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Sustainability Reporting and Firm Value: Evidence from Selected Deposit Money Banks in Nigeria

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Abstract

The challenges faced by sustainable banking operations have brought about new possibilities and new models of reporting that the value creation potentials of financial institutions. This study examines the effect of sustainability disclosure on firm value, drawing data from ten randomly selected listed deposit money banks, covering the period 2014-2018. We employ qualitative content analysis, using the information obtained from audited reports and accounts, to measure overall sustainability disclosure index and its three dimensions (environmental, social and economic) and use descriptive tools and ordinary least square fixed-effects regression for analysis. We find consistent and strong evidence that banks with high overall sustainability and environmental sustainability disclosure tend to have low firm value. However, social sustainability disclosure exerts a more pronounced positive impact while the insignificant effect of economic sustainability disclosure suggests that its increase will not enhance firm value. These results indicate that overall sustainability and environmental sustainability disclosures were detrimental, rather than beneficial, to firm value. We conclude that sustainability reporting of deposit money banks in Nigeria does not enhance firm value, it only legitimizes their operations. We recommend quantitative disclosure of environmental and economic sustainability activities of the banks as well as their contributions to productive sectors and stakeholders' economic circumstances.

Keywords: sustainability disclosure, firm value, economic sustainability, environmental sustainability, social sustainability

1. Introduction

The financial sector acts as an intermediary, channelling funds from surplus units to deficit units; thereby enabling the creation of value in the process. However, sustainable banking operation is bedevilled with daunting challenges, one of which is the dramatic financial scandals of the late 1990s. In addition, the 2008 financial crisis led to declined confidence in banking institutions (Weber & Blair, 2016). These brought about new possibilities and models for sustainability of the financial system: increased consciousness in adopting and reporting sustainability issues (Khan *et al*, 2009); compliance with sustainability-related regulations and disclosure of sustainability policy that incorporates all related sustainability considerations in banking operations (Islam et al (2016). This is due to the belief that sustainability leads to reduced resources consumption, costs optimization and hence, increased firm value (Sahoo & Nayak, 2007; Jizi *et al*, 2014). The extent to which this is true of the sustainability issues reported by deposit money banks in Nigeria however lacks ample empirical evidence.

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In Nigeria, series of regulations and reforms led to several cases of mergers and acquisitions as well as recapitalization of many banks. The scandals in Oceanic Bank in 2011 and Intercontinental Bank in 2013, among others have taught stakeholders some lessons to look for quality reports beyond financial metrics. In addition, regulators and policy makers have concerned themselves with how to restore confidence in the financial sector with increased awareness and social consciousness of wider stakeholders, advocating for a reporting system that promotes responsible decisions and sustainable business. As a result, the Securities and Exchange Commission (SEC) released the Nigerian Code of Corporate Governance, 2012; which emphasized sustainability reporting. Besides, the Central Bank of Nigeria, in conjunction with the Nigerian Bankers Forum, launched the Nigerian Sustainable Banking Principles in 2012. These made many banks to change their reporting system since then, bearing in mind the need to disclose information not only on economic activities but also on environmental and social issues.

The data obtained from the audited accounts of deposit money banks showed an upward trend in overall average sustainability disclosure index (SUS) and firm value (TBQ) from 2.47 and 2.18, respectively in 2015 to 2.60 and 3.80, respectively in 2018 (Figure 1). The main argument on sustainability disclosure and firm value relationship has been on whether companies report sustainability activities to strengthen the legitimacy of their operations (legitimacy theory) or for increased market value (value enhancing theory). The specific business problem is that corporate managers and other stakeholders do not know the contributions of the upward trend in sustainability disclosure to the value of the deposit money banks listed on the Nigerian Stock Exchange. Thus, this study examines the effect of sustainability disclosure on the value of some selected listed deposit money banks in Nigeria.

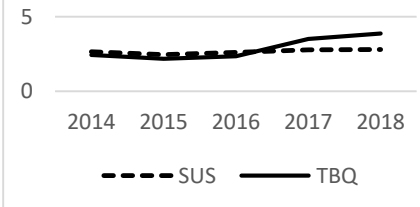
This study contributes to the body of literature in the following ways. First, we assessed the sustainability performance heterogeneity across banks, using qualitative content analysis approach and examined the complexity by which overall sustainability disclosure (and its three dimensions) affects firm value and thus, extending the findings of Laskar (2018) and Emeka-Nwokeji & Osisioma (2019). Second, findings from the literature are mixed and inconclusive: positive, negative and no relationship (Garcia *et al,* 2017; Lawrence *et al*, 2017; Laskar, 2018; Asuquo *et al,* 2018; Swarnapali *et al*, 2018; Emeka-Nwokeji & Osisioma, 2019; etc.). Therefore, further studies are needed, especially with the dearth of ample empirical evidence from financial institutions; the diverse measures adopted for firm value and sustainability reporting as well as the different estimation techniques used in previous studies.

We acknowledge Nwobu (2015) and Oyewo & Badejo (2014) whose researches were on banks and Rajhans & Kaur (2013) and Ramadan (2016) that investigated sustainability reporting-firm value relationship, controlling for some firm-specific factors. Finally, our empirical results corroborated the hypothesis of the legitimacy theory rather than value enhancing theory thus, extending the findings of Kaveen *et al* (2013) and Laskar (2018). Legitimacy theory says that legitimate behaviour of organizations can influence stakeholders and the general public about their perspectives of an organization in relation to its value (Dowling & Pfeffer, 1975) while value relevance theory says that that the integration of socially acceptable activities into corporate strategies and practices generates competitive advantages that promote the creation of long-term shareholder's value (Schwartz, 1992).

2. Literature review

This section contains a review of conceptual literature, theories and empirical studies. This first part was carried out to conceptualize firm value and operationalize sustainability reporting using the globally acceptable framework. We included the second part to provide a theoretical frame for this study and the third part was carried out to establish the state of knowledge on the subject matter of this study, that is sustainability reporting and firm value in the banking sector.

Fig. 1: Overall Sustainability Disclosure and Firm Value (2014-2018)



Review of Conceptual Literature

Organization for Economic Cooperation and Development-OECD (2001) explained sustainability reporting as linking the economic, social, and environmental objectives of societies in a balanced way though, it takes a long-

term perspective through which decisions are reached and informed by full range of possible consequences and is accountable to the public. It was also described as a whole set of values, issues and processes that companies must address in order to minimize any harm resulting from their all-round activities. In addition, the Global Reporting Initiative - GRI (2011) defines sustainability reporting as the practice of measuring, disclosing and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development. The framework aims to assist corporations in voluntarily reporting of social, environmental and economic impacts of their operations.

According to GRI (2011), economic sustainability is the use of existing resources in an optimal way using various strategies so that a responsible and beneficial balance can be achieved in the long-run. It may not only address the financial performance of the reporting company but also the company's effects on the economic circumstances of its stakeholders and on the local, national and global economic systems in which it operates (Campbell & Slack, 2006). Its indicators, as provided by GRI, are presented in Table 1.

On the other hand, environmental sustainability involves both non-financial and financial reporting. Non-financial reporting, as defined by American Petroleum Institute-API (2005), is reporting on a range of environmental health and safety (which includes carbon emission, waste management, biodiversity and energy, among others); social and economic issues and impacts that relate to the operations and services of a company. Companies may choose to use a variety of other terms to refer to this concept, such as corporate responsibility, corporate citizenship, or contributions to sustainable development. The term 'non-financial reporting' was used by some companies to distinguish their reports from more traditional company financial reports, even though both reports include economic indicators (API, 2005).

Table 1: Sustainability reporting indicators

Environmental	Social	Economic
Energy	Community involvement	Economic performance
Water	Anti-corruption behavior	Market presence
Carbon emissions	Human rights	Indirect economic impact
Waste management	Employees health & safety	Value & supply chain
Compliance	Labor and industrial relation	Risk management
Product & service stewardship	Training and education	
Biodiversity	Philanthropy	
Transportation	Diversity & equal opportunity	

Source: Prepared by authors from the Global Reporting Initiatives, 2011 version 3.1, 2020

For social sustainability, companies are encouraged to report all core indicators in this case so as to enhance transparency. These, according to GRI (2011), include issues on human rights; anti-corruption behavior; business ethics; political contributions, if any; lobbying and advocacy; employment practices, including non-discrimination policy; labor and industrial relations; employees' safety and training and local employment opportunities, especially for host communities; training and education. Others are community and society issues, including community relationships and social investments and security. These issues were grouped into eight indicators under the GRI framework of 2011 and it is expected that sustainability reporting system of a corporation would capture them.

The concept of value is somewhat very controversial due to different interpretations and meanings accorded it in the literature. Morck, *et al* (1988) used capital market approach to refer to firm value as the sum of the actual market value of common stock and estimated values of preferred stocks and debts. It is an economic measure reflecting the market value of a whole business (Kurshev & Strebulaev, 2015). In addition, it is a sum of claims by all claimants: creditors (secured and unsecured) and shareholders (preferred and common), according to Ehrhard & Bringham (2003). These definitions showed that firm value can be obtained through different measures, each of which is likely to give a value that differs from that obtained by another measure.

In the literature, the most readily available measure of firm value is the accounting net worth or book value of a firm due to its availability in annual reports and accounts. However, this measure is problematic because the accounting rules in a simulation may be at variance with generally accepted principles of financial

accounting (Goosen *et al*, 1999) and because conformity with some generally accepted accounting principles, such as historical cost and conservatism, can lead to a value that is far from what is reasonable. Another popular measure is the market value of all outstanding shares of a firm, which requires an efficient capital market shares prices in its use. Market capitalization (the total market value of a company's outstanding shares of stock) was another measure, derived by multiplying a company's total number of ordinary shares outstanding by the market price (Rajhans & Kaur, 2013).

Another measure used for firm value is the capitalized value of projected future earnings. Miller & Modigliani (1961) pointed out that although four distinct methods of capitalization can be used to measure firm value, all the methods gave rise to precisely the same valuation when markets are perfect; when people are completely rational and when the future is known with certainty. Then, the limitations of using the methods therefore lie on satisfying these assumptions.

Review of Theoretical Literature

Most of the researches on sustainability reporting and firm value have been based on two theories: Legitimacy theory and Value enhancing theory. The legitimacy theory is derived from the concept of organizational legitimacy, which was defined by Dowling & Pfeffer (1975) as a condition or status, which exists when an entity's value system is congruent with the value system of the larger social system of which the entity is a part. When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy. The theory also posits that organizations continually seek to ensure that they operate within the bounds and norms of their respective societies.

Adopting legitimacy theory perspective, a company would voluntarily report on activities if management perceived that those activities were expected by the communities in which it operates (Deegan, 2002; Deegan, *et al*, 2000; Cormier & Gordon, 2001). The theory relies on the notion that there is a 'social contract' between a company and the society (Deegan, 2002). It further provides information that legitimizes company's behaviour with the aim to influence stakeholders and the general public about their perspectives of the business in relation to its value. Organizations therefore seek to ensure that they operate within the bounds and norms of the society and employ a number of legitimating strategies, to extend, maintain or defend their legitimacy (Tilling, 2004).

However, the value enhancing theory holds that the integration of socially acceptable activities into corporate strategies and practices generates competitive advantages that promote the creation of long-term shareholder's value (Schwartz, 1992 and 2006). These advantages include improvement in brand reputation, employee productivity, increased operating efficiency and improved relationship with the regulators, society, and other interested parties (Maignan, 2001; Charlo *et al*, 2015). Besides, sustainability reduces information asymmetry, which renders a firm less likely to engage in corporate tax aggressiveness (Roman & Grant, 2012). It also helps firms to maintain their position within the market on a long-term basis, thereby opening doors to better investment packages (Minna & Ronald, 2015). We therefore expected that corporate sustainability reporting of listed deposit money banks in Nigeria will be valued positively by stock markets and that banks with higher sustainability disclosure will have a higher market value.

Review of Empirical Studies

Many studies have linked sustainability reporting to firm value (Baetlett, 2012; Kaveen *et al.,* 2013; Priyanka, 2013; Garcia *et al.,* 2017; and Laskar & Maji, 2018). For example, Baetlett (2012) examined the effect of corporate sustainability reporting on firm value using a normalized sustainability scoring system and regression analysis. It analysed the effect during the great recession in order to ascertain if there was any change in the effects on a year-by-year basis, due to macroeconomic differences of ten various industries, ranging from metals to pharmaceutical sector between 2008 and 2009 in California. The study found that superior corporate sustainability reporting positively correlated with increased firm value but the degree of the impact greatly dropped during recession.

Kaveen *et al* (2013) investigated the relationship between firm value and the quality of sustainability reporting in Australian listed corporations. The purpose of the study was to determine whether firms that make higher quality sustainability disclosure exhibited higher equity prices, through either (or both) cost of capital or expected future performance. Using proprietary data obtained from specialists and responsible investments

research firms, significant negative association between quality sustainability reporting and cost of equity capital for ASX 200 firms from 2003–2005 and a significant positive association between expected future performance and quality of sustainability reporting were documented. However, the work of Priyanka (2013) looked at another direction of sustainability by examining the impact of sustainability performance on financial performance using listed companies in India. Using a series of statistical tools like multiple regression, correlation, t-test and F-test, the study found no significant association between overall sustainability rating and financial performance.

In addition, Laskar & Maji (2018) examined the impact of corporate sustainability reporting on firm performance in four Asian countries with the aim of establishing whether any significant differences existed between developed and developing countries of Asia. Content analysis (using binary 0 & 1 to code responses) was employed to calculate disclosure score on sustainability performance, using the GRI framework. The data obtained from content analysis was used to examine the impact of corporate sustainability reporting on firm performance. The logistic regression model results established significant positive effect of sustainability reporting on firm performance and the impact is higher in developed countries than in developing countries of Asia. Garcia *et al* (2017), who used Thomson Reuters Eikon database to analyze whether financial performance of Brazilian listed companies is associated with superior environmental, social and corporate governance performance, however observed that financial performance significantly related only to environmental performance of the companies. The negative sign of the association also indicated that companies with the best environmental performance tend to be less profitable.

The findings of Lawrence *et al* (2017) also suggested significant positive effect of sustainability reporting on market value. The study drew evidence from Singapore listed companies on SGX Mainboard and employed weighted least squares (WLS) regression analysis technique on a sample size of 502 companies. Again, Swarnapali *et al* (2018) found similar results when they investigated the effect of corporate sustainability reporting on market values, using panel data collected from 220 companies listed in the Colombo Stock Exchange (CSE) in Sri Lanka over a period of four years, accepting the value-enhancing theory.

Some of the studies conducted on the Nigerian firms included the works of Asaolu, *et al.* (2011); Nnamani, Onyekwelu & Ugwu (2017); Asuquo, *et al.* (2018); Taye, Amodu & Iliemena (2019); and Emeka-Nwokeji and Osisioma (2019). Asaolu, *et al.* (2011) examined sustainability reporting in the Nigeria oil and gas sector, focusing on six major oil and gas multinationals operating in Nigeria. Content analysis was used on data sourced from the audited reports and accounts of the companies to identify the extent to which their sustainability reporting has been in line with global best practices. The study found variations and incompatible sustainability reporting disclosures among sampled companies with no support by any known regulations. Asuquo, *et al.* (2018) used multiple regression technique to examine the effect of sustainability reporting on corporate performance of selected quoted brewery firms in Nigeria over the period 2012-2016. Their results showed that economic performance disclosure, environmental performance disclosure and social performance disclosure had no significant effect on return on assets of the firms.

Moreover, Nwobu (2015) examined the determinants of corporate sustainability reporting using accounting-based measure of organizational performance. Content analysis methodology, which used a disclosure index was employed to obtain data on corporate sustainability reporting from the annual reports and accounts of eight (8) banks in Nigeria. Data on the independent variables namely Profit After Tax (PAT) and Shareholders' Fund (SHF) was also extracted from the annual reports of the banks. Results showed a small positive correlation of 0.28 between sustainability reporting index and PAT. The study also found a small significant positive correlation of 0.18 between sustainability reporting index and SHF. The findings of the study enhanced theorizing between corporate sustainability reporting and organizational profitability.

Oyewo & Badejo (2014) focused on whether firm characteristics, in any way, affect the level of involvement in CSR activities and whether the CSR practices differ among some deposit money banks in Nigeria. In the study, a checklist containing 30 items relating to the three dimensions of sustainability was developed to content-analyze the 2012 published annual reports of 12 banks publicly quoted on the Nigerian Stock Exchange. This was to obtain information on the sustainability practices disclosed in the annual reports and accounts of the banks. Correlation analysis was used to analyze the data. In addition, Kolmogorov-Smirnov Test (K-S statistics)

was carried out to test for normality while analysis of Variance (ANOVA) was used to test for mean difference among the study group. The authors found that the banks were involved mostly in the social aspect of sustainability and that sustainable practices among them were not significantly different though. Firm characteristics such as size and profitability were found not to have statistical significantly effect on sustainability practice.

From the literature review, there is no doubt that sustainability reporting is a popular issue with scholars focusing on both developed and developing economies. Also, many studies were on environmental and social reporting, which were just elements of sustainability reporting. In addition, very few ones on the sustainability disclosure in the financial sector focused on the factors influencing sustainability reporting and not on the consequences of the reporting system on the banks, especially their value (Nwobu, 2015; Oyewo & Badejo, 2014). Many studies covered listed companies in oil and gas, breweries and a mix of economic sectors that do not have the same reporting format. Therefore, the Nigerian banking sector whose Code of Corporate Governance, 2006 and the Nigerian Sustainable Banking Principles of 2012 emphasized sustainability reporting, have not been a major focus for most researchers to ascertain level of sustainability disclosure of the Nigerian deposit money banks and how this contributes to the value of the banks. With the exception of Asaolu, *et al.* (2011) and Laskar and Maji (2018), most of the previous studies reviewed did not analyse sustainability disclosure data generated from content analysis before being used in regression analysis. The analysis would have provided empirical information on the extent of sustainability disclosure by the firms (as required by various guidelines and practices) and their ranks, relative to others. We therefore hypothesize that a bank with high level of sustainability disclosure does not necessarily have high firm value.

3. Methodology

This study used ex-post facto research design because it aimed to establish the relationship between variables whose data were extracted from secondary sources. We adopted a multiple regression model as used by Hussain (2015). The aggregate model for firm value is expressed as a linear function of the overall sustainability disclosure and a set of control variables, that is,

$$TBQ_{it} = \beta_0 + \beta_1 SUS_{it} + \beta_i \lambda_{it} + \mathcal{B}_i + \acute{\omega}_t + \mu_{it} \quad (1)$$

where, TBQ_{it} is firm value for firm i in year t, which is the dependent variable and computed using equation (4). β_0 is a constant term; SUS_{it} represents the overall sustainability disclosure index for firm i in year t, which was used as a proxy for sustainability reporting; λ is a set of control variables that affect firm value; and $\mathcal{B}_i$ is the unobserved banks differences that are fixed over time. We also take into account the unobservable fixed-effects over time ($\acute{\omega}_t$); and μ_{it} is the random error. We incorporated a set of control variables that correlate with firm value to ensure better certainty of our findings since there are other factors that affect firm value. These are book value of equity (BVE), long term debt (LTD), non-current assets (NCA) and total assets (TAS). The variables were selected based on the findings of Rajhans & Kaur (2013) and Ramadan (2016).

We further decompose the overall sustainability disclosure index into its three main dimensions and as such, a disaggregated econometric model is specified as

$$TBQ_{it} = \beta_0 + \beta_2 ENV_{it} + \beta_3 SOC_{it} + \beta_4 ECO_{it} + \beta_i \lambda_{it} + \mathcal{B}_i + \acute{\omega}_t + \mu_{it} \quad (2)$$

where, ENV_{it}= environmental sustainability disclosure index; ECO_{it}=economic sustainability disclosure index; and SOC_{it}= social sustainability disclosure index, which are independent variables of interest in the model. It is *a priori* expected that $\beta_{1,23,4,\ldots i}$ will be greater than zero.

We measure SUS index as simple average of the total index obtained for each sustainability disclosure dimension using indicators provided by GRI sustainability reporting framework (2011) in Table 1 for each of the sustainability dimensions. We employ content analysis to develop index for each sustainability dimension by quantifying the information obtained from the audited financial reports of the banks for each year based on the number of indicators disclosed (occurrence) and their nature or quality (quantitative or narrative), in line with previous studies such as Baetlett (2012) and Laskar (2018). Where a company discloses an indicator (that is, occurrence), we assign 1 otherwise, 0. In addition, where an indicator was disclosed quantitatively, we assign 3 but for narrative (qualitative) disclosure, we assign 2. We added the two scores; indicating a maximum of four points possible to an indicator (for occurrence and quality of disclosure) while the minimum is 0. Finally, we

obtained average sustainability disclosure index by taking simple average of total index score (TOD) obtained for all indicators in a dimension i.e.

$$Average\ Sustainability\ Disclosure\ Index_{it,j} = \frac{\sum_{j=1}^{n} TOD_{it,j}}{NOI_j} \quad (3)$$

where, *NOI* is the number of indicators in a sustainability dimension, *j* is the sustainability dimension and n=1,2,3. Using the sustainability index for each dimension, we individually and carefully read each of the banks' annual reports and accounts, calculating the indices. The data obtained were then compared and adjustments made where necessary. The *explained variable* of this study is firm value (TBQ). This study considers Tobin Q method to measure firm value. This is because the method is a financial market-based and a forward-looking measure that better captures firm performance in a sustainable manner (Bharadwaj, *et al.*, 1999). It was measured as the sum of the market value of equity and book value of long-term debts all divided by total assets of a company i.e.

$$TBQ = \frac{MVE + BVD}{TAS} \quad (4)$$

where, *MVE* is market value of equity, *BVD* is book value of long-term debts and *TAS* is total assets. This measure was used by Emeka-Nwokeji & Osisioma (2019), Horn et al. (2018), Lawrence et al. (2017), Hussain (2015), Feihn & Stuck (2011) and Rountree et al. (2008).

Furthermore, we use balanced panel data, over the years 2014-2018. Aroma & Sharma (2016) pointed to data availability challenge when information needs to be collected manually for single country sustainability research due to lack of databases, especially in emerging economies like Nigeria. Therefore, the issue of data availability informed the number of banks covered in this study and banks with missing firm-year observations were excluded from the sample. The data was obtained from publicly available audited reports and accounts of 10 purposively selected listed deposit money banks over the years. However, both the first- and second-generation banks were covered. In addition, the choice of the period was informed considering the fact that the banking sector started taking sustainability reporting seriously after the introduction of NSBP. Since sustainability reporting has gained attention from the Central Bank of Nigeria, the extent of sustainability reporting in the banks will assist to evaluate how well the banks are responding to the Sustainability banking principles and reporting guidelines. We analyze the data by using descriptive, inferential and econometrics tools.

4. Results

Descriptive results

The descriptive tools include mean and standard deviation to obtain information on the features typical of the variables. The summary descriptive results showed some statistical properties of the variables included in this study. The data in Table 2 showed that firm value (Tobin Q) had a mean of 0.287 (standard deviation of 0.203), which indicated low value, on the average, for the selected banks; 2.62 for SUS with standard deviation of 0.55; 1.89 for ENV with standard deviation of 0.973; and 2.91 for SOC with standard deviation of 0.631; which were relatively low, using a benchmark index of 3.0, but 3.06 for ECO, which was relatively high. These results therefore, on the average, indicated that many economic and social sustainability activities were carried out by the banks to address economic and social problems, which were disclosed during the periods.

Table 2: Descriptive statistics

Variable	Mean	Minimum	Maximum	Standard Dev.
TBQ	0.287	0.134	1.172	0.203
SUS	2.619	1.233	3.383	0.550
ECO	3.064	1.20	3.80	0.531
ENV	1.888	0.00	3.375	0.973
SOC	2.905	0.75	3.625	0.631
NCA	1.222×10^{12}	0.121×10^{12}	2.81×10^{12}	0.860
LTD	1.776×10^{12}	0.047×10^{12}	5.004×10^{12}	1.343
TAS	1.890×10^{12}	0.004×10^{12}	4.956×10^{12}	1.489
BEV	0.350×10^{9}	0.341×10^{9}	0.825×10^{9}	0.215

Source: Authors' computation 2020

With a mean value of ₦1.22 trillion and ₦1.89 trillion for non-current assets and total assets, respectively, the selected banks, on the average, invested heavily in long-term and total assets. In addition, the table shows a wide variation in the level of the overall sustainability disclosure index and the three dimensions (environment, social and economic) across the banks. The standard deviations were lower than the mean values for the variables, which indicated absence of a wide dispersion of each observation for individual bank's sustainability disclosure from the mean.

Normality test results

Normality problem occurs when data are not normally distributed around the mean, which violates one of the conditions for using ordinary least square (OLS) estimation technique. The data in Table 3 shows that four variables (ENV, NCA, LTD and BEV) were normal. This is because the Jarque-Bera statistics for the variables were not significant even at 10 percent, as indicated by their *P*-values, which indicated that the null hypothesis of normality should be accepted. However, the *P*-values for the other variables, which were significant at less than 1 percent indicated that the null hypothesis of normality should be rejected indicating that the variables did not satisfy normality condition. These results showed that the estimates from pooled OLS regression analysis would not be efficient and reliable because the condition of normality was violated already hence, alternative methods such as random-effect or fixed-effect should be considered.

Table 3: Normality test results

Variable	Skewness	Kurtosis	Jarque-Bera	P-value	Decision
TBQ	2.896	12.147	244.20***	0.000	Not normal
SUS	-0.841	2.744	6.035**	0.049	Not normal
ECO	-1.668	5.658	37.90***	0.000	Not normal
ENV	-0.360	1.970	3.292	0.193	Normal
SOC	-1.669	6.282	45.67***	0.000	Not normal
NCA	0.436	1.966	3.813	0.149	Normal
LTD	0.594	2.289	3.996	0.136	Normal
TAS	0.689	2.313	4.943*	0.085	Not normal
BEV	0.359	2.086	2.813	0.245	Normal

Source: Authors' computation (2020). ****, ** and * are 1, 5 and 10% significant levels.*

Multicollinearity test results

Multicollinearity problem occurs when there is evidence of strong linear relationships among explanatory variables in a multiple regression model. We used multiple correlation to examine the existence or otherwise of collinearity problem among the explanatory variables of this study. The rule of thumb for using this technique is that the correlation between any two variables must not be higher than 0.8 (Lewis-Beck, 1993). The data in Table 4 showed that all the explanatory variables, including the control variables, had a correlation less than 0.8, pairwise thus, there was no evidence of multicollinearity among the variables.

Table 4: Multiple correlation results

	BEV	ECO	LTD	ENV	NCA	SOC	TBQ	TAS
BEV	1							
ECO	0.1068	1						
LTD	0.6822	0.0085	1					
ENV	-0.3282	0.4461	-0.2323	1				
NCA	0.5532	-0.1252	0.5817	-0.0924	1			
SOC	-0.0600	0.1572	-0.1464	0.4315	-0.1652	1		
TBQ	0.3743	0.1755	0.5712	-0.2031	0.2928	0.0331	1	
TAS	0.4083	-0.2347	0.4108	-0.0764	0.6230	-0.3232	0.0715	1

Source: Authors' computation 2020

Stylized facts on sustainability reporting and firm value in the banks

Table 5 provides information on the banks' overall sustainability reporting performance and its dimensions (environmental, social and economic). The banks were ranked based on the average sustainability disclosure index obtained for each of the banks for the years 2014-2018. It therefore shows the level of sustainability disclosure performance of the selected banks and a bank's ability to achieve a better level of sustainability reporting than others. It is evidenced that Fidelity Bank was at the forefront leading the other nine banks in overall sustainability disclosure with an average index of 3.15 out of an overall maximum 4 points possible, followed closely by FCMB with 3.00 and GTB with 2.97. Among the banks included in this study, only FCMB and Fidelity Bank reported all their sustainability activities both in qualitative and quantitative terms.

The lower overall sustainability index obtained for other banks implied therefore that the banks reported only in narrative term (i.e. qualitatively) most of the indicators of sustainability. With the exception of GTB, which took second position in firm value, the other two banks did not lead in firm value because they took tenth and fifth position, respectively. First Bank that ranked low (seventh position) in overall sustainability ranked first in firm value during the period. It can therefore be posited that there is likely to be a negative relationship between overall sustainability disclosure and firm value indicating banks with higher overall sustainability disclosure index are not likely to have higher firm value.

In addition, progressive improvement was noticed in the number of banks that reported their sustainability activities both qualitatively and quantitatively from 2014 to 2018. In 2014, only two banks (FCMB and Fidelity Bank) reported quantitatively with overall index of 3.27 and 3.19, respectively. The number increased to three banks in 2016: GTB (3.06), Zenith Bank (3.09) and Union Bank (3.03) and to five banks in 2018 (GTB, FCMB, Fidelity Bank, Sterling Bank and Union Bank) with an overall index of 3.09, 3.05, 3.13, 3.32 and 3.0, respectively. This trend showed that the banks were aware of the need to adopt a reporting system that provides both qualitative and quantitative information for responsible decisions and sustainable business. However, some banks like UBA, Access Bank and First Bank were still lagging behind.

Empirical data on the indices for the three dimensions of sustainability reporting showed that most of the banks concentrated more on economic and social sustainability reporting rather than environmental sustainability. An average disclosure index for most of the indicators of the two dimensions of 3.0 and above, means most of the indicators were reported in quantitative term, with the exception of UBA and Union Bank for economic sustainability disclosure and Access Bank for social sustainability disclosure. Again, the level of sustainability disclosure for the three dimensions of sustainability reporting also varied among the banks. The data in Table 5 further shows that banks with high index in environmental sustainability disclosure are Fidelity Bank, FCMB, GTB, Zenith Bank and Union Bank while those with low index are UBA, First Bank, WEMA Bank, Access Bank and Sterling Bank. Only Fidelity Bank and Union Bank with high environmental sustainability index had low firm value because they ranked tenth and ninth, respectively in firm value while the rest (three banks) of them had high firm value. It can then be posited that banks with high environmental sustainability disclosure index are likely to have high firm value. Conversely, most of the banks with low environmental sustainability index had low firm value with the exception of First Bank that had the highest average firm value. Hence, banks with low environmental sustainability index had the tendency to have low firm value.

Table 5: Ranking of overall sustainability disclosure index and firm value (2014-2018)

Banks	SUS	ENV	ECO	SOC	TBQ
GTB	3	3	1	1	2
FCMB	2	2	1	7	5
WEMA	8	8	9	3	7
FIDELITY	1	1	7	2	10
ACCESS	9	7	5	10	4
FIRST BANK	7	9	3	4	1
STERLING	6	6	6	6	6
ZENITH	4	4	8	5	3
UBA	10	10	10	9	8
UNION	5	5	3	7	9

Source: Authors' computation, 2020

Note: Figures in this table are the rankings of banks for sustainability disclosure index (SUS) and its dimensions i.e. ENV =environmental sustainability disclosure index, ECO= economic sustainability disclosure index, SOC=social sustainability disclosure index. The data in this table was generated from data in Appendix 7.

In addition, to facilitate our understanding of their social sustainability efforts, the banks were ranked based on the index of each bank for social sustainability disclosure. The data in the table also provided information that indicated banks with high index were GTB, Fidelity Bank, WEMA Bank, First Bank and Zenith Bank while those with low index were Access Bank, UBA, FCMB, Union Bank and Sterling Bank. It is important to note that FCMB and Union Bank that ranked high in environmental sustainability disclosure moved to low category in social sustainability disclosure. The two banks had lower total assets compared to other banks. However, Fidelity Bank and WEMA Bank with lower total assets had high index in social sustainability disclosure. This means that the total assets of the selected banks do not matter for the sustainability dimension. Out of the five banks with high firm value, three of them (First Bank, GTB and Zenith Bank) had high social sustainability disclosure index. Again, out of the banks with low firm value, three of them (Union Bank, UBA and Sterling Bank) had low social sustainability disclosure index. These then mean that there is a tendency that social sustainability disclosure index is likely to have positive relationship with firm value.

Furthermore, the five banks with high economic sustainability disclosure index were GTB, FCMB, First Bank, Union Bank and Access Bank while those with low index were UBA, WEMA Bank, Zenith Bank, Fidelity Bank and Sterling Bank. It should be noted that out of the five banks in the high index category, only Union Bank had low firm value (ranked 9th position). This result provides support to the argument that banks with high economic sustainability disclosure are likely to have high firm value. This position is also supported by the fact that four out of the five banks (Fidelity Bank, UBA, WEMA Bank and Sterling Bank) with low economic sustainability disclosure index had low firm value. It can therefore be posited that there is likely to be a positive relationship between economic sustainability disclosure and firm value.

Control variables and firm value

We begin regression analysis with estimating the effect of control variables on firm value. The results of the random-effect and fixed-effect OLS regression analyses are presented in Table 6. The table showed that fixed-effect model was more appropriate than the random-effect model, considering the number of variables that were significant and the adjusted R-square, which were higher in fixed-effect model. Besides, standard error of 0.118 in fixed-effect model was far lesser than that of random-effect. Most importantly, Hausman test statistic of 27.497 (P=0.001) indicated that random-effect model should not be selected. The table shows significant effect of LTD, NCA and BEV on firm value while the effect of TAS was insignificant. The effects of LTD and NCA were positive while that of BEV was negative (see Appendix 8). These results provided supports to the findings of Hussain (2015), Makela (2012), Feihn & Stuck (2011). To include control variables in the model, we started with long-term debts and non-current assets that have higher significant effect on firm value based on the

preliminary investigation and included others in a stepwise manner for robustness checks. Hence, the control variables were included in regression model that shows sustainability reporting and firm value relationship in a stepwise manner, to check for robustness.

Regression Results

We compute data for each variable for each bank and year using equation (3) and (4). We analyze data in two stages and results presented in panel A and B of Table 6: First, we examine the relationship between overall sustainability disclosure and firm value using multiple regression technique (Panel A). Secondly, we examine the effect of environmental, social and economic sustainability disclosure on firm value (Panel B). This is to obtain information on the contributions of each explanatory variable to the explained variable.

Proper estimation of equation (1) and (2) requires addressing some econometric issues because static panel regression analysis comprises of whether to estimate pooled OLS, fixed effect or random-effect model, based on some preliminary tests. Post-estimation tests were also carried out, which included Hausman test to determine the appropriateness or otherwise of random-effect models against fixed effect models and LM test for serial correlation in residuals by relying on Breusch-Pagan LM test. We presented results of the tests along with regression results in Table 6.

We estimate the two equations, one for firm value-overall sustainability disclosure relationship and the other for firm value-sustainability dimensions relationship, using fixed-effect estimation technique and results were presented in eight columns in Table 6. The first four columns in panel A were results for equation (1) while column (5)-(8) in panel B of the table were results for equation (2). In column (1), we begin by regressing firm value on overall sustainability disclosure, controlling for LTD and NCA. Next, we add additional control variables one after the other, taking into account TAS in column (2), BEV in column (3) and the two variables together in column (4). We follow the same process for regressing firm value on sustainability dimensions.

Table 6: OLS fixed-effect regression results – Sustainability disclosure and firm value

Variable	*Panel A*				*Panel B*			
	1	***2***	***3***	***4***	***5***	***6***	***7***	***8***
Constant	-0.086	-0.022	-0.013	0.024	-0.063	-0.088[c]	-0.102	-0.119
	(.104)		*(.724)*	*(.533)*	*(0.479)*	*(.088)*	*(.315)*	*(.369)*
SUS	-0.055[b]	-0.058[b]	-0.068[b]	-0.067[b]				
	(.020)		*(.016)*	*(.029)*				
ENV					-0.037[a]	-0.038[b]	-0.048[a]	-0.049 [a]
					(.003)	*(.028)*	*(.003)*	*(.009)*
SOC					0.0437[b]	0.0443[c]	0.0512[b]	0.0496[b]
					(0.025)	*(0.078)*	*(0.015)*	*(0.043)*
ECO					0.0326	0.0397	0.0486	0.0572
					(0.332)	*(0.322)*	*(0.105)*	*(0.103)*
LTD	0.159[a]	0.265[a]	0.166[a]	0.261[a]	0.087[a]	0.122 [a]	0.103[a]	0.122[a]
	(.000)		*(.000)*	*(.000)*	*(.000)*	*(.000)*	*(.000)*	*(.000)*
NCA	0.192[a]	0.175[a]	0.201[a]	0.183[a]	0.032[c]	0.026[b]	0.043[b]	0.036[b]
	(.000)		*(.000)*	*(.000)*	*(0.067)*	*(0.034)*	*(0.015)*	*(0.022)*
TAS		-0.118[b]		-0.107[b]		-0.027		-0.011
		(.016)				*(.349)*		*(.652)*
BEV			-0.1797[b]	-0.126			*-0.151*[c]	*-0.171*[b]
			(.044)	*(.167)*			*(.065)*	*(.031)*
Adj. R^2	0.516	0.542	0.518	0.536	0.684	0.566	0.539	0.546
S. E.	0.141	0.138	0.141	0.138	0.113	0.117	0.115	0.117
F-stat.	5.357[a]	5.452[a]	5.042[a]	5.036[a]	5.406[a]	5.253[a]	4.815[a]	4.683[a] *(.000)*
(Prob.)								
Hausman	25.50[a]	27.218[a]	29.05 [a]	29.74[a]	22.251[a]	25.795[a]	*21.488*[a]	25.062[a]
(Prob.)			*(. 000)*					
LM stat.	48.47	51.014	47.98	54.87	47.62	44.31	*44.11*	43.15
(Prob.)			*(.353)*	*(.149)*	*(.367)*	*(.501)*	*(.509)*	*(.551)*

Source: Authors' computations (2020). [a], [b] and [c] indicate 1, 5 and 10% significance level, respectively

Moreover, we report post-estimation statistics for F-test, Hausman test and Breusch-Pagan LM test, for robustness of our estimates. First, the F-test statistics were significant at 1 percent level, confirming joint significance of all the explanatory variables. Second, the Hausman test results, which were significant at 1 percent level also indicated the rejection of the random-effect regression estimates because they were bias and unreliable. Third, we test for cross-section dependence using the Breusch-Pagan LM method, which failed to reject the null hypothesis of no cross-section dependence (correlation) in residuals, even at 10 percent significant level, which further confirmed the appropriateness of our estimates. Fourth, the adjusted R-squares indicated the extent to which changes in firm value can be explained by changes in sustainability disclosure index and control variables. The statistics together with standard error of regression were used to compare the results of the four different estimations. The higher the adjusted R-square (but with lower standard error of regression), the more robust the estimates. Therefore, the estimates in column (2) and (5) were the most robust and were selected for discussion for firm value-overall sustainability disclosure and firm value-sustainability dimensions relationships, respectively.

5. Discussions

In Panel A, results across different specifications looked qualitatively similar. The coefficient of SUS was consistently significant and negative at 5 percent level or better suggesting that higher sustainability disclosure was associated with lower firm value. This is inconsistent with findings in previous studies that an improvement in sustainability disclosure led to higher firm value (Emeka-Nwokeji & Osisioma, 2019; Swarnapali et al., 2018; Najul & Larkar, 2018; Sri & Muhameed, 2017; Lawrence et al., 2017; Minna & Ronald, 2015; Baetlett, 2012) but provided supports for Kaveen et al. (2013). The results in column 2 under Panel A showed that an increase in SUS by 1 percent significantly led to a decrease of about 5.8 percent in value. This indicated that SUS was not satisfactory enough to enhance firm value. It also means that investors did not appreciate or were not convinced of the sustainability efforts of the banks and their disclosure.

It can be inferred that the findings supported the position of legitimacy theory and not the value enhancing theory. This showed that the hypothesis of no significant effect of SUS on firm value should be rejected, though negative. For control variables, LTD and NCA however show significant positive coefficient in a consistent manner, implying an increased LTD and investment in long-term assets led to increased firm value. Meanwhile, TAS did not exhibit the expected positive sign.

Results across the four different specifications in Panel B also looked similar. The coefficient of ENV disclosure was consistently negative and significant at different levels. Both the SOC and ECO disclosures showed positive effect on firm value but only the coefficient of social sustainability was significant at different levels across the specifications. The adjusted R-square of 0.684 and standard error of regression of 0.1129, which was the lowest in column (5), made the estimates to be the most robust, compared to other columns.

Column (5) showed that environmental sustainability had significant negative effect (β = -0.037, P=.01) on firm value. A 1% increase in environmental sustainability activities will lead to a significant reduction of about 4% in firm value. This means that banks with the high environmental sustainability activities tend to have less firm value, indicating that investors did not have a good perception of the environmental sustainability efforts reported by the banks. The hypothesis that environmental sustainability has no significant effect on firm value was therefore rejected. The negative result was partly due to lack of the impact on people (or community) of the environmental sustainability activities of the banks. The result supported the findings of Kaveen *et al* (2013) and Garcia *et al* (2017), which established a significant negative association between quality sustainability reporting and financial performance (profitability). Our results however negated the findings of Asuquo *et al* (2018) that environmental disclosure had no significant effect on return on assets (ROA) of some selected listed brewery firms in Nigeria and Swarnapali *et al* (2018) that a significant positive relationship existed.

Results in column (5) further showed that social sustainability disclosure had significant positive influence on firm value. A 1 percent increase in social sustainability disclosure led to about 4.4 percent increase in firm value. This result supported the findings of some recent studies such as Yuanyuan *et al* (2018) and Horn *et al* (2018). It can then be opined that social sustainability reporting on philanthropy, labour and industrial relations, diversity and equal opportunities, employees' health and safety as well as employees' training and education of the banks appealed to investors in the capital market and enhanced the value attached to shares

of the banks during the period under study. The result also provided support to the findings of Baetlett (2012) that superior sustainability reporting positively correlated with increased firm value.

Surprisingly, the coefficient for economic sustainability disclosure was consistently insignificant, though positive. This indicated that an increase in economic sustainability reporting by the banks did not statistically lead to noticeable effect on firm value. The hypothesis of no significant effect of economic sustainability disclosure on firm value was therefore supported. The results did not however support the findings of Lawrence *et al* (2017) of a significant positive influence of sustainability reporting on firm value in Singapore. Possible explanations for the insignificant result could be that the Nigerian banking sector, which has lending bias for some companies, could not provide quality information on how their banking operations improved the economic circumstances of stakeholders, their contributions towards economic development, their risk management activities and indirect economic impact. It could also be that the regulations provided by regulatory agencies on financial reporting were so effective that the banks abide with them in order to avoid penalties and hence, for legitimacy reason. It could also be as a result of the economic meltdown experienced during 2015/2017 in Nigeria, which drastically reduced share prices.

With regards to control variables, non-current assets had significant positive effect (β = 0.032, P=.1) on firm value at 10 percent significance level. Ditto long-term debts (β = 0.089, P=.01) but at 1 percent significance level. The results conformed to *a priori* expectations and indicated that a 1% increase in non-current assets and long-term debts (that is, an increase of N10 billion) led to an increase of about 3.2 percent and 8.7 percent, respectively in firm value. This was an indication that higher non-current assets and long-term debts led to higher value for the banks. The results justified the various banks recapitalization reforms carried out in the past, as they afforded the banks access to increased capital and non-current assets acquisition.

6. Conclusion and suggestions for further studies

Based on the data collected from deposit money banks in Nigeria over the period 2014-2018 and the analysis, we obtain strong empirical evidence of consistent significant negative effect of overall and environmental sustainability disclosure but significant positive effect of social sustainability disclosure on firm value. These results showed that overall and environmental sustainability disclosure were, respectively detrimental to firm value. The findings therefore provided more support for legitimacy theory than value enhancing theory though, the two theories formed the bedrock of this study. We then conclude that deposit money banks in Nigeria operated and engaged in sustainability activities in order to legitimise their banking operations during the period under consideration.

The findings have some important policy implications. First, the banks should examine how they address environmental issues and how they report on them since currently, their reporting system on environmental activities was detrimental to firm value. There is need to probe their environmental activities to identify those that are adding positive value and those contributing negatively to their value creation potentials. For environmental sustainability reporting to have significant positive effect on firm value, it means that sustainability activities must be capable of reducing cost of finance and conflicts and improving their relationships with key stakeholders as well as their brand reputation. Improving the quality of the banks' environmental sustainability reporting system is also important by reporting quantitatively their environmental activities as only few of them (Fidelity Bank, GTB and FCMB) currently adopted the reporting system on environmental activities.

Second, our findings on social sustainability disclosure confirmed essential roles of a firm' social responsibilities in addressing social and humanitarian problems in the society. However, some of the banks (Access Bank, UBA and FCMB) still need to consider reporting social sustainability activities in quantitative terms because the banks' indices in this respect were very low. Third, since economic sustainability disclosure did not show any significant impact on firm value, though positive relationship existed, it is recommended that the banks should be reporting quantitatively how their banking operations impact on the economic circumstances of stakeholders and other economic sustainability issues such as risk management and market presence because of their beneficial effects. Besides, given the important role of the banking sector in economic development of a country, especially in developing countries like Nigeria, the banks should report on their contributions to the overall economic value created by the productive sectors and the Nigerian economy.

Generally, the banks should engage in sustainability (environmental, social and economic) activities that can give them better reputation in the eyes of investors and other stakeholders. In addition, they should consistently make available information to the public about their sustainability efforts as well as the potential outcomes of the activities.

The limited support for value enhancing theory might be due to the banks and periods selected for this study hence, further studies may be carried out to obtain more empirical evidence on the effect of sustainability reporting of banks on firm value in other periods or other types of financial institutions such as microfinance banks, mortgage banks and insurance companies. Besides, further studies may be conducted to observe discrepancies in the impact of sustainability reporting on the value of banks during economic recession and economic contraction or among different categories of banks such as regional, state and national banks. Studies may also be carried out using alternative measures of firm value such as economic value added, shareholders' value or wealth and free cash flows.

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APPENDIX 1: ENVIRONMENTAL SUSTAINABILITY DISCLOSURE INDEX FOR BANKS

BANK	YEAR	WAT.	ENE.	CAR.	WAS.	COMP.	BIO.	STEW.	TRANS.	AVEINDEX
GT BANK	2014	0	3	3	3	3	3	0	0	**1.875**
	2015	0	3	3	0	3	3	3	0	**1.875**
	2016	0	3	3	3	3	3	0	0	**1.875**
	2017	3	3	3	3	3	0	0	3	**2.25**
	2018	0	4	3	3	3	0	3	3	**2.375**
Average Index		**0.6**	**3.2**	**3**	**2.4**	**3**	**1.8**	**1.2**	**1.2**	**2.05**
FCMB	2014	3	3	3	3	3	0	3	3	**2.625**
	2015	3	3	3	3	3	3	0	3	**2.625**
	2016	3	3	3	3	3	3	0	3	**2.625**
	2017	0	3	3	3	3	3	3	3	**2.625**
	2018	3	3	3	3	3	4	0	3	**2.75**
Average Index		**2.4**	**3**	**3**	**3**	**3**	**2.6**	**1.2**	**3**	**2.65**
WEMA	2014	0	0	0	0	3	3	3	0	**1.125**
	2015	0	3	0	3	3	0	0	0	**1.125**
	2016	0	0	0	3	3	0	0	0	**0.75**
	2017	0	4	3	3	3	0	3	4	**2.5**
	2018	3	3	3	3	3	0	3	0	**2.25**
Average Index		**0.6**	**2**	**1.2**	**2.4**	**3**	**0.6**	**1.8**	**0.8**	**1.55**
FIDELITY	2014	3	3	3	3	3	3	4	4	**3.25**
	2015	3	3	4	3	3	3	3	0	**2.75**
	2016	3	4	3	3	3	3	3	4	**3.25**
	2017	3	4	3	3	3	3	3	4	**3.25**
	2018	3	4	3	3	3	3	3	4	**3.25**
Average Index		**3**	**3.6**	**3.2**	**3**	**3**	**3**	**3.2**	**3.2**	**3.15**
ACCESS	2014	3	3	0	3	3	0	3	3	**2.25**
	2015	0	0	0	3	3	0	0	0	**0.75**
	2016	3	3	3	3	3	4	3	0	**2.75**
	2017	0	4	3	4	3	0	3	0	**2.125**
	2018	0	0	0	3	3	0	0	0	**0.75**
Average Index		**1.2**	**2**	**1.2**	**3.2**	**3**	**0.8**	**1.8**	**0.6**	**1.725**
FIRST	2014	3	3	3	3	3	0	0	0	**1.875**
BANK	2015	0	0	0	0	3	0	0	0	**0.375**
	2016	0	0	3	3	3	3	0	3	**1.875**
	2017	0	0	0	0	3	0	0	0	**0.375**
	2018	0	0	3	3	3	0	0	3	**1.5**
Average Index		**0.6**	**0.6**	**1.8**	**1.8**	**3**	**0.6**	**0**	**1.2**	**1.2**
STERLING	2014	0	3	3	0	3	0	0	0	**1.125**
	2015	0	0	0	0	3	0	0	0	**0.375**
	2016	0	0	0	0	3	0	0	0	**0.375**
	2017	4	3	3	4	3	3	4	3	**3.375**
	2018	4	3	4	4	3	3	3	3	**3.375**
Average Index		**1.6**	**1.8**	**2**	**1.6**	**3**	**1.2**	**1.4**	**1.2**	**1.725**
ZENITH	2014	3	3	3	3	3	0	3	3	**2.625**
	2015	3	3	3	3	3	0	3	0	**2.25**
	2016	3	3	3	3	3	0	3	3	**2.625**
	2017	0	3	3	3	3	0	3	3	**2.25**
	2018	0	0	0	0	3	0	0	0	**0.375**
Average Index		**1.8**	**2.4**	**2.4**	**2.4**	**3**	**0**	**2.4**	**1.8**	**2.025**
UBA	2014	0	0	3	3	3	0	3	3	**1.875**
	2015	0	3	3	3	3	0	0	3	**1.875**
	2016	0	0	0	0	3	0	0	0	**0.375**
	2017	0	0	0	0	0	0	0	0	**0**
	2018	0	0	0	3	3	0	0	0	**0.75**
Average Index		**0**	**0.6**	**1.2**	**1.8**	**2.4**	**0**	**0.6**	**1.2**	**0.975**
UNION	2014	0	0	0	0	3	0	0	0	**0.375**
	2015	3	3	3	0	3	0	0	0	**1.5**
	2016	3	3	3	3	3	0	3	3	**2.625**
	2017	3	3	3	3	3	0	3	0	**2.25**
	2018	3	3	3	4	3	0	3	0	**2.375**
Average Index		**2.4**	**2.4**	**2.4**	**2**	**3**	**0**	**1.8**	**0.6**	**1.825**

APPENDIX 2: SOCIAL SUSTAINABILITY DISCLOSURE INDEX FOR BANKS

BANK	YEAR	COM.	ANTI.	HRIG.	EMP.	LAB.	TRAI.	PHIL	EQU.	AVEINDEX
GT BANK	2014	4	3	0	3	3	3	3	4	**2.875**
	2015	4	3	3	3	3	3	4	4	**3.375**
	2016	3	3	3	3	4	4	4	4	**3.5**
	2017	4	3	3	3	4	4	4	4	**3.625**
	2018	4	3	3	3	4	3	4	4	**3.5**
Average Index		**3.8**	**3**	**2.4**	**3**	**3.6**	**3.4**	**3.8**	**4**	**3.375**
FCMB	2014	3	3	3	3	3	4	4	4	**3.375**
	2015	3	0	3	3	3	3	0	4	**2.375**
	2016	0	3	3	3	3	3	4	3	**2.75**
	2017	3	3	0	3	3	3	4	4	**2.875**
	2018	3	3	0	3	4	3	4	4	**3.0**
Average Index		**2.4**	**2.4**	**1.8**	**3**	**3.2**	**3.2**	**3.2**	**3.8**	**2.875**
WEMA	2014	3	3	3	3	4	3	4	4	**3.375**
	2015	3	3	3	3	3	3	4	4	**3.25**
	2016	3	3	3	3	3	3	4	4	**3.25**
	2017	3	3	3	3	4	3	4	4	**3.375**
	2018	3	3	0	3	4	3	3	4	**2.875**
Average Index		**3**	**3**	**2.4**	**3**	**3.6**	**3**	**3.8**	**4**	**3.225**
FIDELITY	2014	3	3	3	3	3	3	4	3	**3.125**
	2015	4	3	3	3	4	4	4	4	**3.625**
	2016	3	3	3	3	3	3	3	4	**3.125**
	2017	3	3	3	3	4	3	4	3	**3.25**
	2018	3	3	3	3	3	3	4	3	**3.125**
Average Index		**3.2**	**3**	**3**	**3**	**3.4**	**3.2**	**3.8**	**3.4**	**3.25**
ACCESS	2014	3	3	0	3	3	0	3	3	**2.25**
	2015	0	0	0	3	3	0	0	0	**0.75**
	2016	3	3	3	3	3	4	3	0	**2.75**
	2017	0	4	3	4	3	0	3	0	**2.125**
	2018	0	0	0	3	3	0	0	0	**0.75**
Average Index		**1.2**	**2**	**1.2**	**3.2**	**3**	**0.8**	**1.8**	**0.6**	**1.725**
FIRSTBANK	2014	4	3	3	4	4	3	4	4	**3.625**
	2015	3	3	0	3	3	3	4	3	**2.75**
	2016	3	4	3	3	4	4	4	4	**3.625**
	2017	3	3	3	3	4	3	4	4	**3.375**
	2018	3	3	3	3	3	3	0	3	**2.625**
Average Index		**3.2**	**3.2**	**2.4**	**3.2**	**3.6**	**3.2**	**3.2**	**3.6**	**3.2**
STERLING	2014	3	3	0	3	3	4	3	3	**2.75**
	2015	0	3	0	3	3	4	4	3	**2.5**
	2016	0	3	0	3	3	4	3	4	**2.5**
	2017	4	3	3	3	3	3	4	4	**3.375**
	2018	3	3	3	3	4	3	4	4	**3.375**
Average Index		**2**	**3**	**1.2**	**3**	**3.2**	**3.6**	**3.6**	**3.6**	**2.9**
ZENITH	2014	3	0	3	3	3	3	3	4	**2.75**
	2015	0	3	3	3	4	3	4	3	**2.875**
	2016	3	3	3	3	4	4	3	3	**3.25**
	2017	3	3	3	3	4	3	4	4	**3.375**
	2018	3	3	3	3	3	3	4	4	**3.25**
Average Index		**2.4**	**2.4**	**3**	**3**	**3.6**	**3.2**	**3.6**	**3.6**	**3.1**
UBA	2014	3	3	3	4	3	3	4	3	**3.25**
	2015	3	0	3	3	3	3	3	4	**2.75**
	2016	0	0	0	3	4	3	4	3	**2.125**
	2017	3	0	0	3	4	3	4	3	**2.5**
	2018	0	0	0	3	3	3	3	4	**2.0**
Average Index		**1.8**	**0.6**	**1.2**	**3.2**	**3.4**	**3**	**3.6**	**3.4**	**2.525**
UNION	2014	0	0	0	3	3	3	3	3	**1.875**
	2015	3	3	3	3	3	3	4	3	**3.125**
	2016	3	3	3	3	3	3	4	4	**3.25**
	2017	3	3	3	3	4	3	4	3	**3.25**
	2018	0	3	4	3	3	3	3	4	**2.875**
Average Index		**1.8**	**2.4**	**2.6**	**3**	**3.2**	**3**	**3.6**	**3.4**	**2.875**

APPENDIX 3: ECONOMIC SUSTAINABILITY DISCLOSURE INDEX FOR BANKS

BANK	YEAR	ECOP.	MKTS.	VACH.	RSK.	IND.	AVEINDEX
GT BANK	2014	3	3	3	3	4	3.2
	2015	4	4	3	3	4	3.6
	2016	4	4	4	3	4	3.8
	2017	4	3	4	3	3	3.4
	2018	3	3	4	4	3	3.4
Average Index		**3.6**	**3.4**	**3.6**	**3.2**	**3.6**	**3.48**
FCMB	2014	4	4	4	3	4	3.8
	2015	3	4	4	3	3	3.4
	2016	3	4	3	3	3	3.2
	2017	3	4	4	3	4	3.6
	2018	3	3	4	3	4	3.4
Average Index		**3.2**	**3.8**	**3.8**	**3.0**	**3.6**	**3.48**
WEMA	2014	3	3	3	3	0	2.4
	2015	0	3	3	3	3	2.4
	2016	0	3	3	3	0	1.8
	2017	3	3	4	3	3	3.2
	2018	3	3	3	3	3	3
Average Index		**1.8**	**3**	**3.2**	**3**	**1.8**	**2.56**
FIDELITY	2014	3	3	4	3	3	3.2
	2015	4	4	3	3	3	3.4
	2016	3	4	3	3	0	2.6
	2017	3	3	3	3	3	3
	2018	3	3	3	3	3	3
Average Index		**3.2**	**3.4**	**3.2**	**3**	**2.4**	**3.04**
ACCESS	2014	3	4	3	3	3	3.2
	2015	3	4	3	3	3	3.2
	2016	3	3	3	3	4	3.2
	2017	3	4	3	3	3	3.2
	2018	4	4	3	3	3	3.4
Average Index		**3.2**	**3.8**	**3**	**3**	**3.2**	**3.24**
FIRSTBANK	2014	3	3	3	3	3	3
	2015	3	4	4	3	3	3.4
	2016	3	4	4	3	3	3.4
	2017	3	3	4	3	3	3.2
	2018	3	4	4	3	3	3.4
Average Index		**3**	**3.6**	**3.8**	**3**	**3**	**3.28**
STERLING	2014	3	4	3	3	3	3.2
	2015	4	4	0	4	4	3.2
	2016	0	4	3	4	4	3
	2017	3	4	3	4	3	3.4
	2018	3	4	3	3	3	3.2
Average Index		**2.6**	**4**	**2.4**	**3.6**	**3.4**	**3.2**
ZENITH	2014	3	4	3	3	3	3.2
	2015	0	3	3	3	3	2.4
	2016	3	4	4	3	3	3.4
	2017	3	3	4	3	3	3.2
	2018	0	3	3	3	3	2.4
Average Index		**1.8**	**3.4**	**3.4**	**3**	**3**	**2.92**
UBA	2014	3	3	3	3	3	3
	2015	3	3	3	3	3	3
	2016	0	3	0	3	0	1.2
	2017	0	3	3	3	0	1.8
	2018	0	3	3	3	0	1.8
Average Index		**1.2**	**3**	**2.4**	**3**	**1.2**	**2.16**
UNION	2014	3	4	3	3	3	3.2

	2015	3	4	3	3	3	3.2
	2016	3	4	3	3	3	3.2
	2017	3	4	3	3	3	3.2
	2018	3	4	4	4	3	3.6
Average Index		**3**	**4**	**3.2**	**3.2**	**3**	**3.28**

Note* (APPENDIX 1)*: WAT.=water, ENE.=energy, CAR.=carbon emission, WAS.=waste management, COMP.= compliance, BIO. = biodiversity, STEW. = Product and service stewardship, and TRANS. = Transportation. AVEINDEX was computed using equation (1).

Note* (APPENDIX 2)*: COM. = community involvement, ANTI. = anticorruption behaviour, HRIG. = human rights, EMP. = employees' health and safety, LAB. = labour and industrial relations, TRAI. = training and education, PHIL. = philanthropy, EQU. = diversity and equal opportunities. AVEINDEX was computed using equation (1).

Note* (APPENDIX 3)*: ECOP.=economic performance, MKTS.= market presence, VACH.= value and supply chain, RSK=risk management, IND.= indirect economic performance. AVEINDEX was computed using equation (1).

APPENDIX 4: OVERALL AVERAGE SUSTAINABILITY DISCLOSURE INDEX BY BANK AND YEAR

YEAR/BANK	GTB	FCMB	WEMA	FIDELITY	ACCESS	FIRST	STERLING	ZENITH	UBA	UNION
2014	2.65	3.27	2.3	3.19	2.57	2.83	2.36	2.86	2.71	1.82
2015	2.95	2.8	2.26	3.26	1.57	2.18	2.03	2.51	2.54	2.61
2016	3.06	2.86	1.93	2.99	2.9	2.97	1.96	3.09	1.23	3.03
2017	3.09	3.03	3.025	3.17	2.48	2.32	3.38	2.94	1.43	2.9
2018	3.09	3.05	2.71	3.13	1.63	2.5	3.32	2.01	1.52	3.00
AVERAGE	**2.97**	**3.00**	**2.45**	**3.15**	**2.23**	**2.56**	**2.61**	**2.68**	**1.89**	**2.67**

Source: Authors' computations, 2020.
Computed using simple average of the index obtained for ENV, SOC and ECO using data in Appendix 1-3.

APPENDIX 5: FIRM VALUE BY BANK AND YEAR

YEAR/BANK	GTB	FCMB	WEMA	FIDELITY	ACCESS	FIRST	STERLING	ZENITH	UBA	UNION
2014	0.48	0.375	0.286	0.144	0.206	0.183	0.182	0.276	0.14	0.156
2015	0.39	0.254	0.256	0.158	0.139	0.134	0.206	0.292	0.153	0.197
2016	0.538	0.166	0.163	0.147	0.26	0.138	0.193	0.381	0.192	0.164
2017	0.41	0.223	0.185	0.206	0.214	1.172	0.24	0.329	0.299	0.242
2018	0.446	0.283	0.166	0.174	0.606	1.06	0.271	0.406	0.263	0.206
AVERAGE	**0.453**	**0.260**	**0.2212**	**0.166**	**0.285**	**0.537**	**0.218**	**0.337**	**0.209**	**0.193**

Source: Authors' computations, 2020. Computed using equation (2).

APPENDIX 6: OVERALL AVERAGE SUSTAINABILITY DISCLOSURE INDEX AND FIRM VALUE BY YEAR

YEAR	ENV	ECO	SOC	SUS	TBQ	TBQ *10
2014	1.9	3.14	2.925	2.655	0.243	2.43
2015	1.55	3.12	2.738	2.469	0.218	2.18
2016	1.913	2.88	3.013	2.602	0.234	2.34
2017	2.1	3.12	3.113	2.778	0.352	3.52
2018	1.975	3.06	2.738	2.591	0.388	3.88

Source: Authors' computations, 2020.

Note* (APPENDIX 6)*: This table was generated from data in Appendix 1-3 and 5 for ENV, ECO & SOC and TBQ, respectively. SUS is the Overall average sustainability reporting index for each year using data for all banks. We compute simple average of the average index obtained for each dimension of sustainability

disclosure for the ten banks. For the purpose of drawing the graph in Figure 1, we multiplied TBQ by 10 to bring it at par with the overall average sustainability disclosure index.

APPENDIX 7: OVERALL AVERAGE SUSTAINABILITY DISCLOSURE INDEX AND FIRM VALUE BY BANK

BANKS	ENV	ECO	SOC	SUS	TBQ	TBQ*10
GTB	2.05	3.48	3.375	2.97	0.4528	4.528
FCMB	2.65	3.48	2.875	3.00	0.2602	2.602
WEMA	1.55	2.56	3.225	2.45	0.2112	2.112
FIDELITY	3.15	3.04	3.25	3.15	0.1658	1.658
ACCESS	1.725	3.24	1.73	2.23	0.285	2.850
FIRST BANK	1.20	3.28	3.20	2.56	0.5374	5.374
STERLING	1.725	3.2	2.90	2.61	0.2184	2.184
ZENITH	2.025	2.92	3.10	2.68	0.3368	3.368
UBA	0.975	2.16	2.53	1.89	0.2094	2.094
UNION	1.825	3.28	2.88	2.67	0.193	1.930

Source: Authors' computations, 2020.

Note* (APPENDIX 7)*: This table was generated from data in Appendix 4 and 5.

APPENDIX 8: Regression results of control variables and firm value

Variable	Random-effect	Fixed-effect
Constant	0.1576***	0.0628
	(0.000)	*(0.018) ** *
Long-term debts	0.0934***	0.0836***
	(0.000)	*(0.004)*
Non-current assets	0.0172	0.0569***
	(0.617)	*(0.000)*
Total assets	-0.0313*	0.0164
	(0.077)	*(0.483)*
Book value of equity	0.0055	-0.0708*
	(0.967)	*(0.068)*
Adjusted R-square	*0.304*	*0.652*
Standard Error	*0.170*	*0.118*
F-statistic (Prob.)	*6.339*** (.000)*	*8.075*** (.000)*
Hausman test (Prob.)		*27.497*** (.000)*
Breusch-Pagan stat. (Prob.)	*48.724 (0.326)*	*53.754 (0.174)*
Observation	*50*	*50*
Number of banks	10	*10*

Source: Authors' computations, 2020. ****, ** and * are 1, 5 and 10% significant levels.*