, telecommunications, and renewable energy, are growing faster and using modern sustainability practices to stand out and attract investors.

Lastly, the association between Profitability and Leverage (r = 0.134) is weakly positive. This means that profitability and capital structure are slightly in line with each other, but not very significantly. It seems that companies' decisions on how to finance themselves are based more on strategic or industry factors than on how much money they make.

What the correlation results mean

The total correlation results provide us both statistical and theoretical reasons to move further with regression analysis. The lack of multicollinearity shows that the explanatory variables size, age, leverage, and profitability work separately, giving us new information about what factors affect environmental disclosure. The positive relationships between EID, Leverage, and Profitability show that financial strength and accountability demands are key reasons why companies choose to share environmental information. This aligns with both Agency Theory and Voluntary Disclosure Theory, as companies facing heightened stakeholder scrutiny or exhibiting superior financial performance employ environmental transparency to sustain legitimacy, attract investment, and mitigate information asymmetry.

The negative correlation between Firm Age and EID presents a compelling aspect within the South African context: younger enterprises seem to spearhead the transition towards sustainability and transparency, potentially influenced by generational leadership transitions, globalisation, and shifting market expectations. This is different from older companies, which may see environmental disclosure as a need for compliance rather than a way to communicate strategically. In conclusion, the correlation analysis shows that there are modest and meaningful correlations between the variables that fit with what theory says and what has been

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found in previous studies. The findings indicate that environmental disclosure among JSE-listed companies is mostly influenced by financial capacity, stakeholder responsibility, and generational adaptation, rather than only by business size or age. Furthermore, the low correlation coefficients among the independent variables (all below 0.80) validate the model's statistical robustness and absence of multicollinearity, hence confirming the reliability of the future regression findings displayed in Table 3.

Regression Analysis

Regression analysis offers a deeper understanding than correlation analysis by examining the causal influence of each independent variable on environmental information disclosure (EID) while accounting for other factors. The model utilised the Ordinary Least Squares (OLS) method to analyse the relationship between four business-specific variables firm size, firm age, financial leverage, and profitability and the degree of environmental information disclosure among businesses listed on the JSE.

Importance of the Model (Table 4 - ANOVA Model)

The ANOVA result (Sig. = 0.000) indicates that the regression model is statistically significant at the 1% threshold. The selected parameters (size, age, leverage, and profitability) effectively elucidate the variance in environmental information disclosure across the enterprises in the sample. The entire model effectively elucidates the relationship between corporate attributes and environmental reporting methodologies. The significant model indicates that environmental disclosure among JSE-listed businesses is not arbitrary, but influenced by certain firm-level attributes. This aligns with previous findings in developing contexts (e.g.Okeke (2025) and Zennaro et al. (2024)), indicating that financial and governance attributes might effectively predict sustainability reporting behaviour.

Table 4: ANOVA Model

Model		**Sig.**
1	Regression	.000[b]

Table 5: Regression results

$EID=B_o + \beta_1 SIZE_i + \beta_2 PROFi + \beta_3 LEV_i + \beta_4 IND_i + \beta_5 OWN_i + \beta_6 BOD_i + \mathcal{E}_i$						
		Unstandardized Coefficients		**Standardized Coefficients**		
		B	Std. Error	Beta	t	Sig.
	(Constant)	.692	.400	-.036	2.849	.065
	FSIZE	-.004	.010	-.259	-.453	.728
	FAGE	-.378	.233	.156	-3.287	.038**
	FLEV	.158	.279	.056	.383	.882
	FPROF	.004	.002	.348	4.737	.000***

Firm Size (FSIZE): Negligible Negative Correlation (Sig. = 0.728). In contrast to predictions and the majority of previous studies Zennaro et al. (2024), business size does not exert a statistically significant influence on EID. The negative correlation (-0.004) indicates that larger South African companies may not always provide more information about the environment. This might be because the King IV governance structure makes disclosure voluntary, and even small and medium-sized businesses follow ESG standards. Another reason might be that big companies already follow basic environmental rules and don't see the need to go beyond what the law requires when it comes to disclosure.

Firm Age (FAGE): A Strong Negative Link (Sig. = 0.038). The regression analysis indicates that older companies are less inclined to participate in comprehensive environmental reporting. This result is in line with the prior finding of a negative association (r = –0.311). It indicates that younger companies are more flexible and likely to utilise more modern sustainability reporting standards. This may be because of changes in leadership, globalisation, and the need to attract investors who care about ESG issues. On the other

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hand, older companies may prefer traditional compliance-based methods over proactive openness. Financial Leverage (FLEV): A weak positive link (Sig. = 0.882). The coefficient (0.158) suggests a favourable direction, although the association is not statistically significant. This indicates that the extent of company debt does not significantly affect disclosure practices in the South African setting. The results diverges with Agency Theory assumptions, which argue that more leverage should result in greater transparency to reassure creditors (Agarwall et al., 2025). One probable reason is that South African companies don't have a lot of pressure from creditors to report on the environment since banks may care more about financial success than sustainability metrics.

Profitability (FPROF): Strong Positive Correlation (Sig. = 0.000). In the model, profitability is the most important and statistically significant factor that affects environmental disclosure. The positive coefficient (0.004) indicates that companies that make more money from their assets provide more information about the environment. This finding corroborates Voluntary Disclosure Theory, indicating that financially prosperous companies utilise environmental openness to improve their corporate reputation, draw in investors, and bolster legitimacy. These companies may also pay for sustainability reporting systems, which is in line with what Soriya and Rastogi (2023) found.

Conclusion and Recommendations.

The regression results show that the main factors that affect how much environmental information JSE-listed companies share are profitability and age. The model's overall significance (p = 0.000) demonstrates that firm-specific variables together affect environmental reporting behaviour. Profitability exhibits a robust positive and statistically significant correlation with environmental disclosure, indicating that financially stable companies are more inclined and capable of revealing sustainability information. Firm Age shows a strong negative association, which means that younger organisations are more flexible, open, and sensitive to ESG trends than older, more established ones. Statistical analysis shows that business size and financial leverage are minor factors, which means that environmental disclosure in South Africa is rarely affected by the size of the company or its debt commitments. These data demonstrate the dynamic evolution of company environmental reporting in South Africa, where financial success and generational flexibility exert greater influence than structural size or funding patterns. The results also support both Voluntary Disclosure Theory (profitability-driven transparency) and parts of Institutional and Legitimacy Theories, which show that younger, more progressive companies are adapting to new reporting standards.

Recommendations

Regulatory Strengthening: Policymakers and the Johannesburg Stock Exchange should make statutory ESG disclosure standards stronger. This would make it less likely that companies would just report what they want to publish.

Helping Older Companies Grow: Older companies should be encouraged to update their reporting systems, use digital technologies for sustainability, and follow the GRI and IFRS Sustainability Disclosure Standards to make their reporting as clear as that of younger companies.

Incentivising Profit-Linked Sustainability Reporting: Profitability is a major motivator for transparency, therefore companies that include sustainability measurements in their financial success should be rewarded with tax breaks or recognition programs.

Stakeholder Engagement: Regulators, investors, and civil society should work to raise awareness of environmental responsibility and push for standard, comparable ESG disclosures across all industries.

Future Research: Subsequent investigations ought to incorporate governance factors, like board diversity, ownership concentration, and industry impacts, which may influence the association between business attributes and environmental disclosure practices

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