

**Review paper**

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## THE RELATIONSHIP BETWEEN THE CORPORATE SOCIAL RESPONSIBILITY AND THE COST OF THE CAPITAL OF THE COMPANIES LISTED ON THE NIGERIAN STOCK EXCHANGE

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This study is aimed at analyzing the influence of Corporate Social Responsibility (CSR) on the Cost of the Capital (CoC) of the companies quoted on the Nigerian Stock Exchange (NSE). The annual panel data of the 32 companies quoted on the NSE pertaining to the period from 2005 to 2019, were judgmentally selected. The Thomson Reuters Index was used as the measure for CSR, whereas the Cost of Equity (CoE) and the Cost of Debt (CoD) were used as the measure for CoC. The findings revealed the existence of a positive/negative nonsignificant relationship, on the one hand, and a positive/negative significant relationship as well, on the other, between CSR and CoC. The results obtained are supportive of the findings found in scholars' works, especially those in the developed countries in which this aspect has extensively been explored. To conclude, the companies that spend on CSR have a better chance of accessing capital at a better and low cost. Based absolutely on the findings, the researcher advocates that investment should incessantly be made in the issues concerning CSR, given the fact that, if consistently made, such investment may ease access to funds at a reduced cost.

**Keywords:** corporate social responsibility, cost of capital, Thomson Reuters Index, cost of equity, cost of debt

JEL Classification: M1, M4

### INTRODUCTION

Corporate Social Responsibility (CSR) has globally turned out to be exceptionally essential. The same has been supported by an increasing number of the

academic papers that highlight practical reasons for firms to integrate CSR in their practices (Joëla, 2017; Youngkyung & Jungmu, 2019; Chin-Chen, Fengyi, Teng-Shih, & Chia-Ming, 2020). In their paper, S. M. Barbara and F. I. Maria (2017) stipulated the fact that a growing range of companies had been paying attention to corporate responsibility issues. CSR depicts companies' capacity to be socially responsible

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for social growth and development. It demonstrates the activities that communicate business obligations to all constituent stakeholders (Votaw, 1973). The interesting question is, why, of their own accord, do some firms spend their scarce resources on social goals while others do not?

There are several factors that motivate companies to report on CSR. As reported by Ernst & Young (2013), companies see improved reputation as the most valuable contribution made to them by CSR. A. Ansong, S. K. Agyei and E. Marfo-Yiadom (2017); M. Moskowitz, 1972; and O. Hawn, A. Chatterji and W. Mitchell (2011), accordingly opined the factors including gaining social legitimacy and goodwill, attracting and maintaining high-quality employees, and allowing for the healthier marketing of products and services. A. Goss and G. S. Roberts (2011); K. M. Menz (2010) and B. Cheng, I. Ioannou and G. Serafeim (2014), however, advocate that investing in corporate social initiatives increase access to external financing, such as bank loans, a debt and equity issues.

To some extent, CSR is connected with CoC alongside the investor's decision on funds allocation. As opined by P. M. Healy and K. G. Palepu (2001), more disclosure findings might provide additional facts and consequently decrease the information irregularity dilemma, knowing fully well that without an adequate piece of information, investors will find it tough to differentiate between good and bad investments. Introducing CSR disclosure would align the interest of the parties' concern and create incentives for CSR disclosure.

The Cost of Capital (CoC) is the cost of the company's funds, both the debt and the equity. CoC is the company financing costs when borrowing money, using equity financing or selling bonds in order to fund projects or investments. In particular, companies' cost of capital can reflect CSR risks and benefits (Weber, 2008). For example, firms might benefit from lower interest rates (Goss & Roberts, 2011) and higher access to debt capital through CSR (Cheng, Ioannou & Serafeim, 2014).

There is a well-established fact that investors in the public debt are more sensitive to and more concerned

about agency costs and the asymmetric information problem than private debt investors, such as banks (Leland & Pyle, 1977; Krishnaswami, Spindt & Subramaniam, 1999; Denis & Mihov, 2003). The presence of these two frictions could thus essentially limit a firm's access to the public debt market. Consequently, firms may have to rely on relatively more costly bank debt financing.

This study primarily investigates the effect of CSR performance on CoC by obtaining evidence from a cross-section of the companies quoted on the Nigerian Stock Exchange.

Bearing in mind the goal of the study, the study itself ascertains whether performing CSR has in any way led to easy access to capital at a reduced cost among the companies quoted on the NSE. The study is empirically oriented and employs quantitative methods, such as the descriptive method, correlation, the unit root test, the random effect model and diagnostic tests.

Beside the introduction, the rest of the paper is structured as follows: in the next section, the problem statement is presented and testable hypotheses are developed; this is followed by a related literature review pertaining to the subject matter of the study and the method applied in the study as well. Finally, the analysis, discussion, the conclusions, and the recommendations are presented.

## **Problem statement**

In the past years, CSR has turned out to be the most crucial subject issue in doing business. The argument over the intrinsic value of CSR revolves around if such investments are value-enhancing or if they are the value-destroying manifestation of agency conflicts (Allen & Gordon, 2011). The quest for social responsibility helps organizations to create values, be accountable to stakeholders at large and gain performance.

Accordingly, society tends to be in an advantaged position in relation to the firms that act in a socially responsible manner in comparison with their

counterparts. It is therefore imperative for firms to channel their societal performance, which may usually be done through the disclosure of the CSR information which will ultimately be beneficial to all (Dhaliwal, Li, Tsang & Yang, 2011). The information disclosed must be useful, timely, and not too costly to collect (Dubbink, Graafland & Van Liedekerke, 2008). Regrettably, CSR implementation is more complicated to perform than to explain. The reason for that lies in the fact that a company's interests and culture differ (that is, humanistic vs profit maximization), and a probable difference in interest between managers and shareholders varies, too (Banerjee, 2008).

Humanistic corporations generally tend to behave in a socially responsible manner (Smith, 2003; Lee, 2008; Walker & Wan, 2012), while profit-maximizing firms seek their interest not minding whether it is at the expense of anyone else or not (Dugger, 1989; Basu & Palazzo, 2008; Menz, 2010).

Despite the growing body of the extant studies on CSR among companies in Nigeria, a good number of the studies were dedicated to the relationship between CSR and the Financial Performance (FP) of the corporations listed on the NSE (Agbiogwu, Ihendinihu & Okafor, 2016; Wekesa, 2017; Abdulaziz, 2018; Odunayo & Ibidolapo, 2018; Stephen & Rebecca, 2018; Ehioghiren & Eneh, 2019). This study refers to a well-known debate from an innovative point of view: CSR and CoC. The relationship between CSR and CoC has not yet been investigated a lot in Nigeria. In addition to that, the largest number of the studies on the concept of CSR that have sprouted in Nigeria's companies are focused on CSR and its effect on FP. These studies test the correlation between CSR and FP, simultaneously neglecting the point of view concerning CSR and CoC.

Besides, the biggest number of the studies used the amount disclosed in a financial statement, in questionnaires and a few in the KLD index as the measure for CSR (Ajide & Aderemi, 2014; Joseph & Michah, 2016; Odunayo & Ibidolapo, 2018). This study investigates the relationship between CSR and the CoC of the companies listed on the NSE using the Thomson Reuther Index. It specifically examines the

correlation between CSR and CoE, CoD. There is a dearth of papers in the literature on this aspect. This is the reason why the focal point here is to explore the effect CSR has on the cost of capital (CoC) and the costs of debt (CoD) amongst Nigerian companies. This is necessary because the result of the research, if positive, may motivate other companies not in compliance with CSR to adopt CSR as a part of their business operations.

In light of the above-mentioned, the study:

- examines whether CSR performance by the companies listed on the NSE included in the sample has in any way led to easy access to the cost of equity at a reduced cost, and
- ascertains whether CSR performance by the companies listed on the NSE and included in this sample has led to easy access to the cost of debt at a reduced cost.

Bearing in mind the foregoing, the following is hypothesized.

- H1: Corporate social responsibility correlates with the cost of equity of the companies quoted on the Nigerian Stock Exchange.
- H2: Corporate social responsibility correlates with the cost of debt of the companies quoted on the Nigerian Stock Exchange.

## LITERATURE REVIEW

### Corporate social responsibility and the cost of equity

The empirical findings revealed the fact that the companies that had disclosed CSR had better and quicker access to new capital, and also faced fewer costs. Companies showed their probable shareholders that they were competitive and lowered the menace of investment by reporting on CSR (Cheng, Ioannou & Serafeim, 2014). They argued that the extent to which CSR is present could lessen CoE capital

for companies. This is also owing to their better commitment to and their engagement with the stakeholders based on mutual trust and cooperation (Jones, 1995). CSR adoption makes stakeholders feel stronger self-assurance and trust in companies. It makes them see the companies as the subject sharing the same common belief with them, and agency costs are reduced. In another study, W. Dhaliwal *et al* (2011) revealed that investors were most likely to invest in a more transparent company. With reliance on increased trust in suchlike companies, investors were more prone to lessen CoE capital.

### Corporate social responsibility and cost of debt

More to the point, increased CSR decreases CoD. Studies conducted in the past also revealed the fact that, in the long run, performing CSR could result in a reduction in CoD. An example is a survey carried out by A. Goss and G. S. Robert (2011). Their study suggests that CSR statistically significantly lowers 7 to 18 basis points on bank loans.

In yet another study, S. Drucker and M. Puri (2009) established the fact that loans had an additional and preventive debt agreement, mainly when agency costs and information asymmetry were stricter. In prior studies, CSR has been seen to lower information asymmetry and trust (Dhaliwal *et al*, 2011; Cheng *et al*, 2014). Debt holders are exposed to a smaller threat when lending in the case when businesses undertake CSR, and they will be more liable to lend and ask for lower interest. Therefore, CSR is deemed to be able to decrease CoD. C. Demiroglu and C. M. James (2010) stipulate that the borrowers who take more risk are more prone to obtain loans with a tight agreement. S. Chava (2014) discovered that lenders charged smaller interest on bank loans to the organizations that derived significant revenue from environmentally beneficial products.

N. Attig, S. El Ghouli, O. Guedhami and J. Suh (2013) revealed the fact that CSR had a significant positive impact on a firm's credit rating. Companies proven to be highly socially performing are rewarded with high credit ratings by rating agencies. Accordingly,

CSR communicates the vital nonfinancial information which credit rating agencies use in evaluating companies. A. Goss and G. S. Roberts (2011) stipulate that with healthier credit ratings, companies can make a debt at a lower cost owing to the trust these agencies have in their operations. By implication, companies tend to engage themselves in the projects that will provide a social benefit to those concerned. Accordingly, when companies operate in a way which is perceived as socially desirable by the stakeholders, they will be able to receive high credit ratings, which may result in a lowered CoD in the long run.

Yet another study, namely K. M. Menz (2010), established the fact that CSR lowered CoD. It was, however, revealed that socially responsible companies received lower risk premiums. The one reason for this could be the fact that credit ratings mattered more to bond investors than CSR ratings did. His results revealed a non-positive correlation between CSR and CoD. Nevertheless, the result demonstrates that high credit ratings add value to companies' CoD to some extents.

### Theoretical Framework

M. Friedman (1962) upholds that shareholder theory emphasizes a firm's top priority as maximizing the firm's value. Therefore, expenditures relating to CSR are conceived as a poor way to use shareholders' money, which practice digresses from shareholder value maximization theory. The theory upholds that performing CSR activities will consume the resources that otherwise might have facilitated the generation of a bigger profit for shareholders. From the point of view of shareholders, a higher performance of CSR could affect shareholders' interest. When interest is reduced, the capacity to pay or the interest in paying is also reduced, which may result in an enhanced distress risk, and both may relate to the higher costs of debt financing.

E. Freeman (1984) propounded stakeholder theory. His theory opposed shareholder theory, holding that businesses had to consider stakeholders in all facets of their operations. The theory proposed that corporations should go beyond the benefits shareholders stand to generate in order to consider

the welfare of a broader stakeholder group in society (Freeman, 1984). T. M. Jones (1995) broadens the theory by indicating that CSR is an indispensable part for corporations to obtain the essential resources and stakeholder support. Considering the standpoint of the theory, performing CSR may result in a discount cost of acquiring capital for two reasons. The first reason is that CSR-associated facts capture the organizational environmental peril and lead to a decline in the information asymmetry. This, in return, might have an effect on CoE (Jones, 1995; Heinkel, Kraus & Zechner, 2001; Orlitzky, Schmidt & Rynes, 2003). According to M. Jensen and W. Meckling (1976), any information that eases information asymmetries among contracting parties and as such reduces unfavorable selection and ethical hazard problems would be value relevant.

In developed countries, the largest number of empirical papers in the literature have recorded that disclosures of financial information make available the relevant pieces of information that are of value to stakeholders, and as such shrink CoC (Diamond & Verrecchia, 1991; Botosan, 1997; Leuz & Verrecchia, 2000; Graham, Harvey & Rajgopal 2005). In conformity with this argument, M. Orlitzky *et al* (2003) proposed that the information that related to the CSR recital was value relevant.

Performing CSR may lead to boosting the size of the investor base. Socially mindful investors choose to eliminate the firms with low CSR performance from their investment portfolios (Heinkel *et al*, 2001). By implication, corporations with healthy CSR performance are in advantage when increasing the comparative length in their investor bases is concerned. The healthier the size of the investor base, the lower CoC and the healthier the marketplace valuation (Merton, 1987).

## METHODOLOGY

The sample included in the study comprises the 159 companies quoted on the NSE as of 2020. Using the nonprobability sampling technique, a sample of 32 companies with minimum one company from each

of the following sectors: the Industrial Sector, the Consumer Goods Sector, the Financial Service Sector, the Health Care Sector, the Technology Sector, the Basic Material Sector, the Oil and Gas Sector, and the Consumer Services Sector was made judgmentally. The selection was based on the complete, published annual reports for the period covered. To achieve the purpose of the study, content analysis was used to collect the panel data for the variables. The study adopted the panel least square method of the random effect model to analyze the influence of CSR on the cost of capital in Nigeria.

## Dependent variable

The dependent variable is the CoC measured using CoE and CoD. Regarding CoE, the dividend capitalization model (DCM) was used to estimate the CoE. This model is mainly applied to the companies that pay out a dividend.

The formula to compute the DCM is as follows:

$$R_e = (D_1 / P_0) + g$$

where:

$R_e$  = the cost of equity

$D_1$  = dividends per share next year

$P_0$  = the current share price

$g$  = the dividend growth rate.

According to Corporate Finance Institute (2021), dividend growth for each year can be achieved by applying the following equation:

$$\text{Dividend growth} = (D_1 / D_{t-1}) - 1$$

where:

$D_1$  = the dividend payment of the year  $t$ ,

$D_{t-1}$  = the dividend payment of the year  $t-1$  (one year before the year  $t$ )



## Cost of debt

CoD is the effective interest rate a company pays to debt holders on its current liabilities. In general, it refers to the after-tax CoD. The difference between the before-tax cost of debt and the after-tax cost of debt depends on the interest expenses deducted. As regards CoD, it is one minus the tax rate into interest expenses. Thus, the formula for calculating CoD reads as follows:

$$\text{CoD} = \text{Interest Expenses} (1 - \text{Tax Rate}).$$

## Independent variable

Prior studies in Nigeria have used diverse CSR measurements. For example, A. U. Asian and T. A. Uche (2018) used dummy variables, A. T. Abideen, O. A. Abayomi and S. A. Nureni (2017) used donations made by companies to the community during the period, O. D. Adeyanju (2012) and U. O. Godwin (2012) used questionnaires, F. M. Ajide and A. A. Aderemi (2014) used the Morgan Stanley Capital International Environment Social and Governance Index (the MSCI ESG Index) - formerly the Kinder, Lydenberg, Domini Index (the KLD Index), and While, O. F. Olaoye and O. E. Oluwadare (2018) used the CSR disclosure Index. In this present study, however, the Thomson Reuther Index used by N. S. Ofogbe, C. N. Ezuwore-Obodoekwe, A. P. Ozoji, C. Namani, C. A. Anisiuba,

I. P. Oliakor and R. Okafor (2021) was adopted. The index measures CRS via the three dimensions, namely corporate social performance (CSP), environmental performance (ENP), and corporate governance performance (CGP). Table 1 shows the scores for the different categories of the ESG scores.

## CONTROL VARIABLES (CVs)

### Control variables - CoE

To recognize the effect CSR disclosure had on CoE, some variables were used as control variables to that effect. Considering the study carried out by C. Reverte (2012), the market-to-book value (MB), Beta (BETA), and the size of the firm (SIZE) were found to be connected with CoE. Alternatively, CoE ought to be positively correlated with the beta variable. In addition, L. Hail and C. Leuz (2006) opined that many proxies had represented the magnitude of the firm in different ways. That included the total assets, the market value of equity, the total sales, the number of the employees, and market capitalization. D. S. Dhaliwal *et al* (2011) conversely used the total assets logarithm to represent the size of the firm.

Regarding data availability, this study used the total assets logarithm to signify the size of the firm and the

**Table 1** The Thomson Reuters indices for social, environmental, and CG performance

Pillar	Category	Scoring	Weight
Environmental performance	Resources use	19	11%
	Emission	22	12%
	Innovation	20	11%
Social performance	Workforce	29	16%
	Human rights	8	4.50%
	Community	14	8%
	Product Responsibility	12	7%
Governance performance	Management	34	19%
	Shareholders	12	7%
	CSR Strategy	8	4.50%
Total		178	100%

Source: Thomson Reuters

market-to-book value (MBV) as CVs for CoE. The data were retrieved from the published annual reports of the companies included in the sample. The market-to-book value was calculated using the following formula:

MBV = share price divided by net book value per share,

where:

net book value = total assets - total liabilities.

### Control variables - CoD

M. F. Izzo and B. S. Magnanelli (2012) stipulate that profitability is negatively connected with CoD. For this reason, return on assets (ROA) is used as a proxy for profitability. Additionally, they argue that financial leverage (LEV) and Beta (BETA) are positively correlated with CoD. In that regard, and based on data availability, ROA and leverage are used as CVs for CoD. Leverage is derived by means of dividing the total debt by the market value of equity, whereas return on assets is computed using the formula stated below:

ROA = net income/average total asset.

To calculate a company's ROA, it is more accurate to use the average total assets. This is necessary as a company's total assets can change over a period, which may be due to the purchase or sale of fixed assets, such as vehicles, land, and equipment. Consequently, the calculation of the average total assets is more accurate than the total assets for one particular period (Claire Boyte-White, 2021).

### Model specification

The functional relationship between CSR and COC; COE, and COD can be identified as follows:

$$y_{i-t} = \beta_0 + \beta_1 X_{i-t} + \beta_2 X_{i-t} + \beta_3 X_{i-t} + \beta_4 X_{i-t} + \beta_5 X_{i-t} + \mu_{i-t} \quad (1)$$

Hypothesis 1

$$COE = \beta_0 + \beta_1 CSP_{i-t} + \beta_2 EP_{i-t} + \beta_3 CGP_{i-t} + \beta_4 LOGFSIZ_{i-t} + \beta_5 MBV_{i-t} + \mu_{i-t} \quad (2)$$

Hypothesis 2

$$COD = \beta_0 + \beta_1 CSP_{i-t} + \beta_2 EP_{i-t} + \beta_3 CGP_{i-t} + \beta_4 ROA_{i-t} + \beta_5 LEV_{i-t} + \mu_{i-t} \quad (3)$$

where:

$y_{i-t}$  = the dependent variable

$\beta_0$  = the intercept of the equation

$\beta_1 - \beta_5$  = the coefficients of the Xi-t variable

$X_{i-t}$  = the independent variable

$I$  = the cross-section variables of the companies included in the sample

$T$  = the study period

$\mu$  = the error term

The estimation procedure: The estimation process follows a collection of the pre-estimation tests, diagnostics tests and panel estimation tests. A choice of the fixed effect and random effect regression model depends on the Hausmann test carried out on the panel data.

### Data Analysis and Results

Considering the data obtained from the companies' published financial statements from 2005 to 2019, covering a period of 15 years of observation, a total of 480 observation data were collected.

### Pre-test Descriptive Statistics (DS)

Table 2 shows the results of the DS for all the variables from 2005 to 2019.

Table 2 shows the result of the descriptive statistics of the individual variables respectively. Regarding the CoC, CoE and CoD, the arithmetic mean is 12.624 and 5.834, respectively. By implication, the cost of financing the debt is moderately expensive. For CSP, ENP and CGP, the mean scores are 33.875, 23.952, and 32.844, respectively. By implication, the analysis

**Table 2** The descriptive statistics

	COE	LCOD	CSP	ENP	CGP	LFIRMSIZ	MBV	ROA	LEV
Mean	5.834	12.624	33.875	23.952	32.842	16.798	3.785	0.168	5.880
Median	1.342	12.455	35.000	24.000	34.000	17.008	2.995	0.077	1.750
Maximum	283.000	20.442	47.000	43.000	54.000	23.039	9.970	4.652	680.144
Std. Dev.	19.569	2.759	9.198	8.050	10.238	2.340	2.414	0.316	35.727
Skewness	9.404	0.064	-1.675	0.012	-1.577	-0.152	0.756	8.317	16.033
Kurtosis	113.039	2.638	6.779	2.482	6.444	2.799	2.469	101.816	282.879
Jarque-Bera	2492447	2.944	510.11	5.384	436.01	2.649	51.297	2008259	1583903
Observations	480	479	480	480	480	478	480	480	479

Source: Authors

shows a healthier performance of CSR. The standard deviation values are small compared to the mean. This means the values in the statistical set are close to the mean of the data set. All the variables demonstrate a positive value for the kurtosis with the values smaller or greater than three. These reveal the fact that the degree of the tailedness of all the variables except LCOD, ENP and LFIRMSIZ has a heavier tail, which is called a leptokurtic distribution. LCOD, ENP, MBV and LFIRMSIZ have a lighter tail, which is called platykurtosis.

Table 3 demonstrates the results of the Pearson correlation among the proxies of CoC, CSR, and the control variables. CSP is negative and does not significantly correlate with CoE but does significantly correlate with LCoD (-0.014 and 0.004). CSP is also found to be positive and not to significantly correlate with ENP. ENP is both negative/positive and does not substantially correlate with CoE, LCoD and CSP. CGP is positive and significantly correlates with CSP and ENP but does not substantially correlate with CoE and LCoD. CGP negatively and significantly correlates with CoE and LCoD but does not significantly correlate with CSP and ENP. Several control variables correlate with the cost of capital variables. No high correlation was found among the explanatory variables, which suggests that multicollinearity is not a serious concern in this study.

The panel unit root test summary methods were applied. Table 4 shows the results of the unit root test.

All the variables are stationary at the levels and at the first difference. This prompts the study to proceed to do the Hausmann test. The Hausmann test is meant to select the best model for each of the hypotheses.

### Panel Regression Analysis

Hypothesis 1: CSR correlates with the CoE of the companies listed on the NSE.

To make a decision on the appropriate model for this hypothesis, the random and fixed effect variants of the panel data were considered side by side using the Hausmann test. The Hausmann test hypothesis reads as follows:

H0: The random effect model is appropriate.

H1: The fixed effect model is suitable.

If the  $p$ -value < 5%, reject the null hypothesis; otherwise, accept the alternative hypothesis.

Table 5 shows the result of the Hausmann test hypothesis. The 5-degree-freedom cross-section chi-square statistics are 4.86 and  $p = 0.433$ . Since  $p > 5\%$ , the null hypothesis is accepted for the Hypothesis 2. In conclusion, the random effect model is a better option than the fixed effect model (Ofogbe *et al*, 2021).

The panel random effect regression outcomes are as shown in Table 6.  $R^2$  of 2.3% shows that the panel regression fits in well. The exogenous variables mutually account for a 2.3% variation in the



**Table 3** The Pearson correlation matrix among the variables

	COE	LCOD	CSP	ENP	CGP	LFIRMSIZ	MBV	ROA	LEV
COE	1.00000								
LCOD	0.039* (0.387)	1.000000							
CSP	-0.014* (0.757)	0.004** (0.0715)	1.000000						
ENP	-0.072* (0.114)	0.001* (0.9818)	0.029* (0.5271)	1.00000					
CGP	0.041* (0.367)	0.932* (0.9818)	0.586** (0.0000)	0.105* (0.0217)	1.00000				
LFIRMSIZ	0.089** (0.053)	0.752*** (0.0000)	-0.049* (0.2788)	0.049* (0.2862)	-0.047* (0.3089)	1.000000			
MBV	0.069* (0.132)	-0.053* (0.2484)	0.022* (0.6313)	0.048* (0.2994)	0.047* (0.3088)	0.002* (0.9729)	1.000000		
ROA	-0.040* (0.3817)	-0.007* (0.8709)	-0.001* (0.9795)	-0.069* (0.1297)	-0.099** (0.0302)	-0.086** (0.0607)	0.013* (0.7775)	1.000000	
LEV	0.094** (0.0407)	0.181*** (0.0001)	-0.150*** (0.0010)	-0.098** (0.0319)	-0.195*** (0.0000)	0.158*** (0.0005)	-0.012* (0.7937)	-0.003* (0.9504)	1.00000

(i) Variable Construe: the cost of equity (CoE), the log of CoD (LCoD), corporate social performance (CSP), environmental performance (ENP), corporate governance performance (CGP), the log of the firm size (LFIRMSIZ), the market-to-book value (MBV), return on assets (ROA) and leverage (LEV).

(ii) P-values in parenthesis; \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01

Source: Authors

**Table 4** The summary of the panel unit root test

Variables	Levin, Lin & Chu t	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Status
COE	-26.1006*** (0.0000)	-9.09385*** (0.0000)	154.784*** (0.0011)	246.747*** (0.0000)	1(0)
LCOD	-11.0390** (0.0322)	-8.13000*** (0.0000)	188.976*** (0.0066)	410.870*** (0.0000)	1(0)
CPS	-1.29763** (0.0972)	-3.25021*** (0.0006)	98.3057*** (0.0038)	214.417*** (0.0000)	1(0)
ENP	-6.51652*** (0.0000)	-9.16233*** (0.0017)	203.642*** (0.0005)	203.642*** (0.0000)	1(1)
CGP	-7.67429*** (0.0000)	-8.43960*** (0.0000)	189.210*** (0.0000)	489.592*** (0.0000)	1(1)
LFIRMSIZ	-27.7669*** (0.0000)	-5.93797*** (0.0032)	92.5118** (0.0114)	102.638*** (0.0016)	1(1)
MBV	-16.9331*** (0.0000)	-12.1742*** (0.0052)	239.945*** (0.0017)	421.513*** (0.0000)	1(1)
ROA	-19.7947*** (0.0000)	-5.51149*** (0.0000)	110.923*** (0.0003)	219.401*** (0.0000)	1(1)
LEV	-582.245*** (0.0000)	-92.8617*** (0.0000)	177.392*** (0.0000)	383.509*** (0.0000)	1(1)

P-values is in parenthesis: the result is at 1%, 5% and 10% significance levels

Source: Authors

**Table 5** The Hausmann test for Model One

Model One			
Test summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.858	5	0.4334

Source: Authors

**Table 6** CSR correlates with the CoE of the companies listed on the NSE

Variables	Coefficient	Std Error	t-statistics	Pro.
CSP	-0.134891	0.120928	-1.115459	0.2652
ENP	-0.198236	0.111648	-1.775541	0.0765
CGP	0.178409	0.109324	1.631922	0.1034
LFIRMSIZ	0.789618	0.382438	2.064697	0.0395
MBV	-0.527425	0.371752	-1.418754	0.1566
C	-1.953468	7.890879	-0.247560	0.8046
R <sup>2</sup>	2.3%			
Adjusted R-square	1.3%			
F- stat	2.24%			
P-value	0.049318			
D.W stat	1 1.83			

Source: Authors

endogenous variable with an unexplained variation of 97.7%. This implies that the other variables are responsible for the variation in the endogenous variable not accounted for. CSP and ENP are negative and are not significantly associated with CoE. By implication, CSP and ENP have not led to better access to capital at a reduced cost. The findings support shareholder theory which emphasizes the fact that the higher performance of CSR could affect shareholders' interest. The company's main interest is to maximize the value of the firm. This study is also in line with the findings by K. M. Menz (2010), whose study fails to establish the fact that CSR lowers CoD. CGP has a positive non-significant effect on CoD. For the CVs, LFIRMSIZ is positive and significantly correlates

with CoD, whereas the MBV is negative and fails to correlate with CoE.

Although R<sup>2</sup> is small, it cannot discredit the result because, on the whole, the result of the panel regression is significant. This is shown by the F-stat 2.24, the p-value 0.049318, and the Durbin Watson Statistics 1.8, which is approximately 2. This outcome rules out the likelihood of the suspicion of the first-order positive autocorrelation. These figures are the pointers indicating that the obtained result is reliable for a meaningful analysis.

Hypothesis 3: CSR correlates with the CoD of the companies quoted on the NSE.

Table 7 shows the result of the Hausmann test. Based on the result, the random effect model is a better option than the fixed effect model.

**Table 7** The Hausmann test for Model Two

Model One			
Test summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.161020	5	0.2909

Source: Authors

The regression results for the hypothesis two are as shown in Table 8. R<sup>2</sup> 4.4% shows how the panel regression fitted in well. The exogenous variables are jointly responsible for a 4.4% variation in the endogenous variable with an unexplained variation of 95.6%. CSP is negatively and significantly correlated with CoD, which implies that an increase in the CSP scores will lead to a decrease in CoD. ENP has a positive non-significant correlation with CoD.

This means ENP has not led to a reduction in the cost of obtaining capital. CGP has a significant positive association with CoD. This implies that, regarding CSR, the policies in place lead to better debt options and also reduce CoD. This result supports A. Goss and G. S. Robert (2011) and S. Chava (2014). Their studies revealed that CSR significantly lowered bank loans.

**Table 8** CSR correlates with the COD of listed companies in NSE

Variables	Coefficient	Std Error	t-statistics	Pro.
CSP	-0.036982	0.016969	-2.179379	0.0298
ENP	0.003537	0.015591	0.226881	0.8206
CGP	0.030548	0.015455	1.976622	0.0487
ROA	0.033327	0.396932	0.083962	0.9331
LEV	0.014297	0.003562	4.013464	0.0001
C	12.70244	0.637232	19.93377	0.0000
R <sup>2</sup>	4.4%			
Adjusted R-square	3.4%			
F-stat	4.36%			
P-value	0.000682			
D.W stat	1.153			

Source: Authors

For the CVs, ROA is positive and non-significantly correlated with CoD while LEV is positive and significantly correlated with CoD.

Although R<sup>2</sup> is small, it cannot discredit the result because, on the whole, the result is significant. This is shown by the F-stat 4.36,  $p = 0.000682$ , and the Durbin Watson Statistics 1.5, which is approximately 2. This

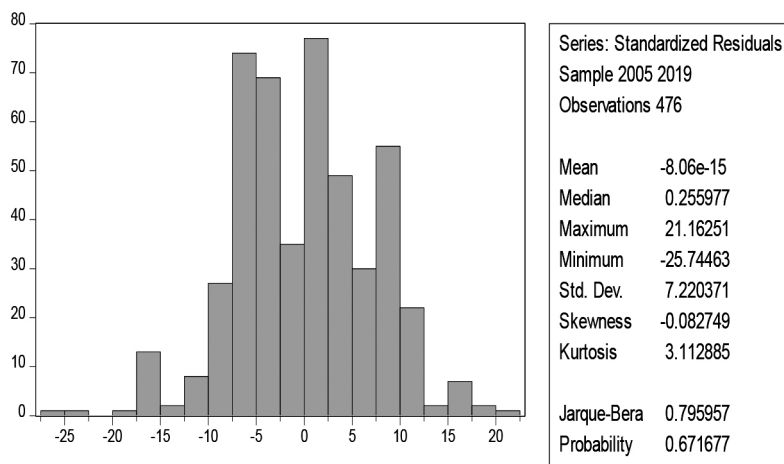
outcome rules out the likelihood of the suspicion of the first-order positive autocorrelation. These figures are the pointers that indicate the fact that this result is reliable for a meaningful analysis.

To further support the consistency of the data set, a normality (diagnostic) test was conducted. This was done in order to confirm that there were no violations of the assumption of the regression model. Such a violation would cause doubts regarding the validity and reliability of the regression model. The result is proven in Figure 1.

### Diagnostic test

The above result is presented by the histogram and DS of the data set, including the Jarque-Bera statistics for testing normality. The rule is that, if data sets are normally distributed, the histogram should be bell-shaped, and the Jarque-Bera statistics must not be significant at 5% levels.

Figure 1 reveals the fact that the non-normality hypothesis is accepted since the p-value of the Jarque-Bera statistics  $> 0.05$ ; (0.795967) and the histogram is bell-shaped. It is therefore concluded that the data set is normally distributed and can be used to carry out a meaningful analysis.

**Figure 1** The normality assumption test

Source: Authors

## CONCLUSION

This study explored the effect of CSR on the CoC of the selected companies quoted on the NSE for a period of 15 years, namely from 2005 to 2019. Yearly panel data were used. The data were analyzed using descriptive statistics, the correlation matrix, the unit root test and the random effect model. To make a decision on an appropriate model for this hypothesis, the random and fixed effect variants of the panel data were considered side by side using the Hausmann test. The general result of the study revealed that CSR had an influence on the CoC of the selected companies in Nigeria. In conformity with the studies carried out in the developed world, namely K. M. Menz (2010); A. Goss and G. S. Robert (2011) and S. Chava (2014), mixed results were obtained.

For the first hypothesis, the general result shows a significant correlation between CSR and the cost of equity. This shows to a great extent that performing CSR has led to the better options for obtaining capital at a reduced cost.

For the second hypothesis, although the individual effect of the different dimensions of CSR differs, there is strong evidence that performing CSR in the course of doing business has noticeably led to a better option for accessing capital at a reduced interest rate. These findings support the findings of the largest number of international empirical studies, among which some may be mentioned O. Youngkyung and K. Jungmu (2019).

The significant impact of the CSR dimension on CoC implies that the companies included in the study sample for the studied period engaged themselves in CSR practice and, as a result, accessed capital with ease and at a reduced cost. In other words, CSR initiatives can attract funding whether these activities are routed through stakeholders or not.

The findings have a practical inference. The result will spur those companies that are not CSR-compliant to adopt CSR as a part of their day-to-day operations and motivate CSR-compliant companies to dedicate more attention to CSR issues. That is, its outcome is helpful to the organizations practicing CSR, those yet to adopt CSR, and stakeholders as well.

To conclude, the companies that invest in CSR have a better chance of accessing funds at a better and low cost.

Based on the findings, the study advocates continuous investment on the issues that concern CSR as these will, if consistent, lead to easy access to capital and at a reduced cost.

Notwithstanding the effort this study has made, the same is limited by the number of the companies included in the sample. For instance, out of the 159 companies quoted on the NSE, only 32 have complete reports for the studied period of 15 years.

To extend the discourse, it is suggested that further studies should adopt other measures for CSR, such as the amount of data and information disclosed in the annual report and the KLD Index in future research. Also, the relationship between social responsibility disclosure and the stock price can also be considered. Therefore, future studies should consider this matter.

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