The Economic Consequences of Environmental, Social and Governance Disclosures by Firms Quoted on the Nairobi Securities Exchange

Authors

David Mutua Mathuva
Strathmore University Business School
Strathmore University
Nairobi, Kenya
Email: dmathuva@strathmore.edu

Dulacha Galgalo Barako
Kenya School of Monetary Studies
Nairobi, Kenya
Email: barakodg@gmail.com

Mumbi Maria Wachira
University of St. Gallen
Institute of Public Finance, Fiscal Law and Law & Economics
St. Gallen, Switzerland
Email: mumbimaria.wachira@gmail.com

Abstract

Purpose: Given the growing interest on alternative reporting framework incorporating non-financial information in annual reports, we empirically examine the economic consequences of disclosure of environmental, social and governance (ESG) information. The economic consequences examined include stock liquidity and firm value.

Design/methodology/approach: Data are gathered from a sample comprising 246 firm-year observations of 50 listed companies in Kenya over the period 2011-2015. Two-stage panel least squares regressions are performed to establish the economic consequences of ESG disclosure. The ESG disclosures are manually scored from the audited annual reports using a disclosure index with 58 items.

Findings: We provide some empirical evidence that ESG disclosures are positively associated with stock liquidity (measured using bid-ask spreads) and firm value (measured using Tobin's Q). This is consistent with the view that ESG disclosures improve an investor's information environment hence improving stock liquidity.

Practical implications: The findings should be of interest to managers, policy makers and advocates of ESG or integrated disclosures. This is because the findings suggest positive capital market economic consequences of ESG disclosure.

Originality/value: The study contributes to the sparse literature on the economic consequences of alternative disclosure frameworks, which are not oriented purely towards financial reporting.

Keywords: Environmental, social and governance disclosures, panel regression, information environment, stock liquidity, Kenya

Paper type: Research paper

1. Introduction and motivation

Globally, sustainable development is an integral aspect of sustainable future. Gore and Blood (2011) emphasize the importance of sustainability reporting as one of the vital steps towards building "sustainable capitalism" where businesses focus on long-term value creation. The United Nations Conference on Sustainable Development Summit 2012 set the purpose and pace for the Sustainable Development Goals (SDGs), which was a shift from Millenium Development Goals. This culminated in the creation of a set of the 17 SDGs. Given the interdependent nature of the society, sustainability has become an important aspect of corporate management and reporting practices.

Khlif, Guidara and Souissi (2015) note the growing attention in emerging markets on the economic consequences of environmental and social disclosure with a focus on firm performance. The purpose of our study is to empirically investigate the economic consequences of environmental, social and governance (ESG) reporting, in terms of firm value and stock liquidity, from a developing country, Kenya. We focus on sustainability reporting due to two reasons:

(i) sustainability reporting focuses on a wider stakeholder audience especially on the providers of financial capital with a longer term view and
(ii) sustainability reporting focuses on impacts on the environment, society and the economy

In Africa, there exists a dearth of research studies on ESG disclosure practices. A number of studies have examined voluntary disclosure practices with some focus on social disclosures (Barako, Hancock and Izan 2006; Mathuva, 2016). Other studies have focused on the determinants of environmental and social information or the extent of such disclosure in specificindustries (Barako and Brown, 2008; Ponnu and Okoth, 2009; Siregar and Bachtiar, 2010; Villiers and Van Staden, 2006; Mathuva and Mboya, 2016; Mathuva, Mboya and

McFie, 2017). Studies on the economic consequences of sustainability disclosure in Africa have laid emphasis on South Africa, since it is one of the early adopters of ESG disclosures and has even mandated integrated reporting for its listed companies (Solomon and Maroun, 2012; Barth, Cahan, Chen and Venter, 2016) in full Ioannou and Serafeim, 2016). To provide empirical evidence on the effects of sustainability disclosures, additional research studies on the economic consequences of ESG reporting are necessary.

Our study attempts to extend academic literature on the consequences of new reporting frameworks, such as the ESG disclosures. We further contribute to data and methodological aspects in disclosure studies by applying content analyis based on an extended sustainability reporting framework advanced by Yongvanich and Guthrie (2006). Further, the study provides empirical findings on the (un)intended economic consequences of new disclosure frameworks in an emerging country context.

We find some empirical evidence that ESG disclosures by listed companies in Kenya are positively associated with stock liquidity (as measured by bid-ask spreads) and firm value (as measured by Tobin's Q). This is consistent with the view that ESG disclosures improve investor's information environment hence improving stock liquidity. The results also reveal a negative association between ESG disclosures and financial performance. This denotes a potential for unintended economic consequences of ESG disclosures in regard to a company's financial performance.

The rest of the paper is structured as follows. Section 2 presents a brief background on ESG disclosures. Section 3 discusses prior literature and formulates the hypotheses. Section 4 presents the methodology adopted in this study. Section 5 presents the results while Section 6 concludes the paper and highlights the limitations as well as managerial and policy implications.

2. Institutional setting on ESG disclosure

2.1. Sustainability reporting framework

According to GRI (2011), sustainability reporting is viewed as a broad term which entails reporting on economic, environmental and social impacts, which encompass triple bottom line, corporate social responsibility reporting, governance among other forms of reporting. Globally, the European Commission (EC) has acknowledged the importance of ESG disclosure (European Commission, 2014). In the last two decades, ESG disclosures have been widely adopted, with South Africa mandating integrated reporting for listed companies. As of 2013, more than 6,000 companies globally had issued sustainability reports from 100 companies that had done so twenty years ago (Ioannou and Serafeim, 2016). Out of the companies that had issued sustainability reports, 36% were from Europe, 23% from Asia, 15% from Northern America, 14% from Latin America and the Caribbean, 8% from Africa and 4% from Oceania (GRI, 2014). Governments and securities exchange regulators have developed guidelines on ESG disclosures due to the perceived benefit of long-term value creation (Gore and Blood, 2011).

The origin of using conventional accounting to capture ESG disclosures and the subsequent development of sustainability reporting, can be traced back to the 1970s (Carroll, 1999). However, conceptions of sustainability and sustainable development (Bebbington and Gray,2001), form a foundation for sustainability reporting. Several researchers have outlined the inherent complexities of using accounting as a frame to define how organizations approach sustainability or how they contribute towards sustainable development (Deegan, 2013; Thornton, 2013). A simple description of sustainability as coined in the Brundtland Report is based on the premise that all have a right to a decent life (WCED, 1987). Thus, sustainability is based on normative principles of distributive and political justice (Christen and Schmidt,

2012). Notably, justice applies for both present and future generations (Baumgärtner and Quaas, 2010).

In this study, we employ ESG guidelines derived largely from GRI G4 guidelines (GRI, 2014). We also utilize the ESG guidelines in the integrated reporting <IR> guidelines with a view to obtaining a comprehensive set of ESG disclosures (IIRC, 2013b). Further, we utilize some guidelines provided by OECD on corporate governance (OECD, 2004). Using the three sources, we study ESG disclosures under three broad categories: (i) external capital, (ii) internal structure and (iii) human capital as depicted in Figure 1.[1]

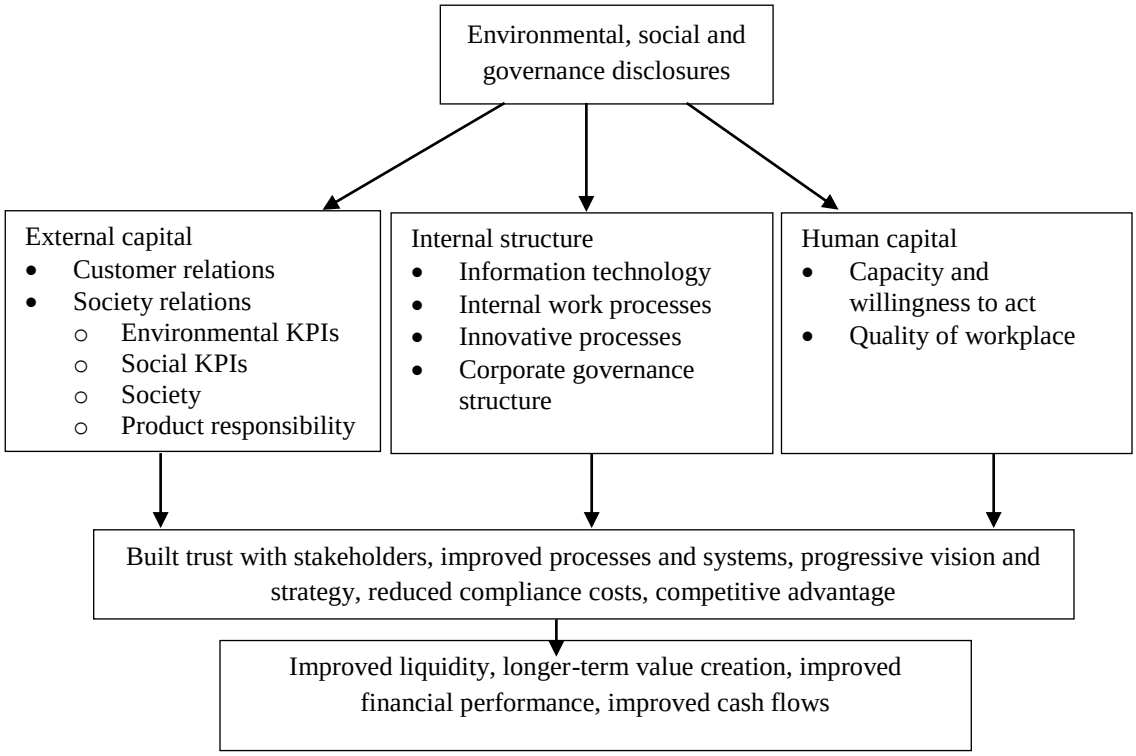

Figure 1: An extended performance reporting framework for ESG

2.2 ESG reporting efforts in Kenya

In Kenya, just like in the wider African context, there is limited focus on corporate sustainability reporting researchwise. Kenya's vision 2030 envisages a financial sector that is

[1] Appendix 1 provides a detailed listing of all the 58 items contained in the ESG disclosure index.

vibrant and globally competitive that promotes high level of savings to finance Kenya's overall investment needs. The revised and newly issued Corporate Governance guidelines 2015 for listed companies in Kenya has for the first time recognized the need for corporate sustainability reporting, albeit voluntary.

This is a clear indication that the regulator expects firms to go beyond the traditional practices of maximizing shareholders wealth but consider broader stakeholder welfare. This will undoubtedly, though not mandatory, incentivize firms to report on sustainability issues. In addition, the Kenya Government enacted Climate Change Act 2016, which set the basis of establishment of Climate Change Council. This effectively brings environmental issues as central to the national development agenda. It is anticipated that companies will borrow from the tone and pace of the government in designing its business practices to reflect environmental, social and governance aspects.

3. Literature review and hypotheses development

3.1 Theories on ESG disclosures

Gray *et al.* (2001) identify three approaches to explain ESG disclosure behaviour (i) decision usefulness, (ii) economic theory and (iii) social and political theory. This study applies decision usefulness approach and legitimacy theories to study ESG disclosure behaviour by listed companies in Kenya. According to the decision usefulness approach, ESG information is useful in making economic decisions targeting long term value creation. Khlif, Guidara and Souissi (2015) argue that environmental and social information may affect future cash flows of the firm. This is because, engaging in ESG disclosure is regarded as a self-regulating mechanism and is useful in avoiding adverse effects of regulatory costs on future cash flows (Khlif, Guidara and Souissi, 2015).

Legitimacy theory, which is considered as a systems-based theory, has widely been used to explain ESG disclosure behaviour in organizations (Gray, Javad, Power and Sinclair, 2001; Deegan and Blomquist, 2006). According to legitimacy theory, an organization is expected to match its values with those of the society so as to access resources. This is meant to gain approval of its aims and place in the society, and this is useful in long term sustainability (Magness, 2006). DiMaggio and Powell (1983) observe that companies engage in ESG disclosure as a way of legitimizing their activities, and this has an effect on long term value. The engagement in ESG disclosure by companies in this study could be in response to societal pressures and the desire to legitimize their activities so as to gain approval by the society in which they operate.

3.2 Empirical literature and hypotheses formulation

3.2.1 ESG disclosure and stock liquidity

Our first attempt is to examine the informational content of ESG disclosures. We argue that if ESG disclosures have any informational content, then this will be reflected in the stock prices and consequently, stock liquidity. According to agency theory, there exists information asymmetry between managers with superior information and financial statement users such

as investors. Francis *et al.* (2008) and Gietzman and Ireland (2005) argue that the informational asymmetry often leads to adverse selection which results in an increase in share prices there by reducing liquidity. As a result, investors demand a premium to cover the adverse selection risk. The disclosure of ESG information could be used to reduce the information asymmetry thereby reducing investors' monitoring cost. ESG disclosure encompasses the disclosure of largely voluntary information over and above that which is mandated by the IFRS. Through ESG disclosure, investors are better able to make rational economic decisions in the presence of more information, alongside that which is provided through traditional financial reporting. To the extent that ESG information helps narrow the information gap between managers and investors, we anticipate a larger increase in liquidity for companies which engage in more ESG disclosure. This reasoning motivates our first hypothesis as follows:

H1 There is a negative association between ESG disclosure and a company's stock liquidity.

3.2.2 ESG disclosure and firm value

Using precepts of institutional theory, we argue that ESG disclosures are positively related to firm value. Past research strongly suggests that ESG disclosure regulations in the realm of financial reporting have a positive effect on the value of a firm (Ioannou and Serafeim, 2014). However, in the absence of regulation for sustainability reporting, the findings in extant studies are mixed. For instance, Jones et al. (2007) find a negative relationship between the level of sustainability disclosure and abnormal returns among Australian corporations. Barth *et al.* (2016) establish a positive association between integrated reporting and firm value. Luo and Bhattacharya (2006) on the other hand, state that sustainability reporting can harm market values if firms have a low capacity for innovation. The main argument is essentially oriented towards a business case. Engaging in sustainability reporting improves corporate reputation and creates an image of legitimacy which in turn makes such firms attractive to investors (Barkemeyer, 2007; Hahn and Lülfs, 2014). Alternative streams of research suggest a systematic analysis of the influence specific disclosure items on shareholder value be performed to ensure that no conflict arises between sustainability strategies and wealth maximization (Schaltegger and Figge, 2000). This line of reasoning motivates our second hypothesis as follows:

H2 There is a positive association between ESG disclosure and firm value.

4. Methodology and data

4.1. Content analysis of audited annual reports

Content analysis is a research method for objective, systematic and quantitative description of the manifest of communication (Gray *et al.*, 2001). The first step in content analysis involves identifying a formal framework that enables the exploration of various classes of sustainability disclosures (Cerin, 2010). ESG disclosures were derived from GRI's G4

guidelines, IIRC, UN Global Compact and OECD guidelines in corporate governance. Appendix 1 provides a listing of the ESG disclosure items.

4.2. Estimation model

We model the two economic consequences (stock liquidity and firm value) as a function of ESG disclosure alongside a number of controls. To address potential endogeneity in the variables in the regression model, we utilize a two-stage panel least squares regression in our analyses. The following equation is utilised:

$$ECON_{it} = \beta_0 + \delta_1 ESG_{it} + \beta_1 CGQ_{it} + \beta_2 ACQ_{it} + \beta_3 COMPLEX_{it} + \beta_4 SUST_{it} + \beta_5 CROSS_{it} + \beta_6 SIZE_{it} + \sum_{t=1}^{n} \beta_j CONTROLS_{it} + \varphi_{it} + \lambda_{it} + \eta_{it} + \varepsilon$$

where, *ECON* represents the economic consequences measured by two proxies: (i) bid-ask spreads (*Bid_Ask*) and (ii) Tobin's Q (*TobinsQ*). φ_{it}, λ_{it} and $\eta_{it}$are industry, cross-section and firm-year controls, respectively. Finally, ε is the error term associated with any regression equation. All the other variables are discussed in Table 1. In each model, the control variables utilized are *CGQ,* forcorporate governance quality, *ACQ* for audit committee quality, *COMPLEX* for firm's complexity, *SUST* for sustainability report issuance, *CROSS* for cross listing and *SIZE for* company size. In the case of *CGQ* and *ACQ*, we utilise a composite index to measure the quality of corporate governance in line with Kent and Zunker (2013) and the quality of audit committee in line with Al-Shaer *et al.* (2017). The disclosure indices used are provided in Appendix 2, Panels A and B. In addition to these variables, we also include controls for the specific variable measuring the economic consequences. In the case of the *Bid_Ask* model, we include *LOSS* for loss-making companies, *BTM* for book-to-market value and *OWN* for foreign ownership. For the Tobin's Q model, we include *ASSET_G* for asset growth, *DIV* for dividend payments, *IBROA* for financial performance and *LEV* for leverage. The inclusion of the control variables in informed by studies such as (Deegan and Gordon, 1996; Wilmshurst and Frost, 2000;Ho and Taylor, 2007; Hahn and Kühnen, 2013; Barth *et al.*, 2016).

Table 1: Variable definitions

Variable type	Measure	Definition	Source
Dependent variables			
Bid_Ask	Stock liquidity	*Bid_Ask* spread which is calculated following Barth *et al.* (2016) as the natural logarithm of the median value of daily (Ask-Bid)/(Ask + Bid)/2 measured over month -9 to month +3 relative to a firm's year end. Ask and Bid are daily closing ask and bid prices, respectively, and are obtained from Nairobi Securities Exchange daily market data.	NSE daily stock data
Tobin's Q	Firm value	This is calculated as market to book ratio of total assets. (Total assets - total common equity + [common shares outstanding at year end]*share price at month +3 relative to year end) scaled by total assets	Company annual report and NSE daily stock data
Test variable			
ESG	Environmental, social and governance disclosure	ESG disclosure score measured using the ESG disclosure index. The ESG disclosure score is calculated as actual ESG disclosure items scaled by the maximum expected disclosures.	Company annual reports and sustainability reports
Independent variable included in all models			
CGQ	Corporate governance quality	A measure of corporate governance quality calculated following Kent and Zunker (2013) using the corporate governance index.	Company annual reports, NSE information, company websites, other websites e.g. Bloomberg
ACQ	Audit committee quality	A measure of audit committee quality in line with Al-Shaer *et al.* (2017) using the audit committee quality index.	Company annual reports
COMPLEX	Firm's complexity	Firm complexity where 1 is assigned where the company has subsidiaries and 0 if it has no subsidiaries.	Company annual reports, websites
SUST	Sustainability report issuance	A binary variable capturing 1 for companies that are listed on the NSE and release stand-alone sustainability reports and 0 if otherwise.	GRI database, Company annual reports and company websites
CROSS	Cross listing	Cross listing status measured using a binary variable: 1 if the company is cross listed within East African region and in other securities exchange markets and 0 if it is not.	Various securities exchange information, company annual report
MKTCAP	Company size	Company size as measured by the natural logarithm of market capitalization at the beginning of the year.	Company annual reports and NSE daily stock price data
Specific control variables for the various dependent variables			
Specific controls for stock liquidity (Bid-Ask) model			

Table 1 Continued: (Variable definitions)

Variable type	Measure	Definition	Source
LOSS	Loss-making companies	Binary variable whereby 1 is assigned if the net income (after tax) but before extraordinary items is negative and 0 if otherwise.	Company annual reports
BTM	Book-to-market value	Calculated as the book value of common shareholders interest in the company scaled by the number of common shares outstanding multiplied by share price at the end of the year.	NSE daily stock price data and company annual reports
OWN	Foreign ownership	The proportion of foreign shareholding in the company as at the end of the year.	Annual reports, NSE data
Specific controls for Tobin's Q model			
ASSET_G	Asset growth	Asset growth measured by the change in year-end total assets scaled by lagged total assets.	Company annual reports
DIV	Dividend payments	Binary variable which takes the value of 1 if the company declared or paid a dividend in the current year and 0 if otherwise.	Company annual reports
IBROA	Financial performance	Net income (after tax) before extraordinary items divided by total assets.	Company annual reports
LEV	Leverage	Ratio of total debt to total debt plus book value of common shareholders' interest in the company.	Company annual reports

4.3. Sample and data

Data were obtained from 50 companies listed on the NSE over the period 2011-2015 as shown in Table 2, panel A. This comprises of 76% of all companies listed on the NSE with total firm-year observations of 246. The ESG disclosure index was manually scored by a trained assistant who is a CPA and pursuing his Master degree in Accounting. The scores obtained were verified on a sample basis by the corresponding author on a regular basis. Further, the manually scored ESG disclosures were compared with similar scores generated by professionals in the field and were found to be comparable. Panel B of Table 2 reports the sectoral distributions of firms in the sample. According to panel B, most of the listed companies included in the sample were in the banking industry (22%) with the lowest representation being from telecommunications and technology companies (2%).

Table 2: Sample breakdown

Panel A: Sample selection	*Number of firms*	*Firm-year observations*	
Listed companies as at 31 December 2016	66	330	
Less companies suspended from trading	(4)	(20)	
Less companies whose annual reports were unavailable	(12)	(60)	
Companies included in the final sample for the period 2011-2015	50	250	
Less observations for one company which was listed in 2013		(2)	
Less share price observations for two companies which were listed in 2012		(2)	
Final sample observations		246	
Panel B: Industry composition			
Agricultural	6	30	12
Automobiles and accessories	2	10	4
Banking	11	53	22
Commercial and services	8	39	16
Construction and allied	5	25	10
Energy and petroleum	4	20	8
Insurance	4	19	8
Investment	2	10	4
Manufacturing and allied	7	35	14
Telecommunications and technology	1	5	2
Total	50	246	100

5. Results

5.1 Univariate analysis

Table 3 reports the ESG disclosure scores over the period 2011 to 2015. We compare the manually collected ESG disclosure scores, both from annual reports and stand-alone sustainability reports. We could only obtain stand-alone sustainability reports for comparison for three out of four companies which GRI has indicated that they have either complied with GRI's

G2 or G3.[2] of the three companies, only one had sustainability report available, while the other two had sustainability reports for three and five years respectively. The results show an overall average ESG disclosure level of 15.6% over the five-year period for ESG disclosures obtained from annual reports only. We note a significant increase in average ESG disclosure levels to 16.1% when we incorporate scores for companies that issued stand-alone sustainability disclosures alongside the annual reports. Overall, Kenyan listed companies demonstrate low and stagnated ESG disclosure levels over the period 2011 – 2015.

Table 3: ESG Scores over the period 2011-2015

Year	Source of ESG disclosure scores	N	Mean	Median	St. Dev.	Min.	Max.
2011	Annual reports only	250	0.168	0.172	0.069	0.052	0.345
	Annual reports and stand-alone sustainability reports	250	0.176	0.172	0.089	0.052	0.569
2012	Annual reports only	250	0.167	0.164	0.074	0.052	0.397
	Annual reports and stand-alone sustainability reports	250	0.167	0.164	0.074	0.052	0.397
2013	Annual reports only	250	0.149	0.138	0.070	0.052	0.379
	Annual reports and stand-alone sustainability reports	250	0.156	0.138	0.082	0.052	0.466
2014	Annual reports only	250	0.138	0.112	0.066	0.052	0.328
	Annual reports and stand-alone sustainability reports	250	0.148	0.121	0.084	0.052	0.466
2015	Annual reports only	250	0.144	0.121	0.071	0.052	0.328
	Annual reports and stand-alone sustainability reports	250	0.152	0.129	0.086	0.052	0.483
Overall 1	Annual reports only	*250*	*0.156*	*0.147*	*0.071*	*0.052*	*0.397*
Overall 2	Annual reports and stand-alone sustainability reports	*250*	*0.161*	*0.155*	*0.083*	*0.052*	*0.569*

5.3. Descriptive statistics

The descriptive statistics on all variables utilized in the models are provided in Table 4. According to the descriptive statistics, the bid-ask spread averages 0.146 over the period 2011-2015. This implies that, there is notable trading activity by investors on the NSE compared to that of South African companies which is at -5.97 on average over the period 2011-2013 (Barth *et al.*, 2016). This, however, points to possible lower liquidity for Kenyan listed companies compared to those in South Africa. The Tobin's Q averages 1.569 over the period 2011-2015 which is lower than the Tobin's Q of 1.81 for South African companies over the period 2011-2013 (Barth *et al.*, 2016) and 1.576 and 1.860 for South African and Moroccan companies for the period 2004-2009 respectively (Khlif, Guidara and Souissi, 2015). In general, the other variables show that there are no extreme values that would affect the reliability of the estimated coefficients using the regression model specific earlier.

[2] GRI's G2 and G3 reporting guidelines superseded G4 guidelines, which have been used to develop the ESG disclosure for the purposes of this study.

Table 4: Descriptive statistics

Variable	N	Mean	Median	Std. Dev.	Min.	Max.
Dependent variables						
BID_ASK	246	0.146	0.139	0.064	0.000	0.359
TOBIN'S Q	246	1.569	1.098	1.683	0.299	9.942
Test variable (variable of interest)						
ESG	250	0.156	0.147	0.071	0.052	0.397
Control variables in each regression model						
CGQ	250	0.656	0.636	0.114	0.364	1.000
ACQ	250	0.714	0.833	0.182	0.333	1.000
COMPLEX	250	0.736	1.000	0.442	0.000	1.000
SUST	250	0.080	0.000	0.272	0.000	1.000
CROSS	250	0.144	0.000	0.352	0.000	1.000
MKTCAP	246	15.724	15.810	2.356	0.000	20.212
Specific controls for stock liquidity (Bid-Ask) model						
LOSS	250	0.112	0.000	0.316	0.000	1.000
BTM	246	1.222	0.788	1.292	-1.686	8.533
OWN_FOR	250	0.030	0.000	0.130	0.000	0.701
Specific controls for Tobin's Q model						
LAGASSET_G	250	0.218	0.123	0.904	-0.872	9.753
DIV	250	0.740	1.000	0.440	0.000	1.000
IBROA	250	0.064	0.047	0.236	-2.079	1.134
LEV	250	0.119	0.000	0.203	0.000	1.042

Table 4 sets out the descriptive statistics for the main variables used in estimation models for a sample of 50 listed companies in Kenya over the period 2011-2015. The sample includes a total of 250 firm-year observations for the 50 companies, except for the variables where share price data is used (e.g., *BID_ASK, TOBIN'S Q, MKTCAP*, and *BTM*). These variables have 246 observations each over the period 2011-2015. All variables, excluding the test variable *ESG* are winsorized at the 1 and 99 percentiles. All variable definitions are provided in Table 1.

5.4 Bivariate analysis

Table 5 presents the correlation coefficients for the key variables in this study. We find that ESG is positive and significantly correlated with *CGQ*, *ACQ*, *Complex*, *SUST*, *MKTCAP* and *DIV*. Consistent with Barth *et al.* (2016), the correlation coefficients reveal that larger and widespread companies are better governed and exhibit higher ESG disclosure levels. The highest correlation coefficient is 0.592 between *CGQ* and *MKTCAP*, which is below 0.8. Additional analyses of the variance inflation factors produced factors below 5, which suggest that multicollinearity among the independent variables does not threaten the computational accuracy of the results. To establish the causal relationship between *ESG* disclosure and the four proxies for economic consequences (*Bid_Ask and Tobin's Q*), two-stage panel least squares regressions are performed.

Table 5: Correlation matrix

Variable	*ESG*	*CGQ*	*ACQ*	*COMPLEX*	*SUST*	*CROSS*	*MKTCAP*	*LOSS*	*BTM*	*OWN_FOR*	*LagASSET_G*	*DIV*	*IBROA*	*LEV*
CGQ	.386**													
ACQ	.337**	.326**												
COMPLEX	.281**	.211**	.565**											
SUST	.195**	.447**	.147*	.177**										
CROSS	0.059	.283**	.163**	.220**	.467**									
MKTCAP	.416**	.592**	.451**	.281**	.431**	.326**								
LOSS	-0.036	-.201**	-.183**	-0.017	-0.105	-0.037	-.197**							
BTM	-0.083	-.188**	-.154*	-0.061	-.346**	-.199**	-.503**	0.025						
OWN_FOR	-0.047	-0.049	-0.060	.190**	0.103	0.101	0.033	0.065	-0.077					
LagASSET_G	0.022	.169**	0.097	0.066	-0.003	.138*	0.112	-.147*	0.025	-.172**				
DIV	.144*	.209**	.199**	.162*	.141*	-0.043	.286**	-.397**	-.128*	0.096	0.043			
IBROA	-0.012	0.000	-0.053	-0.012	.278**	.170**	-0.011	-.528**	-.211**	0.044	-0.018	.197**		
LEV	.128*	0.108	.176**	.309**	.280**	.183**	0.105	.135*	0.117	0.100	-0.014	-0.046	-0.107	

Table 5 presents Spearman correlation coefficients for key variables in the regression model over the period 2011-2015. * and ** denote significance at the 5% and 1% levels respectively based on a two-tailed test. The sample includes 246 firm-year observations for 50 listed companies on the NSE. All variables, excluding the test variable *ESG* are winsorized at the 1 and 99 percentiles. Variable definitions are provided in Table 1.

5.5. Multivariate analysis

Table 6 reports the regression results for the overall period. In the *Bid_Ask* models and consistent with *H1*, the coefficient of *ESG* is negative and significant (coefficient = -0.108, t-stat. = -1.68) at the 10% level of significance. The negative coefficient is also exhibited when the *ESG* disclosure scores from the annual and sustainability reports (*ESG_2*) are incorporated in the regression models. This means that companies with better *ESG* disclosures have smaller bid-ask spread and higher liquidity. This finding resonates with Barth *et al.* (2016) who find negative association between bid-ask spread and the level of integrated reporting of South African listed companies. The results also reveal that larger listed companies with superior *ESG* disclosure have greater bid-ask spreads (coefficient = 0.004, t-stat. = 1.96). According to the results, loss-making listed companies have greater bid-ask spreads, denoting some level of illiquidity (coefficient = 0.034, t-stat. = 2.65). According to the results, the book-to-market ratio (*BTM*) has a positive and significant association with bid-ask spread (coefficient = 0.008, t-stat. = 2.43). The adjusted r-squared for the regression model is 12.6% and the estimation model is significant (F-statistic = 3.239, p-value = 0.000).

The results in the Tobin's Q model reveal a positive and significant association between ESG and Tobin's Q (coefficient = 2.284, t-stat. = 1.75) at the 10% level of significance. The positive and significant coefficient is also manifested when the *ESG* disclosure scores from the annual reports and sustainability reports (*ESG_2*) are used. This is in support of *H2* and seems to suggest that *ESG* disclosures are positively associated with firm value. The results further show that firm value is positive and significantly associated with companies that issue a stand-alone sustainability report (*SUST*) (coefficient = 2.613, t-stat. = 5.46). According to the findings, better performing companies (*IBROA*) are positively associated with firm value (coefficient = 2.011, t-stat. = 5.41). Finally, the findings also reveal a negative and significant association between ESG and companies with more than one subsidiaries (*COMPLEX*) (coefficient = -0.718, t-stat. = -2.87). The adjusted r-square of the regression model improves to 52.6% and the model's F-statistic is 12.064 which is highly significant.

Table 6: Regression results

Model	*[1]*		*[2]*		*[3]*		*[4]*	
Dependent variable	*Bid_Ask*		*Bid_Ask*		*Tobin's Q*		*Tobin's Q*	
Variable	*Coefficient*	*Std. Error*	*Coefficient*	*Std. Error*	*Coefficient*	*Std. Error*	*Coefficient*	*Std. Error*
Constant	-1.035***	0.343	-1.014***	0.344	64.244	39.933	60.667	39.475
	(-3.02)		(-2.95)		(1.61)		(1.54)	
ESG	-0.108*	0.064			2.284*	1.303		
	(-1.68)				(1.75)			
ESG_2			-0.112*	0.058			2.485*	1.344
			(-1.93)				(1.85)	
CGQ	-0.055	0.047	-0.062	0.047	-1.259	1.023	-1.180	1.008
	(-1.16)		(-1.33)		(-1.23)		(-1.17)	
ACQ	-0.013	0.029	-0.014	0.029	0.466	0.597	0.463	0.592
	(-0.47)		(-0.47)		(0.78)		(0.78)	
COMPLEX	-0.003	0.013	-0.002	0.013	-0.718***	0.250	-0.737***	0.249
	(-0.22)		(-0.16)		(-2.87)		(-2.96)	
SUST	0.002	0.020	0.012	0.021	2.613***	0.479	2.415***	0.487
	(0.11)		(0.59)		(5.46)		(4.96)	
CROSS	-0.004	0.013	-0.005	0.013	0.299	0.299	0.331	0.298
	(-0.28)		(-0.41)		(1.00)		(1.11)	
MKTCAP	0.004**	0.002	0.005**	0.002	0.196***	0.051	0.192***	0.051
	(1.96)		(2.02)		(3.88)		(3.80)	
LOSS	0.034***	0.013	0.034***	0.013				
	(2.65)		(2.63)					
BTM	0.008**	0.003	0.008**	0.003				
	(2.43)		(2.45)					
OWN_FOR	-0.023	0.031	-0.024	0.030				
	(-0.75)		(-0.78)					
LagASSET_G					-0.028	0.086	-0.030	0.085
					(-0.33)		(-0.35)	
DIV					-0.102	0.204	-0.083	0.203
					(-0.50)		(-0.41)	
IBROA					2.011***	0.372	1.993***	0.367
					(5.41)		(5.43)	
LEV					0.292	0.486	0.374	0.487
					(0.60)		(0.77)	
Firm year controls	Yes		Yes		Yes		Yes	
Cross section controls	Yes		Yes		Yes		Yes	
Industry controls	Yes		Yes		Yes		Yes	
Adjusted R-squared	0.126		0.129		0.526		0.531	
S.E. of regression	0.060		0.059		1.158		1.150	
F-statistic	3.239		3.305		12.064		12.260	
Prob. (F-statistic)	0.000		0.001		0.000		0.000	
Observations	246		246		246		246	

Table 6 reports the panel two-stage least squares regression results for the full sample comprising of 246 firm-year observations for the 50 listed companies on the NSE (with the exception of Model 3 which has 45 observations). All variables have been defined in Table 1. All variables, excluding the test variable *ESG* are winsorized at the 1 and 99 percentiles. T-values are in parentheses while the standard errors are based on White's cross-section standard errors and covariance (d.f. corrected). *, ** and *** denote significance at the 10%, 5% and 1% level respectively based on a two-tailed test.

Overall, we find that there are positive economic consequences associated with ESG disclosures, especially with regard to bid-ask spreads and firm value as measured by Tobin's Q. Specifically, we establish that ESG disclosures are positively associated with stock liquidity and this is consistent with agency theory. The findings provide some empirical evidence in support of the notion that the engagement in ESG improves a firm's information environment. We also establish that firm's engaging in higher ESG disclosure are associated with higher firm value. This may imply that firms engaging in ESG disclosure provide more value-adding information over and above the traditional financial reporting information, and this is manifested in improved stock liquidity.

6. Conclusion

ESG disclosure is an alternative reporting framework advocated for by GRI and extends beyond traditional corporate reporting. The approach focuses largely on the disclosure of non-financial information which has strategic, long term value creation effects in terms of human, intellectual, social, environmental and governance aspects. Despite the importance placed on ESG disclosure, there exists sparse literature on the economic consequences on the alternative reporting dispensation. In this study, we examine the contribution of ESG disclosure on two economic fundamentals: stock liquidity and firm value. We find a positive association between ESG and both stock liquidity and firm value.

Taken all together, we provide some empirical evidence that ESG disclosure improves stock liquidity and firm value in a developing country. This is consistent with the proposition that ESG disclosure reduce investors' informational asymmetry when provided alongside the traditional financial reporting information in the annual report. This study has policy and managerial implications and calls for policy reforms to demand increased disclosure of ESG information. The study reveals that managers can minimize agency conflicts and reduce informational asymmetry between themselves and investors through engaging in increased ESG disclosure. This study is not without limitations. First, all ESG disclosures were obtained from annual reports of listed companies. There are other avenues of disclosure such as company website and other publications which were not examined in this study. However, the study attempted to obtain sustainability information for the few companies that released stand-alone sustainability reports. Secondly, the quality of ESG disclosures studies has not been fully addressed, and this calls for further analyses using more reliable disclosure scores such as those provided in the Financial Reporting Excellence (FiRe) awards. Thirdly, an inherent limitation lies in the study in that the analyses are based on a single-country. Further studies can attempt to address these limitations by conducting cross-country studies and examining ESG disclosures from other sources.

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Appendices

Appendix 1: ESG disclosure index used

General category	Sub-category	Guiding questions
(a) External capital	*Customer relations*	
	Customer satisfaction	Does the company have measures to rate levels of customer satisfaction? Do they provide the results of customer satisfaction surveys?
	Customer longevity	Does the company have any loyalty programs/special offers for loyal/long-term clients?
	Customer retention	Does the company report on its customer retention rate? E.g. customer lifetime value (CLV)?
	Brand	Does the company report on its primary brands, products, and services?
	Distribution channel	Does the company provide information regarding its distribution strategy?
	Good product quality	Does the company have processes and/or policies that ensure quality of products and/or service offering?
	Customer base	Does the company describe their customer base i.e. target consumers. E.g. Women, adolescents etc.
	Additional/improved services	Does the company have any new or improved services or product offerings?
	Market share	Does the company provide information regarding its current share of the market?
	Sales volume	Does the company give a detailed analysis of its sales volume? E.g. volume per region/area or according to consumer type? N.B. should go beyond IFRS requirements
	Pursuit of new market opportunities	Does the company provide information regarding future opportunities it plans to leverage? E.g. planning to expand to new markets/territories?
	Joint venture and alliances	Does the company report on any strategic alliances or partnerships it has presently?
	Good customer relationships	Does the company report on processes and/or policies in place to improve customer satisfaction?
	Society relations	
	Environmental indicators	
	Materials	Does the company distinguish between renewable/recyclable and non-recyclable materials used to produce and/or package products and services?
	Energy	Does the company distinguish between renewable and non-renewable sources of energy it utilizes e.g. solar power, energy saving bulbs etc.
	Water	Does the company report on the extent of its water usage? Are there any processes in place to recycle/reuse water?
	Biodiversity	Does the company report on its impact on biodiversity? Does it have any policies or processes to reduce its impact on biodiversity?
	Emissions, effluents and waste	Does the company report on its emissions (e.g. CO2/SO2 emissions), effluents and/or waste? Does it have any policies or processes to reduce them?
	Suppliers	Does the company use specific environmental criteria in the selection process of its suppliers?
	Products and services	Does the company report on initiatives to reduce the environmental impact of its products/services offering?
	Compliance	Does the organization provide a statement stating its compliance to local environmental regulations (NEMA)/Does the organization report on any fines/fees associated with non-compliance?

General category	Sub-category	Guiding questions
	Transport	Does the company report on initiatives to reduce the environmental impact of the transportation of its products/employees etc.?
	Trademarks, patents, copyright	Does the company state that it does not infringe on intellectual property of any kind (e.g. trademarks, patents etc.)
	Corporate governance structure	
	Board responsibility	Does the company describe the duties and responsibilities of the board of directors?
	Independence of the board	Does the company comply with regulations regarding board independence? (look for a statement affirming that they do comply)
	Monitoring of board functions	Does the company monitor the board functions through the establishment of a corporate governance committee?
	Compensation	Does the company describe the implementation of its compensation policy to senior executives and board members?
(c) Human capital	*Capacity and willingness to act*	
	Employee competence	Does the company have a policy to support the skills training/career development of its employees?
	Employee satisfaction	Does the company describe how they ensure employee satisfaction e.g. gathering feedback through surveys/employee stock options?
	Employee retention and turnover	Does the company disclose the rate/percentage of employee turnover?
	Quality of workplace	
	Organizational culture	Does the company describe their culture in their report (e.g. core values, principles etc.)
	Rewards, performance measurement	Does the company describe the various ways in which they reward their employees e.g. stock options plans, insurance etc.
	Training and education	Does the company describe various training programs and/or education initiatives for employee development?
	Labour/management relations	Does the company have a trade union relations policy?
	Health and safety	Does the company have a health and safety management system? E.g. OHSAS 18001
	Diversity and opportunity	Does the company make any statement in the support of promoting diversity e.g. gender diversity/religious diversity etc. in its employee base (specifically middle and upper management?

Appendix 2: Corporate governance and audit committee quality indices

Panel A: Corporate governance quality index

Corporate governance characteristic	*Criteria*	*Score*	*Criteria*	*Score*
Board size	= or >9	1	< 9	0
Board gender diversity	At least 1/3 women on board	1	Less than 1/3 women on board	0
Executive directors on board	< or = half of executives on board	1	> half of executives on board	0
Majority of board members are non-executive directors	= or > than 1/2 of board members		< than 1/2 of board members	0
Independent directors on board	Presence of independent director	1	Absence of independent director on board	0
Separate chair of the board and CEO	Yes	1	No	0
Number of board meetings	= or > 6 meetings per annum	1	< 6 meetings per annum	0
Identity of external auditor	Big 4	1	Non-Big 4	0
Presence of social responsibility committee	Yes	1	No	0
Presence of audit committee	Yes	1	No	0
Presence of other committee				

Panel B: Audit committee quality index

Audit committee (AC) characteristic	*Criteria*	*Score*	*Criteria*	*Score*
AC size	= or > 3 members	1	< 3 members	0
AC meetings	= or > 3 meetings per year	1	< 3 meetings per year	0
Independent Director(s) in AC	Yes	1	No	0
All AC members are non-executive directors	Yes	1	No	0
Financial expertise of AC members	Yes	1	No	0
Supervisory experience of AC members	Yes	1	No	0