Effect of Firm-Specific Attributes on Environmental Accounting Disclosure. Evidence from Firms Listed in the Nairobi Securities Exchange, Kenya

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Abstract

The main objective of this study was to examine the effect of firm-specific attributes on environmental accounting disclosure in Kenya. The study was driven by legitimacy theory and a longitudinal research design was adopted. The study targeted 27 listed firms at Nairobi securities Exchange from 2008 to 2017. Findings showed that asset tangibility (β = .10, ρ<.05) and capital intensity (β = .42, ρ<.05) had a positive and significant effect on environmental accounting disclosure. The study concludes that asset tangibility, capital intensity, and ownership concentration are key predictors of environmental accounting disclosure. Therefore, firms need to diffuse ownership concentration and increase asset base, so as to increase the level of environmental accounting disclosure.

Keywords: Ownership Concentration, Asset Tangibility Capital Intensity, Environmental Accounting Disclosure

INTRODUCTION

The disclosure of environmental accounting concerning environmental conservation activities of companies and other organizations, including public interest organizations and local public entities, provides a means for stakeholders to understand, evaluate, and offer their support to such efforts (ACCA, 2015). Over the past decade, corporations have witnessed a high demand to be socially responsible and environmentally sensitive to society. Perhaps, the constant and rising demands by stakeholders have provoked corporations to invest heavily on environmental issues. Notably, in the past, environmental and social issues were paid lesser attention; however, this can no longer be sustained, since the focus has attracted both national and global attention. The key approach to evaluating a corporation's environmental footprint is to examine if they engage in environmental disclosure.

Surprisingly, despite the critical effort of corporate disclosures in mitigating information asymmetry, the literature on the level of corporate disclosure documented significant disparities in disclosure levels among firms as well as countries. (Demir and Bahadir, 2014; Aljifri *et al.*, 2014). The notable variations in the level of disclosure across firms globally, encourage researchers to examine factors behind this disparity. Kisengo & Kombo, (2012) argued that firm-specific attributes are important aspects that influence environmental accounting disclosure. Thus, it is important for a firm to understand the determinants of environmental accounting disclosure such as the firm's specific attributes. Firm characteristics are theorized differently by various studies depending on the criteria used to define it. However, most studies seem to agree on the position that firm characteristics are related to firm resources and organizational objectives (Kisengo & Kombo, 2012).

According to Arouri *et al.*, (2014), firm resources and objectives can be analyzed using three criteria namely structure, market, and capital-related firm characteristics. Grigoris *et al*., (2014) stated that certain company characteristics such as company size, liquidity, leverage, corporate ownership, and age are associated with environmental accounting disclosure. However, based on the view of legitimacy theory and research conducted by Huafang &

Jianguo, 2007; Jiang *et al.,* 2011 revealed a positive link between ownership concentration and the extent of environmental disclosure. Nonetheless, Barako *et al.,* (2006) found a negative relationship with concentration as measured by the proportion owned by the shareholders.

The relationship between corporate organizations and the environment in modern times has witnessed drastic changes. Previously, environmental and social issues have not been taken seriously into consideration in management goals because they have been considered to have a negligible economic impact (Pereira *et al*., 2013). In an effort to obtain credibility, however, most organizations acknowledged the importance of the environment and the need to protect it. According to Díez-Martín *et al.,* (2013), many organizations have failed not because of defective products, but because of a full loss or deterioration of their legitimacy.

Environmental pollution has been a common problem in Kenya in the last few decades due to the growth of industries. However, the growth of industries can trigger problems, particularly to the environment (Pratten & Mashat, 2009). This, in turn, leads to increasing demands for enhancing corporate accountability and social responsibility in business practices (Byron, 2015; Rahman, 2013). The need for corporations to be socially accountable should therefore not be ignored, but rather viewed objectively in the context of countless merits such as being a sustainable enterprise, improving ties with the governments and other regulatory bodies, and better reputation (World Business Council for Sustainable Development, 2012).

However, despite social accounting and reporting is a new phenomenon and the lack of any mandatory regulation towards this disclosure in Kenya, companies are voluntarily engaged in reporting social responsibility activities in their annual financial reports and it appears that companies have progressed substantially further than literature. Whereas many studies have been done on corporate social responsibility in general on social and environmental accounting and reporting, few have been done to ascertain the effect of firm-specific attributes on environmental accounting disclosure among selected listed firms in the Nairobi securities exchange.

Theoretical review

The theory of legitimacy has been widely used in social and environmental disclosure literature to provide helpful insights into social issues. According to Chang (2007), the concept of legitimacy assumes that an organization has a connection with the community in which it operates. The argument underlying legitimacy theory is that organizations can only survive if they are operating within the framework of society's norms and values. However, corporations should reveal social and environmental information voluntarily in order to and win society's impression of being socially accountable (O'Donovan, 1999).

Accordingly, corporate environmental disclosure aims to legitimize company behavior by providing information intended to influence society's perceptions of the company. However, based on legitimacy theory, social and environmental disclosures are means used by the company to influence the public policy process, either directly by addressing government or legislative issues, or indirectly by projecting the company's image (Patten, 1992). According to Guthrie & Parker (1989), legitimacy theory maintains that the corporate disclosures are made as a result of reactions to environmental pressures (economic, social, and political) and to legitimate the company's existence and actions. In addition, the concept of legitimacy indicates that corporate environmental reporting is a function of the level of political and social pressure faced by businesses regarding their environmental issues (Cho and Patten, 2007). In response to these pressures, firms react by disclosing more environmental

information in order to preserve their image of being a legitimate company and to evade adverse effects of legitimacy crises (De Villiers and Van Staden, 2006).

This theory supports the notion that the company alters its reporting policies to show that their operations are consistent with the social priorities and expectations of the society (Deegan & Gordon 1996 as cited in Deegan & Unerman, 2006). In addition, corporations willingly report environmental issues to show they are consistent with the expectations and values of the community they work within (Uwuigbe, 2011).

Literature Review (Hypothesis Development)

Ownership Concentration and Environmental Accounting Disclosure

Ownership concentration is defined as the ownership structure and the proportion of the company's shares that are owned by a given number of the major shareholders (Sanda, *et al.,* 2005). Lins (2003), documented a positive and significant relationship between institutional investors and disclosure. Literature indicates that a high share concentration tends to put more pressure on executives to act in ways that enable them to report on their value-maximizing investments (Lins, 2003). Consequently, it is stated that widely diffused shares of companies, results in disclosure of more information due to the tendency towards the conflict of interest (Gorton & Schmid 1996; and Shleifer & Vishny1994).

Agency theory indicates that disputes arising from the separation of ownership and control (Jensen & Meckling, 1976) are higher when stocks are held extensively or dispersed than when they are kept in close proximity (Fama & Jensen, 1983). However, executives may be prepared to willingly reveal more information in order to mitigate the seriousness of disputes connected with ownership dispersion, as small owners depend on such disclosures for information about the company's operations (Brammer & Pavelin, 2008). Craswell and Taylor, (1992), argued that voluntary disclosure can be viewed as a means by which managers demonstrate that they act in the best interests of the owners.

Furthermore, Reverte (2009) argued that companies with diffused ownership are more likely to report on social and environmental disclosure, while companies with concentrated ownership are less motivated to report on their social and environmental issues. According to a stakeholder perspective, suggests that when a company is widely held, the issue of accountability becomes important as there is a greater likelihood that the shares of these companies are being held by a wide variety of stakeholders (Mohd Ghazali, 2007). Greater accountability brings the need for additional information to voluntarily disclose social and environmental issues to inform stakeholders about the extent to which managers' responsibility has been fulfilled (Mohd Ghazali, 2007; Gray *et al.*, 1991). Hence, in case of ownership dispersion, higher accountability of top management turns into an increasing level of stakeholders' environmental information satisfaction.

In concentrated ownership, only limited shareholders will benefit from public disclosure because major investors in a concentrated ownership structure would acquire the information directly from companies as most of them are executives or members of the companies' board of directors (Leuz 1999). In this context, the information cost saving is minimal (Aerts *et al*., 2006; Cormier & Magnan 1999; Leuz, 1999) but the proprietary cost is high (Scott, 1994). In Malaysia, corporate shareholding is highly concentrated with family as the prevailing shareholders (Liew, 2007; Thillainathan, 1999). Highly influential owners or executives with high concentrated ownership would participate in moral hazard conduct in order to benefit themselves at the expense of minority shareholders (Schulze *et al.,* 2001; Hendry, 2002). Notably, the incentives for family-owned companies to disclose

environmental accounting voluntarily are different from other forms of corporations. Typically, family-owned companies would analyze the benefits of voluntary reporting against the costs of non-reporting such as litigation and reputation costs (Shuping, *et al*., 2008).

In annual studies documented by (Cormier *et al*., 2005; Brammer & Pavelin 2006; Brammer & Pavelin, 2008), the concentration of ownership was discovered to be statistically significant and negatively linked with environmental disclosure. Furthermore, Reverte (2009) and Prado-Lorenzo *et al.*, (2009) found that ownership concentration had a negative relationship to corporate social responsibility disclosure, although the latter revealed only limited association. However, in the context of voluntary disclosure, evidence of such a relationship is mixed. Haniffa & Cooke (2002) found a positive association between ownership concentration and voluntary disclosure while Barako *et al.*, (2006) found a negative relationship with concentration as measured by the percentage owned by the top 20 shareholders.

Niléhn and Thoresson (2014) researched the factors that affect the magnitude of voluntary corporate disclosure in Swedish companies. The results indicated that asymmetric information is a key determinant of voluntary corporate disclosure. In addition, the effect of ownership structure on corporate voluntary disclosure in Tunisia was explored by Ali (2014). The results showed that voluntary disclosure was negatively linked to ownership of the blockholder and family ownership.

Huafang and Jianguo (2007) examined the effect of ownership structure and board composition of listed firms in China on voluntary environmental disclosure. The finding of the regression analysis revealed that high ownership concentration is associated with enhanced disclosure. However, ownership of managers, state and legal persons is not associated with disclosure. Nonetheless, empirical evidence on the association between ownership concentration and environmental accounting disclosure is quite scanty especially in Kenya, yet, consistent. Thus, the study hypothesized that;

H_1: Ownership concentration has no significant effect on environmental accounting disclosure of selected listed firms in Nairobi Securities Exchange.

Asset Tangibility and Environmental Accounting Disclosure

Tangible assets are physical assets such as land, buildings, machinery, and construction in progress that can be offered as collateral to creditors in case of bankruptcy. Baker & Martin, (2011), argued that a high ratio of fixed to total assets provides creditors with a high level of security in case of bankruptcy. However, Tasker (1998) argued that companies with more intangible assets are more likely to host quarterly conference calls indicating that accounting disclosures are inadequate for these firms. Here is a viewpoint that the exploitation of tangible assets by managers is more difficult in comparison with the estimated value related to unknown growth opportunities. Corporations with a greater proportion of tangible assets in the assets structure usually have reduced agency costs, hence the need for executives to disclose economic data in these businesses as one of the alternatives to reduce agency costs. Also, there is a viewpoint that the transfer of wealth from creditors to shareholders is more difficult, in itself lays the groundwork for reducing agency problems and thus reducing the need for financial information disclosure (Hossain & Hammami, 2009).

Hossain *et al*., (1995) found no significant association between tangible assets and the level of voluntary disclosure in New Zealand, whereas the findings of Hanifffa & Coode, (2002) showed a positive link in Malaysia. Hossain & Reaz, (2007) studied the relationship

between firm-specific attributes and voluntary disclosure done on the 38 listed banking companies in India. The empirical study revealed that corporate assets are associated with environmental disclosure. Nonetheless, this study is criticized for the use of a single year and one specific industry sector. In addition, it examined the total level of disclosure as opposed to the level of disclosure within each disclosure category.

Marshall *et al.,* (2011) examined the association between specific aspects of the firm and the quality of voluntary environmental information disclosed by firms. The research used a sample of 183 companies from five sectors (chemicals, petroleum, and gas, utilities, pharmaceutical and biotech, food and beverage) from the Dow Jones Global index over three years (2000, 2001 and 2002). Four related measures of environmental disclosure quality were used: compliance, pollution prevention, product stewardship, and ecological sustainability. An index of disclosure quality based on four progressive levels of environmental strategy and management was developed. Disclosure items were grouped into eight different forms of disclosure relating to the four levels of environmental strategy. Environmental disclosure data were collected from both the firm's stand-alone corporate reports and annual reports. The study controlled for firm size. Results indicated no evidence of a relationship between asset tangibility and any of the measures of voluntary environmental disclosure quality. However, existing empirical research reports conflicting evidence from different countries. Thus, the study stipulates that;

H_2: Asset tangibility has no significant effect on environmental accounting disclosure of selected listed firms in Nairobi Securities Exchange.

Capital Intensity and Environmental Accounting Disclosure

The capital intensive industry refers to an industry that requires a substantial amount of capital for the production of good assets (Link & Boger, 1999). Capital intensive industry requires huge investments in capital assets due to the specific industrial structure and type. Companies with greater capital costs invest in new machinery. These upgrades and investments should improve environmental efficiency, compelling increased voluntary disclosures (Clarkson *et al.,* 2008). Zeng *et al.,* (2012) show that marketization and capital intensity has significant effects on environmental accounting disclosure.

According to Klapper & Love (2004), capital intensity revealed a significant negative correlation with governance. In a scenario where capital intensity is high, corporations are motivated to disclose more information because the entry barrier is high (Darrough & Stoughton 1990; Leuz 1999). However, when the capital intensity of companies is low, the proprietary costs for the reporting are high as the resources to prevent competitors from implementing similar activities decreases. Therefore, companies with low capital intensity are less motivated to report social and environmental accounting. Tharenou, *et al*., (2007) argued that the level of capital investment influence firms to disclose social and environmental issues. Belkaoui & Karpik (1999) used a sample of 23 American corporations that were included in both the Ernst and Ernst social disclosure survey and the survey conducted by Business and Society Review, to rank the firms' social performance. Annual reports for the financial year 1973 were reviewed. Three political-costs related variables, which were firm size, capital intensity, and systematic market risk, were developed in the study. The findings showed that firms that disclosed environmental information appeared to be those having higher systematic risk and were larger in size. However, the capital intensity was found to be insignificant to voluntary environmental disclosures.

Lemon and Cahan (1997) also established a political cost explanation for environmental disclosures. The annual reports for 1990, 1992 and 1994 of sample firms from the New

Zealand Stock Exchange were reviewed to determine the level of environmental disclosures. Thirty-seven sample firms from different industries were identified based on their environmental sensitivity. Six political visibility proxies were tested. They were firm size, capital intensity, tax rate, market share, return on assets, and a number of shareholders. Lemon & Cahan (1997) found that firms that were large or had high tax rates, high market shares, or high rates of return, were more likely to provide environmental disclosures. The proxies of capital intensity and a number of shareholders, however, were found to be non-significant to environmental disclosures.

H_3: Capital intensive has no significant effect on environmental accounting disclosure of selected listed firms in Nairobi Securities Exchange.

METHODOLOGY

The study employed positivism using a combination of explanatory and longitudinal research design. The accessible population comprised 27 listed firms from Manufacturing, Agriculture sector, Constructions & Allied, Energy & Petroleum and Automobiles and Accessories listed in Nairobi stock exchange, (NSE, 2017). The period of the empirical analysis was ten years from 2008 to 2017. The plausible explanation was that these firms are likely to pollute the environment. Therefore, the study's inclusion criteria were the 27 listed firms from 2008 to 2017. The study used secondary data collected from the audited annual financial reports which were sourced from capital market authority or downloaded from http://www.cmarcp.or.ke/index.php/financial-reports-accounts, company website, and http://africanfinancials.com. The data collection instrument used in this study is a content/document analysis guide. The study was conducted using secondary sources which were achieved by analyzing the content of financial reports of 27 selected firms quoted in NSE. This is suitable for this study because all the audited information about the companies is readily available for the public as required by the company act of Kenya.

Measurement of variables

Corporate environmental disclosure scores (EDS) was measured using a content analysis of companies' annual report for the period of 10 years from 2008 to 2017. An environmental disclosure index (EDI) was adapted from the Global Reporting Initiative (GRI 2008) composed of 22 items. However, the environmental disclosure score was determined by assigning a dummy value of 1 if the firm discloses information on the particular item or otherwise 0. Each company's EDS was calculated as the proportion of total disclosure scores (total number of items included in the index). Ownership concentration was measured by the proportion of shares held by the five biggest shareholders, total revenue divided by total assets was used to measure asset tangibility, board size was measured using a number of directors seating on the board, while the study used the natural logarithm of total assets for the firm size variable.

Table 1: Measurement of Variables

Variable Name	Measurement of Variables	Author(s)
Dependent Variable		
Environmental Accounting Disclosure	This research, based on the Global Reporting Initiative (GRI 2008), evaluated environmental accounting disclosures by framing a list of items called the Environmental Disclosure Index (EDI).	Ezhilarasi & Kabra (2017)
Independent Variables		
Ownership Concentration	Measured by the percentage of stocks owned by the five biggest shareholders (TOP5).	Harada and Nguyen (2011) & Khan (2006)
Asset Tangibility	Measured using the return on asset ratio. Total revenue divided by total assets.	Kato and Long (2006)
Capital Intensity	The ratio of capital expenditure to total sales volume.	Clarkson *et al*., (2011)

Source: Authors, 2019

Model specification

A panel data framework was used to test the hypotheses. Panel data was analyzed using a fixed-effect model and a random-effects model. The fixed-effects model is used when controlling for omitted variables that differ between individuals but are constant over time. However, if omitted variables are constant over time, then the model of random effects will assist to take account of both kinds. The random effect model would be appropriate if the information is representative of a sample rather than the entire population because the expression of the individual impact can be a random result rather than a set parameter. Hausman test was conducted to determine if the fixed effect or random effect is the appropriate model to explain the connection of variables. The null hypothesis is that the random effect is more appropriate. If the null hypothesis is rejected, then the fixed effect model should be used. (Greene, 2008). The null hypothesis is that there is no significant correlation between the individual effects and the regressors are rejected at 0.1percent significance level in this test. Again, If the test value of Chi-square is greater than the critical value, the null hypothesis is rejected and the random effect model is a better estimation method. The hypothesis was as follows;

H0: Random effect model is appropriate

H1: Fixed effect model is appropriate

Decision criteria; Reject the *H0* if the P-values are less than the level of significance

$$EAD_{it} = \beta_{0it} + \beta_{1it}OC_{1it} + \beta_{2it}AT_{2it} + \beta_{3it}CI_{3it} + \varepsilon$$

Where;
OC; Independent variable 1 (Ownership Concentration)
AT; Independent variable 2 (Asset Tangibility)
CI; Independent variable 3 (Capital Intensity)
Y; Dependent variable (Environmental Accounting Disclosure)
$\beta_0,\ \beta_1,\ \beta_2,\beta_3 =$ Beta coefficients

RESULTS

Descriptive Statistics

Descriptive statistics for the dependent, independent and test variables are presented in Table 2. Using a scoring system to develop an EDI, consistent with previous study findings, our results indicate that the mean value of environmental accounting disclosure ranged from a minimum of 0.06 to a maximum of 0.87. The average value for environmental accounting disclosure was 0. 526. Nonetheless, although on an aggregate basis, the level of environmental accounting disclosed during the period 2008 to 2017 is low, the extent of environmental disclosure has increased between 2008 and 2017 as well as the number of Kenyan companies that disclose environmental information. Indeed, despite the low average value of the environmental disclosure index, it has positively evolved, both overall and in each industry. Therefore, it can be asserted that the Kenyan firms' environmental reporting practices have improved over the studied period of time, although their level of environmental disclosure still lags behind those of other European countries, such as Spain. Asset tangibility was at a mean of 0.082 with a minimum of -0.700 and a maximum of 1.990 while capital intensity had a mean of 0.114 with a minimum value of 0.010 and the maximum at 0.870. Finally, ownership concentration was at a mean of 32.636 with a minimum of 0.000 and a maximum of 97.540.

Table 2: Descriptive Statistics

Stats	EAD	AT	CI	FS	OC
Obs	270	270	270	270	266
Min	0.060	-0.700	0.010	8.250	0.000
Iqr	0.450	0.140	0.060	0.730	36.100
Max	0.870	1.990	0.870	11.280	97.540
Mean	0.526	0.082	0.114	9.681	32.636
Sd	0.215	0.288	0.083	0.601	24.736
Skewness	-0.694	2.945	4.127	0.144	0.633
Kurtosis	1.747	18.527	30.424	3.379	2.504

Source (Field data, 2019)

Diagnostic tests

In this study, Leven, Lin and Cho, and Harris-Tzavalis tests together with a Fisher-type unit-root test was used to determine the existence of a unit root in panel data. As shown in Table 3, the significance level is less than 5percent for stationary testing of all variables, therefore, it can be implied that the research variables are stationary at a confidence level of 95 percent. The probability of skewness is 0.000 indicating that skewness is not normally distributed (p-value of skewness < 0.05). However, Pr (Kurtosis) indicates that kurtosis is asymptotically distributed (p-value of kurtosis > 0.05). Finally, chi (2) is 5.29 which is greater than 0.05 meaning that the null hypothesis cannot be rejected. Therefore, according to the SK test for normality, residuals show normal distribution.

For the Jarque-Bera Test, if the p-value is lower than the Chi (2) value then the null hypothesis cannot be rejected. It can, therefore, be concluded that the residuals are normally distributed. The chi (2) is 5.47 which is greater than 0.05 meaning that the null hypothesis cannot be rejected. The implication is that there is no violation of the normal distribution assumption of error terms as the residuals are coming out to be normal. Shapiro Wilk Normality test was also used to test the assumption of normality. As depicted in table 3, the p-values of the Shapiro-Wilk's tests are computed under the assumption that the residuals

showed normal distribution. Since the p-value (0.0514) is larger than 0.05, the hypothesis of normality cannot be rejected.

The study used Breusch Pagan/Cook-Weisberg, (1979) a Lagrangian Multiplier test to identify the presence of heteroscedasticity. The null hypothesis for the test is homoscedasticity and alternative hypothesis suggest heteroscedasticity. Since the p values are 0.72, we accept the null hypothesis. Thus, the model does not suffer from the problem of heteroscedasticity. However, based on the mean VIF (1.350) and the individual VIF of the predictor variables as shown in table 3, it depicts absents multicollinearity. Finally, the study tested for autocorrelation, the results in table 3 showed a p-value of 0.57 suggesting that the null hypothesis of no autocorrelation cannot be rejected at a 5percent level of significance.

Table 3: Diagnostic tests

Model assumption	**Diagnostic test**		**EAD**	**OC**	**AT**	**CI**
Unit root test	Levin-Lin-Chu unit-root test	Statistic-Adjusted t*	-42.53	13.79	-6.79	9.97
		p-value	0.00	0.00	0.00	0.00
	Harris-Tzavalis unit-root test	Rho	-0.16	-0.65	-1.32	0.14
		p-value	0.00	0.00	0.00	0.00
	Fisher-type unit-root test	Inverse chi-squared (54)	314.81	182.56	154.07	271.59
		p-value	0.00	0.00	0.00	0.00
Normality	Skewness/Kurtosis tests	chi2(2)	5.29			
		Prob>chi2	0.07			
	Jarque-Bera	normality test	5.47			
	Shapiro-Wilk W test for normal data	Prob>z	0.0514			
Heteroscedasticity	Breusch-Pagan / Cook-Weisberg test	chi2(1)	0.13			
		Prob > chi2	0.72			
Multicollinearity	VIF	Mean VIF	1.35			
Autocorrelation	Wooldridge test for autocorrelation	F (1, 18)	0.34			
		Prob > F	0.57			

Source (Field Data, 2019)

Testing of hypothesis

The study used the random effect model to test the hypotheses. However, based on the Hausman test that if the test value of Chi-square is higher than the critical value, then the model favors random effect. In addition, Kohler and Kreuter (2009) asserted that the random effect model better handles time-invariant variables that the fixed-effect model generally omits. Therefore, the random effect results were utilized in the final analysis to overcome the deficiencies associated with the fixed effect results similar to Wachira (2017). The study R-square of 0.63 reveals a quite strong strength of the association between the model and the variables. The R-square is approximately 63percent of the variation in the output that can be explained by the independent variables in the model. This relationship is statistically

significant as the F value (Wald chi2 (6) = 291.80, p<0.0) of the model is significant at the 0.01 level.

Table 4: Fixed and Radom Effect

	Random effect			**Fixed effect**		
EAD	**Coef.**	**Std. Err.**	**P>z**	**Coef.**	**Std. Err.**	**P>t**
OC	-0.16	0.04	0.00	-0.15	0.04	0.00
AT	0.10	0.04	0.00	0.10	0.04	0.01
CI	0.42	0.04	0.00	0.42	0.05	0.00
_cons	1.02	0.18	0.00	1.02	0.17	0.00
sigma_u	0.37			0.46		
sigma_e	0.46			0.46		
rho	0.39			0.51		
R-sq: within	0.66			0.66		
between	0.47			0.46		
overall	0.63			0.63		
Wald chi2(3)	291.80		F(3,135)	88.60		
Prob > chi2	0.00		Prob > F	0.00		
		Hausman test				
b = consistent under Ho and Ha; obtained from xtreg						
B = inconsistent under Ha, efficient under Ho; obtained from xtreg						
Test: Ho: difference in coefficients not systematic						
chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)						
= 5.46						
Prob>chi2 = 0.4863						

Source (Field Data, 2019)

H_1: Ownership concentration has no significant effect on environmental accounting disclosure of selected listed firms in NSE.

Based on the findings, hypothesis 1 was rejected (β_1 = -0.16, p = 000<0.05). This indicated that ownership concentration decreases environmental disclosure in Kenyan firms. A widely held ownership of shares in a company means that the shares issued by the firms are not concentrated in the hands of a few large shareholders. Mahd Ghazali, (2007) argued that corporations may be owned by a large number of shareholders who own a small portion of the companies' shares. However, since shares are largely owned by the public, the disclosure of environmental issues may reduce information asymmetry between management and shareholders (Cormier & Magnan, 1999; Cormier *et al.*, 2005). According to Cormier & Gordon (2001), found that a negative relationship exists between concentrated ownership and ER disclosure. This is not surprising considering that the lack of non-management or external shareholders has resulted in a comparatively low demand for more voluntary environmental disclosure. Some studies used ownership status in determining the environmental disclosure practices by categorizing sample companies into publicly owned companies and privately-owned companies. The public-held companies are expected to disclose more information as they are subject to wider exposure through evaluation in parliament and legislature (Pahuja, 2009). However, Cormier & Gordon (2001), Rizk, *et al*., 2008; Pahuja, 2009 discovered that the ownership status drives environmental disclosure by stating that more environmental information is disclosed by publicly held corporations because they are accountable to a big amount of stakeholders.

H_2: Asset tangibility has no significant effect on environmental accounting disclosure of selected listed firms in NSE

The above hypothesis was rejected based on the findings from a random model which showed that asset tangibility has a significant effect on environmental accounting disclosure of selected listed firms in NSE (β_2 = 0.010, p=0.000<.05). This indicated that firms with a high level of asset tangibility are likely to improve their level of environmental disclosure. The results of the research are supported by Boesso and Kumar (2007) who, in relation to the requirements of financial markets, examined the variables that drive the voluntary disclosure of environmental practices in Italy and the USA. Results indicated that asset tangibility influences the volume of voluntary disclosures. Furthermore, the results also showed that variables such as firm's emphasis on stakeholder management and the significance of intangible assets influence the quality of voluntary disclosures for Italian corporations, but not for US businesses (Boesso & Kumar, 2007). In addition, the results confirmed that asset tangibility within which the company operates influences voluntary disclosures.

H_3: Capital intensity has no significant effect on environmental accounting disclosure of selected listed firms in NSE.

Findings from the random effect model showed that capital intensity had a positive and significant effect on environmental accounting disclosure (β_3 =0.42, p=0.000<0.05). Thus, the hypothesis H_{03} was rejected. This indicated that firms with a high level of capital intensity are likely to improve their level of environmental disclosure. The findings are similar to Gray *et al.,* (2001) who investigated the relationship between the level of social and environmental disclosures of the top 100 UK Company's capital intensity over a period eight years from 1988 to 1995. Environmental disclosure was significantly related to capital intensity in seven of the eight years studied, However, mandatory disclosure was significantly related to the number of employees and to the capital intensity in only two of the eight years and was not significantly related to turnover in any of the eight years. The study findings also support Grüning & Bergerernst (2010) findings on the examination of the association of disclosure and capital intensity for a sample of 6,580 firms listed in the US between 2003 and 2007. Results indicated that well-governed firms opt into a more comprehensive disclosure policy and provide a higher degree of disclosure. The association between disclosure and capital intensity has been recorded in particular, but proof has shown that the connection differs across distinct aspects of the governance of companies.

CONCLUSION

The study established that ownership concentration had a negative influence on environmental accounting disclosure of selected listed firms in NSE. Indicating that ownership by the five largest shareholders is associated with reduced levels of environmental accounting disclosure. The results showed that the companies are not acting more in the protection of the environment within which they operate. Notably, there is information asymmetry with respect to environmental accounting disclosure. Cormier and Magnan, (1999), argued that the cost-benefit tradeoff that occurs when private information is publicly disclosed is likely to be resolved since the benefit is spread out among many shareholders. However, asset tangibility had a positive influence on environment accounting disclosure. Tangible assets provide the organizations with a pool of resources from which the costs of making environmental disclosures are funded. Besides, disclosure of environmental activities demonstrates to stakeholders that the firms can meet and respond to social demands. The capital intensity had a positive influence on environmental

accounting disclosure. Where the capital intensity of companies is high, they are motivated to report more information because the barrier of entry is high (Darrough & Stoughton 1990; Leuz 1999). Similarly, when the capital intensity of a firm is low, the proprietary costs for the reporting company are high as the resources to prevent competitors from implementing similar activities. Therefore, a company with low capital intensity is less motivated to report social and environmental accounting.

Managerial and Policy Implication

There is a need to diffuse ownership so as to increase the levels of voluntary disclosure of environmental accounting information. Besides, there is a need for the firms to engage in environmental accounting and reporting so as to reassure the stakeholders of their commitment to environmental responsibilities. It is also of utmost necessity for firms listed in NSE to use voluntary environmental disclosure to signal that they have tangible assets that will help them to secure future profits. In addition, information on environmental impact disclosure by companies should be made mandatory rather than voluntary. Besides that, there is a need for further studies on the effect of asset tangibility on environmental accounting disclosure as there is limited information in the literature. There is a need for firms to increase corporate capital intensity so as to enhance the level of environmental accounting disclosure. Firms are recommended to utilize newer and more efficient equipment so as to improve their efficiency and reduce their negative environmental impact through disclosure. Moreover, firms need to base their decisions on environmental accounting disclosure on the level of capital investment.

Theoretical contribution

The main contribution of the current research is it's being the first study, to the best of my knowledge, to empirically address the effect of three selected firm-specific variables on corporate environmental accounting disclosure. The study introduces to the academic literature an extensive three-dimensional framework for assessing environmental accounting disclosures. However, it is recommended that further studies should evaluate the influence of other firm's attributes on environmental accounting disclosure. In addition, the research findings should be interpreted taking into account certain constraints. First, the study is limited to selected firms in NSE and therefore does not provide a generalized view for other sectors in Kenya. Future research can be extended to incorporate other sectors of the economy.

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