

Firm Size and Environmental Disclosure Among Firms Listed on the Nairobi Securities Exchange

Kenneth Cornelis Ouma; Dr. Fred Gichana Atandi

School of Business and Economics, Kibabii University, Kenya

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ABSTRACT

This study examined the relationship between firm size and environmental disclosure among firms listed on the Nairobi Securities Exchange (NSE). Environmental disclosure has become an important aspect of corporate accountability due to increasing global concerns regarding environmental sustainability. However, environmental reporting among Kenyan firms remains largely voluntary because of limited regulatory frameworks and absence of mandatory disclosure standards. The study adopted an explanatory research design and utilized secondary data collected from annual reports of firms listed on the NSE for the period 2018–2022. Content analysis was employed to extract environmental disclosure information, while descriptive and inferential statistics were used to analyze the data. Environmental disclosure was measured using an environmental disclosure index developed from a disclosure checklist. Firm size was measured using the logarithm of total annual sales turnover. Regression analysis findings revealed that firm size had a positive and significant relationship with environmental disclosure ($\beta = 0.147$, $p = 0.010$). Pearson correlation results also confirmed a significant association between firm size and environmental disclosure ($r = 0.217$, $p = 0.001$). The study concludes that larger firms are more likely to disclose environmental information than smaller firms due to increased public visibility and stakeholder pressure. The study recommends the establishment of mandatory environmental disclosure guidelines to improve transparency and sustainability reporting among listed firms in Kenya.

Keywords: Firm Size., Environmental Disclosure., Sustainability Reporting, Stakeholder Theory, Nairobi Securities Exchange, Kenya.

INTRODUCTION

Environmental disclosure has emerged as a significant issue in corporate reporting due to growing public concern over environmental degradation and sustainability. Organizations are increasingly expected to demonstrate environmental responsibility by reporting their environmental activities, policies, and impacts in annual reports. Environmental disclosure enhances transparency, accountability, and stakeholder confidence.

Globally, firms have embraced environmental disclosure as part of corporate social responsibility and sustainability reporting practices. However, in developing countries such as Kenya, environmental disclosure remains voluntary and inconsistent because of the absence of comprehensive accounting standards, environmental reporting policies, and legal frameworks compelling firms to disclose environmental information.

Firm characteristics have been identified as key determinants of environmental disclosure practices. Among these characteristics, firm size has received considerable attention in empirical literature. Larger firms are generally expected to disclose more environmental information because they attract greater public attention, face increased stakeholder pressure, and possess sufficient resources to support disclosure initiatives.

Statement of the Problem

With the development of technology and society, environmental issues have continued to be of the most pressing social issues facing corporations' worldwide. The environmental issues are increasingly becoming important for

business hence the growing pressure on companies to respond to environmental issues is becoming very difficult to ignore. Kenyan companies disclose various environmental issues in their annual financial reports, company websites and company in-house journals. Despite this efforts Kenyan companies do this voluntarily as there are no laws or regulations that compel them to disclose environmental issues, this includes drought, deforestation, water pollution, soil erosion, desertification among others. Therefore, Kenyans require protection against environmental degradation.

There have been a number of empirical studies done on the extent of environmental disclosure in the annual reports and on the relationship of environmental disclosure with variables like corporate size, nature of industry, Financial Leverage and profitability among others (Muhasebe 2014, Dion van de Burgwal et al, 2014). Researchers have found that while majority of the companies disclosed at least some environmental information the level of disclosure is generally low (Roberts C, 2002). Both public and private investors have a role to play in encouraging business to adopt better environmental practices and standards.

The major problem is attributed to lack of accounting standards, guidelines, laws or government policies that would require firms operating in Kenya to disclose environmental issues. This therefore necessitates an investigation to determine the effect of firm size on environmental disclosure among firms listed on the Nairobi Securities Exchange.

Research Objective

To determine the effect of firm size on environmental disclosure among firms listed on the Nairobi Securities Exchange.

Research Hypothesis

Ho₁. Firm size has no statistically significant effect on environmental disclosure among firms listed on the Nairobi Securities Exchange.

THEORETICAL LITERATURE

The study was guided by stakeholder and legitimacy theories.

Stakeholder Theory

Stakeholder theory argues that organizations are accountable to a wide range of stakeholders, including investors, customers, employees, government agencies, and local communities. Firms therefore disclose environmental information to satisfy stakeholder expectations and maintain positive relationships with society.

Legitimacy Theory

Legitimacy theory suggests that firms disclose environmental information to legitimize their operations and align organizational activities with societal values and expectations. Large firms are more visible to the public and are therefore more likely to disclose environmental information to maintain legitimacy.

Empirical Review

Previous studies have established mixed findings regarding the relationship between firm size and environmental disclosure. Some studies found that larger firms disclose more environmental information due to higher political costs and public scrutiny, while others reported insignificant relationships. Large firms are often associated with increased environmental impacts and therefore face greater pressure to disclose environmental activities. Such firms also possess sufficient financial and managerial resources necessary for environmental reporting.

The increasing adoption of Environmental, Social, and Governance (ESG) reporting globally has also influenced the quality and extent of environmental disclosures. ESG reporting has become a strategic tool used by firms to

demonstrate commitment to sustainability and attract socially responsible investors (Friede et al., 2015). In Kenya and other African countries, studies reveal that environmental disclosure among listed firms is still developing. Studies from other developing countries also report low but improving levels of environmental disclosure. In Nigeria, Uwuigbe et al. (2018) found that environmental reporting among manufacturing firms was largely qualitative and narrative in nature. In Bangladesh, Dey et al. (2020) observed that environmental disclosure practices were influenced by company size, profitability, and industry sensitivity. Likewise, research in India by Kumar and Firoz (2019) established that environmentally sensitive industries such as energy, mining, and manufacturing disclosed more environmental information than firms operating in less sensitive industries.

In China, environmental disclosure has significantly improved due to government regulations and investor pressure. Li et al. (2021) found that state-owned enterprises and firms operating in environmentally sensitive industries were more likely to disclose environmental information. Similarly, Zhang et al. (2022) reported that firms with strong corporate governance structures and better financial performance disclosed higher-quality environmental information.

Research in developed economies has also demonstrated increased environmental reporting practices. In Europe, García-Sánchez et al. (2020) found that mandatory sustainability reporting regulations improved the quantity and quality of environmental disclosures among listed firms. In Australia, environmental disclosures have become more comprehensive due to stakeholder expectations and sustainability reporting standards (Adams & Frost, 2008).

Several studies have identified determinants of environmental disclosure. Firm size, profitability, industry type, ownership structure, and financial leverage are among the most common factors influencing environmental reporting practices (Clarkson et al., 2011; Reverte, 2009). Companies operating in environmentally sensitive industries tend to disclose more information to maintain legitimacy and manage stakeholder perceptions (Cho & Patten, 2007).

Recent literature also indicates that digital reporting platforms and integrated reporting frameworks have transformed environmental disclosure practices. Firms increasingly use websites and sustainability portals to communicate environmental initiatives and ESG performance to stakeholders (KPMG, 2022).

FIRM SIZE AS DETERMINANTS OF ENVIRONMENTAL DISCLOSURE

Firm size refers to total assets disclosed in the organization annual reports. Legitimacy theory suggests that larger companies have to respond with more disclosures to have a greater impact on social expectations because they have more stakeholders than small companies (Cowen, Ferreri, & Parker, 1987). Many previous studies (Cormier & Gordon, 2001; Ho & Taylor, 2007; Raar, 2002; Stanwick & Stanwick, 2006) found a positive association between amounts of environmental disclosure in corporate annual reports and the size of companies although (Patten, 2002) did not find such a relationship.

Large companies are usually exposed to greater attention from stakeholders in relation to their environmental performance than smaller firms and, therefore, they face greater pressures to disclose more information than smaller firms. Further, as suggested by Wong and Fryxell (2004), as a result of the increased awareness and concern about environmental issues, large companies are interested in projecting an image of themselves as firms engaged in the protection of the environment and, in this sense, they consider the disclosure of environmental information as a way to enhance the company's public image and reputation. On the other hand, the preparation and disclosure of environmental information is costly and, in comparison to medium and small firms, larger companies can afford to spend the financial and technical resources that are necessary to prepare and disclose environmental information and, consequently, it is more likely that they provide such information.

A study by (Monteiro et al, 2009) focused on the environmental disclosures made in the annual reports by a sample of 109 large firms operating in Portugal during the period 2002–2004 they found that firm size and the listing of company on the stock market are positively and statistically related to the extent of environmental disclosure.

Haddock (2005) identified a significant relationship between provision of environmental reports and turnover in the UK food manufacturing and retail sector. Roberts (1992), Patten (2002) and Cormier and Magnan (2003) considered motivations for environmental reporting and suggested that larger firms are more likely to report as a result of greater vulnerability to media visibility, and as a means to manage external stakeholder perceptions. This was reinforced by Gonzalez-Benito and Gonzalez-Benito (2006), who considered that large companies were more likely to be environmentally proactive as a result of greater resource availability. This occurred for a number of reasons including greater pressure from the social and political environment, economies of scale enabling lower marginal costs of environmental management than for their smaller counterparts, and the fact that their environmental efforts have an impact on a larger number of customers.

Despite extensive international evidence, limited empirical studies have examined the effect of firm size on environmental disclosure among firms listed on the Nairobi Securities Exchange. Existing findings remain inconclusive, creating a contextual and empirical gap that this study seeks to address.

CONCEPTUAL FRAMEWORK

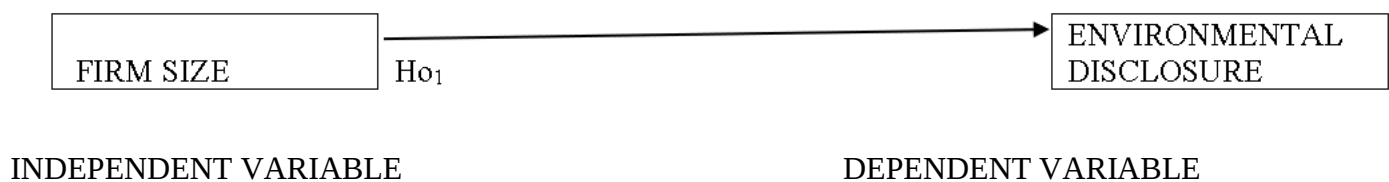


Figure1: Developed Structure of the Study

METHODOLOGY

Research Design

The study adopted an explanatory research design to establish the causal relationship between firm size and environmental disclosure.

Target Population

The study targeted annual financial reports of listed firms at Nairobi Securities Exchange (NSE). Currently NSE has fifty five (55) listed firms from the five sectors as categorized by the Nairobi Securities Exchange. These were chosen for the study as the researcher believed that the study population give an overview of the situation of environmental disclosure as it is on the ground among firms listed at the NSE. They were also targeted because it was easier to access their Audited financial reports through the Nairobi Securities Exchange and Capital Market Authority (CMA) for the purposes of data collection and analysis.

Data Collection

The study relied exclusively on secondary data obtained from audited annual reports of listed firms. Content analysis was used to extract environmental disclosure information from the reports.

Data Collection Procedure

Document analysis techniques was used to obtain secondary data from the listed firms' annual audited financial reports for the period of 2008 to 2012. The firm's annual financial reports are documents produced regularly as a regulatory requirement. The required data that shed light on the environmental disclosures was extracted from individual firm financial statement. This information was sourced from the individual firm's website, published newspapers, NSE and CMA databases. The study adopted the document analysis techniques indicated in Table 1.

Table 1: Disclosure Check List

No	Themes	2008	2009	2010	2011	2012
1	Environmental policy including environmental targets, management's environmental policy statement, company concern for the environmental issues					
2	Environmental protection including activities, expenditures, tree plantation, land rehabilitation					
3	Compliance with Environmental Management Standards and laws and regulations including certification and environmental effect assessment report					
4	Energy including expenditure, savings and new sources					
5	Ground water protection					
6	Renewable resources used					
7	Water pollution					
8	Global warming					
9	Climate change					
10	Certification of environmental programs by independent agencies and audits					
11	Product certification with respect to environmental impact.					
12	Waste management including recycling, water discharge and toxic waste					

Reliability of the Research Instrument

A measure of research instrument is reliable when applied repeatedly under similar conditions and yield consistent results (Mugenda and Mugenda, 1999). Before the actual data analysis the study established the reliability of the research instrument. This was done by using internal consistency techniques. A sample of firms that qualified for the study from the study population was taken for the test hence correlated among the study items for similar period of research.

Validity of the Research Instruments

Validity of an instrument is the success of a scale in measuring what it sets out to measure so that differences in individual scores can be taken as representing true differences on the characteristics under study (Koul, 1992). Therefore, validity is concerned with whether the study really gathers (obtain) the required information using the instrument (Kerlinger, 1983). Construct validity was attained since the study was for a period of five years for all the sampled firms listed at NSE. On the other hand, content validity was achieved by the identification of the indicators of firm size and environmental disclosure. This will ensure that all the relevant information is

captured to enhance validity. Previous studies in regard to environmental disclosures have also analyzed annual reports by using content analysis (Ahmed and Sulaiman, 2004; Cunningham and Gadenne, 2003).

Measurement of Variables

Dependent Variable

Environmental disclosure was measured using an environmental disclosure index developed from a checklist of environmental disclosure items.

Independent Variable

Firm size was measured using the logarithm of total annual sales turnover.

Data Analysis

Data analysis was conducted using descriptive statistics and regression analysis through SPSS software. Pearson correlation analysis was also used to determine the strength and direction of the relationship between firm size and environmental disclosure.

The regression model was specified as:

Therefore, the relationship between firm characteristics and environmental disclosure followed regression model of the nature;

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \epsilon_{it} \dots\dots\dots (i)$$

Where; Y_{it} = Disclosure index level.

X_{1it} = Size of the firm indicated by log of total revenue (annual sales turnover).

β = coefficient Slopes of the independent variables.

β_0 = A constant or the value of Y when all X values are Zero.

ϵ_{it} = The error term, normally distributed about a mean of 0.

Disclosure index level = $\sum e_j / e$

$j=1$

Disclosure index level= Environmental disclosure index of company i.

e_j = Environmental item j. Dummy variable, whose value is 1 if the company discloses information about this item and 0 if the Firm does not disclose information about it.

e =Maximum number of items (12).

RESULTS AND DISCUSSION

Descriptive Statistics

Environmental Disclosure Index

A descriptive analysis was performed to observe the mean scores of corporate environmental disclosure for the

period 2008 to 2012. The environmental disclosure index gives the lowest and highest scores as 0.00 and 1.00 respectively resulting to a range of 1.00. On an average a company disclosed 0.40 of the items included in the index. The standard deviation indicates a variation of 0.29195. It's observed that companies surveyed disclosed approximately 40% of the items in the disclosures checklist. The results therefore, shows that there is a low variation in the level of Environmental disclosure between companies listed on the NSE. Firms tended to report on their compliance with environmental laws and regulations. The few disclosure that were made included but not limited to renewable sources of energy, water pollution, climate change, global warming, certification of environmental programs, energy including expenditure, saving and new sources and waste management among others.

Firm Size.

The firm size gave the minimum and maximum scores of 16.66 and 25.51 giving a range of 8.85 and a standard deviation of 1.63. The mean of 22.2 indicate the average size of firms listed at NSE during the study period in respect to their sales volume indicating that there are great variations among the companies sizes listed on the NSE. This suggests that Kenyan firm size in terms of sales turnover is very low and therefore firms should increase their sales revenue. Further this indicates that firms require necessary capital for expansion and growth this will aid the listed firms to disclose more environmental information since they have adequate capital to finance its operations as well as to participate in various environmental initiatives.

Table 2: Descriptive Statistics

	Range	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Firm Size	8.85	16.66	25.51	22.2001	1.65315	-.697	1.391
DISCINDEX	1.00	.00	1.00	.4098	.29195	.197	-.794

Source: Survey Data

Inferential Analysis

The study used one-way ANOVA (F-test), Pearson correlation and multiple regressions in testing the hypotheses formulated and determining the strength of relationship among variables. Multiple regressions were specifically used to model the relationship between firm size and environmental disclosure. The result of the analysis is presented on Table 3.

Table 3 Pearson Correlations

	DISCINDEX	Firm Size
DISCINDEX	1	.217**
		.001
Firm Size	.217**	1
	.001	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The findings revealed that firm size had a positive and statistically significant relationship with environmental disclosure among firms listed on the Nairobi Securities Exchange.

CORRELATIONS FOR FIRM SIZE AND OTHER VARIABLE UNDER STUDY

The study examined across association between size of the firm and environmental disclosure. From the Table 3 the Pearson Correlation value show that Firm size and environmental disclosure are positively related ($r=.217$, $p=.001$). The sig. (2-tailed) shows whether the relationship is significant at either 0.01 or 0.05 level of significance. From the output the relationship is significant.

Table 4 shows the results of symmetric measures which indicates that both the values of Cramer's V and Contingency Coefficient are high (.996 and .960) indicating a high association between firm size and environmental disclosure since the statistics are close to 1. The significance value was ($p = .386$) which is more than the recommended ($p < .05$) hence the strength of the relationship is significant. These results confirm outcome of the Pearson correlation test and give an idea of the size of the firm effects.

Table 4 Symmetric Measures for Size of the Firm

		Value	Asymptotic Standardized Error ^a	Approximate T ^b	Approximate Significance
Nominal by Nominal	Phi	3.449			.386
	Cramer's V	.996			.386
	Contingency Coefficient	.960			.386
Ordinal by Ordinal	Kendall's tau-b	.090	.045	2.019	.044
	Kendall's tau-c	.092	.046	2.019	.044
	Gamma	.095	.047	2.019	.044
	Spearman Correlation	.129	.063	2.052	.041 ^c

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation

REGRESSION RESULTS

In order to establish the relationship between firm size, firm financial performance, industry type, and leverage and environmental disclosure regression analysis was performed, whose result summary is presented in Table 5. It can be seen from Table 5 (regression model table) that the R-squared is .312, which implies that the model is capable of explaining 31.2% of the variation on environmental disclosure in annual reports of Kenyan firms listed on the NSE. The adjusted R² is .295 which indicates that 29.5% of the variations in the dependent variable in the model used is explained by variations in the independent variables. The F value of 18.352 is significant (.000) at 6 degrees of freedom hence all variables as a group in the regression model explain the variations in the environmental disclosure level in companies annual reports of firms listed on the NSE

Table 5: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.558 ^a	.312	.295	.24516
a. Predictors: (Constant), Firm Size.				

Table 6 Anova

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	6.618	6	1.103	18.352	.000 ^b
Residual	14.606	243	.060		
Total	21.224	249			
a. Dependent Variable: DISCINDEX					

b. Predictors: (Constant), Firm Size.

Table 7 Regression Equation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.410	.016		26.427	.000
	Zscore: Firm Size	.043	.017	.147	2.608	.010

a. Dependent Variable: DISCINDEX

Regression analysis results indicated that: $\beta=0.147$, $p=0.010$ $\beta=0.147$, $p = 0.010$ $\beta=0.147$, $p=0.010$

The findings imply that an increase in firm size leads to an increase in the level of environmental disclosure. Firm size had a positive and significant effect on environmental disclosure ($\beta = 0.147$, $p = 0.010$). Pearson correlation analysis showed a positive association between firm size and environmental disclosure ($r = 0.217$, $p = 0.001$).

The findings indicate that Firm size has a statistically significant but relatively weak positive influence on environmental disclosure. This may be attributed to the fact that larger firms attract greater public attention and stakeholder scrutiny. Consequently, such firms disclose environmental information to enhance corporate image, legitimacy, and stakeholder confidence.

The findings support legitimacy theory, which posits that organizations disclose environmental information to justify their operations within society. Large firms are highly visible and therefore experience pressure to demonstrate environmental responsibility through disclosure practices.

CONCLUSION

The study concludes that Firm size has a statistically significant but relatively weak positive influence on environmental disclosure. Larger firms were found to disclose more environmental information than smaller firms.

The findings suggest that organizational visibility and stakeholder pressure increase with firm size, thereby encouraging firms to adopt more transparent environmental reporting practices.

However, the overall level of environmental disclosure among Kenyan firms remains relatively low due to the voluntary nature of disclosure and lack of mandatory reporting standards.

LIMITATIONS OF STUDY

The study was limited by its reliance on secondary data, its focus on NSE-listed firms only, and its coverage of a five-year study period, which may restrict the generalizability and long-term applicability of the findings

Future Research

Future studies should examine additional determinants of environmental disclosure such as profitability, ownership structure, board characteristics, and leverage

RECOMMENDATIONS

The study recommends that:

1. Regulatory authorities should develop mandatory environmental disclosure standards for listed firms in Kenya.
2. Firms should enhance environmental reporting practices to improve transparency and accountability.
3. The Nairobi Securities Exchange should establish sustainability reporting guidelines for listed firms.
4. Smaller firms should be encouraged to adopt environmental disclosure practices to improve corporate responsibility and stakeholder trust.

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