Moderating Role of Negative Earnings on Firm Size and Corporate Social Responsibility Relationship: Evidence from Listed Firms on Nigeria Stock Exchange

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Abstract: The fight against coronavirus disease (COVID-19) has called for corporate social responsibility (CSR). Thus, Nigerian businesses, such as in the petroleum and financial industries, have provided hospital donations and $30 million assistance among others to mitigate COVID-19. We investigated the moderating role of negative earnings in firm size–CSR relationship. We used content and logistic panel regression analyses on a sample of 100 firms listed on Nigerian Stock Exchange (NSE). First, we confirmed a positive firm size–CSR relationship (stakeholders' expectation hypothesis). Second, we found that earnings loss negatively affects stakeholders' expectation hypothesis. The study suggests that big firms are likely to negatively respond to the clarion call for donations for COVID-19 due to negative earnings. However, our robustness test revealed that old firms positively respond to CSR activities despite earnings loss. Our study results contribute important insights into the current debate concerning the effect of earnings loss on CSR activities. Corporate managers are encouraged to participate in social activities by contributing their resources for human race sustainability and community development, hence enabling stakeholders to highly value their work, money, support, and societal acceptance.

Keywords: company age, corporate social responsibility, firm size, negative earnings, Nigerian-listed firms.

INTRODUCTION

Reflection on corporate donations on the development of their host communities and the fight against coronavirus disease (COVID-19) reemphasized the importance of corporate social responsibility (CSR). The entire

human race is facing health challenges that have culminated in economic severe, religious, social, and political problems. The spread of COVID-19 has caused nations to lockdown which has tremendously affected human activities (Kuckertz et al., 2020; Ozili, 2020b, 2020a).

The severe negative impact of COVID-19 has reawakened the clarion call for corporate entities to contribute to the fight to end the spread of the deadly virus. However, a retrospective look at how corporations have participated toward environmental and social sustainability is encouraging (Ntim, 2016). Quite a several companies have proactively committed to addressing more considerable societal challenges (Wang et al., 2016) such as HIV/AIDS health issues (Ntim, 2016), educational development, and others. They provided humanitarian logistics aimed at alleviating human suffering caused by a lack of goods and services.

In one example, in India, there is a "2% rule" that required corporations to spend 2% of net profits on charitable causes (Wang et al., 2016). Also, another example from Europe, the Directive Amendments of 2014 mandated public corporations to mandatorily and publicly disclose non-financial information on policies, outcomes, and risks relating to social issues (Wang et al., 2016). In responding to the call to donate to the fight against COVID-19 pandemic is such that CSR likely becomes a powerful mechanism for employee and corporate engagement to rebuild individual and social resilience (Van Der Vegt et al., 2015; Wang et al., 2016).

However, CSR does not exist in a vacuum but in an institution. In the study of CSR, the institutional context is vital (Wang et al., 2016). Regarding our study context, Nigeria, the public views of CSR in the past were negative due to the "Freidman profit-oriented" position, which the corporation's CSR is for adding shareholder's value. The neoclassical economic paradigm championed by Friedman (1970, 2013) is against CSR because it negates the core objective of profit maximization. Recently, this standard view is changing as corporations have taken cognizance of the fact that they cannot exist without society. Also, stakeholder pressure on the local and multinational companies to be responsible regarding their operations and contributions to societal development is on increase.

Furthermore, the inability of the government to demonstrate the political will of fixing the developmental needs of the country has contributed to the turnaround of CSR activities' perception of the corporations. The infrastructure condition of Nigeria's health sector is deplorable. For instance, there are poor emergency services, few ambulance services, ineffective national health insurance systems, inadequate primary health care facilities, and these problems in the public health sector have often been linked to the high maternal and infant mortality rates in the country (Ozili, 2020b).

In cognizance of the fact that in Nigeria, corporate social commitment is not new, some industries such as oil and gas, financial, and others have participated through donations of—equipping hospitals, vehicles, PCR machines, $30 million to stop the spread of the deadly disease (COVID-19) in Nigeria, to name a few.[1] Conceptually, CSR is activities that focus on the wellbeing of the community in which companies carry out their legitimate operations. Community development is the most important among the three categories of CSR activities (Vila et al., 2020). Jones (1980) observed that there are several reasons for the concern with CSR, which the performance of the business has called to question. "Proponents of corporate social responsibility are convinced that it 'pay off' for the firm as well as for the organization's stakeholders and society" (Burke & Logsdon, 1996).

CSR is the notion that corporations have an obligation to society. CSR is a concept whereby companies integrate social and environmental concerns in their business operations and their interaction with their

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1. Shell.com.ng/media/2020-media-releases/shell-equips-three-hospitals-provides-eight-vehicles.html.

stakeholders voluntarily is (European Commission, 2001). From an encompassing point of view, CSR is beyond just interacting with the stakeholder in a socially and environmentally manner rather incognizance of all stakeholders (Ali et al., 2020; Carroll, 1991; Lee & Huang, 2020). According to Becchetti et al. (2020), CSR is "a move from the goal of maximizing shareholders' wealth to the more complex goal of satisfying the wellbeing of a broader range of stakeholders." Corporations have been accountable for their actions, ISO 26000 (2010) defines social responsibility as "the willingness of an organization to include social and environmental consideration in its decisions and assure responsibility for the social and environmental impact of its decisions and activities."

Sarkar and Searcy (2016) categorized CSR into six, economic, ethical, social, stakeholder, sustainability, and discretionary. From an economic or money-centered perspective of CSR, in one example, Friedman (1970), following agency theory, sees CSR as agents misusing funds. He believes that organizational funds should be invested in projects that are to add value to the firm. The implication here is that corporations primarily exist to make money. Therefore, anything beyond profit maximization could be a signal of agency problems in firms (Dyck et al., 2019). It is important to consider being socially responsible for offering a contribution to society rather than just being profit-oriented. Protecting the environment and making efforts to resolve social problems are critical indicators for organizations that are socially responsible (Ali et al., 2020).

No wonder in 2013, Indian law was introduced to boost CSR, required large companies to spend at least 2% of their net profits on CSR (Guha, 2020). The Indian idea is in line with the slack resource theory and that of economic sense. The theory states that the company should have an excellent financial position to be able to engage in social performance activities. The implication is that firms on an exceptional economic standing can then increase their participation in social performance activities. Moreover, under the superb management theory, the company must be concerned with its social performance activities to build a good reputation in the minds of its stakeholders. Then when the stakeholders perceive the company well, they will be attracted more to the company, and this will improve the company's financial performance (Waddock & Graves, 1997). In agreement, that firm value as a function of CSR, González-Rodríguez et al., (2019) opined that CSR practices through improved reputation are one of the vital success determinants of firm performance.

From the stakeholder dimensional of CSR, stakeholder theory is another underpinning theory explaining corporate activities. Freeman (1984) and Mohammad (2019) acknowledged the importance of corporate stakeholders, such as suppliers, employees, customers, and those who use the firm's goods and services. The emphasis of this theory is on the need to care for these individuals that loyal to the firm. Corporate bodies could attain the needs of these stakeholders by engaging in CSR activities, and this will be beneficial to the organization. The situation in which the managers are insensitive to the needs of stakeholders, in turn, will boomerang, thereby affecting the financial performance of such a company. Abdolvand and Charsetad (2013) suggest that consumers seek companies that have adopted effective CSR strategies and have to embed them into the core values and routines of the organization.

The social perspective of CSR is gaining ground on the legitimacy theory, which is derived from the concept of organizational legitimacy. The approach grants an organization the right to carry out its economic operations in line with society's interests. Hence organizations seek to operate within the ambit of the law and loyalty to the respective host communities (Odoemelam & Okafor, 2018; Ofoegbu et al., 2018; Saha et al., 2019). Ethical dimension of CSR viewed as the theory's keystone obligation to do what is right even when there is no law demanding such action. As the COVID-19 pandemic is ravaging the entire world, no law mandates corporate bodies to donate funds. Indeed, judging from an economic perspective, it negates the profit-maximization goal of firms. However, it is recommendable for the corporate entities to act accordingly in humanitarian response, to contribute to society's project of fighting COVID-19 pandemic.

Sustainability perspective is in between ethics and economic dimensions of CSR. The long-term sustainability of the human race call for a balance between ethics and economics, Elkington (1998) explained. Donating or contributing to the fight of COVID-19, there is a possible economic-sustainability argument in favor of such action.

Fagerström and Cunningham (2017) argued that an enterprise needs resources as inputs to produce goods and services. Human and social is the first resource, whereas the second is ecological, that the two are essential primary resources in a society and the corporations. Fagerström and Cunningham (2017) further argued: "without these primary resources, a sustainable life, a good environment, and social sustainability, the enterprise is in danger." Corporations do not exist in a vacuum; human beings that are their capital resources and customers (buyers and suppliers) need to be in good health. Social sustainability values balance in people's lives and the way we live. The situation in which the affluent class is enjoying a sound health system because they have millions, whereas the miserable class lives in hardship and no sound healthcare system are no longer obtainable as a result of COVID-19. The provision of excellent social amenities becomes imperative now by individuals, corporate bodies, and government. The limitedness of natural resources calls for environmental sustainability. There is a need to secure the future for our children, and this will happen when corporate bodies are environmentally friendly. The pollution of the earth with industrial chemicals in one example has dare consequences to human health.

Hence this study distinctively investigates the crucial question of why there are so many companies that have negative CSR news despite the realization of the importance of CSR (Zhao, 2018). Thus, we ask these specific questions: does firm size determines the CSR? Do negative earnings moderate the impact of firm size on CSR? Is the interaction effect of firm size and negative earnings on CSR an opposite or substitution effect? Our study provides answers to these research questions.

Previous studies on the effect of firm size on CSR have yielded mixed results. For instance, Činčalová and Hedija (2020) analyzed the relationship between the selected characteristics of firms and CSR in the Czech transportation and storage industry. They found a significant impact of firm size, financial performance on the CSR practice of the firms. Malik et al. (2020) also added that the size of firms listed on the Pakistan Stock Exchange positively relates to CSR disclosure. The study by Lins et al. (2017) on the impact of profitability on CSR, documented that a positive relationship between high-CSR firms and higher profitability, growth, and sales per employee relative to low-CSR firms. Withisuphakorn and Jiraporn (2016) revealed that more mature firms invest significantly more in CSR. From Nigeria, Ebiringa et al. (2013) focused on the oil and gas sector and reported that firm size has an insignificant negative correlation with CSR disclosure, whereas profitability is significantly and positively related to CSR. Besides, the study documented a significant negative effect of the firm's financial leverage on the level of CSR.

In our study context, Nigeria, CSR has been scrutinized only marginally by scholars. Previous studies modeled the three dimensions (environment, society, and governance (ESG)) of CSR and examined the effect of firm size on ESG (e.g., Anazonwu et al., 2018). The impact of the interaction of firm size and negative earnings on the information disclosure in the dimension of society in CSR is yet unknown if opposite, or has a substitution effect. Our study seeks to fill a part of this research gap by focusing on the social dimension of CSR. The social aspect is critical for sustainable development (Fagerström & Cunningham, 2017; Vila et al., 2020). The framework of the Sustainability Accounting Standards Board argues that the human social dimension is an essential item to deliver long-term value, which relates to the perceived role of corporations in society (Fagerström & Cunningham, 2017). Therefore, aims of the study are twofold. First, we seek to investigate the effect of company size on CSR. Second, we examine the interaction effect of firm size and negative earnings on CSR of 100 companies listed on the Nigerian Stock Exchange.

METHODS

The sample includes a total of 100 Nigerian firms. Purposively and importantly, the selected firms met the following criteria: (i) listed on the Nigerian Stock Exchange on or before 2006 and (ii) complete data for the period of 2006–2017 annual reports. The study pooled data from 1,200 firms-year observation from the annual reports of the companies for 12 years (2006–2017). The distribution of population and sample size of the companies is shown in Table 1.

Table 1 Distribution of Population and Sample Size of the Companies

Stratum	Population Size	Sample Size
Agriculture	5	2
Conglomerates	6	3
Construction/real estate	7	3
Consumer goods	23	18
Healthcare	11	5
ICT	9	4
Industrial goods	17	14
Natural resources	4	3
Oil and gas	13	9
Services	23	15
Financial	55	24
Total	173	100

Source: www.NSE.com.ng

In line with Abbas (2020), four items of CSR to the community were extracted relying on the GRI standards (see Table 2). United Nations Global Compact (2020), among others, promotes corporations to take concrete actions that support the society around them and report annually on the efforts. Purposively and referencing Dutordoir et al. (2018), Hu et al. (2019), Hu et al. (2020), and Wang (2017), this study scored 1 if any of the four items or all is disclosed and 0 if none disclosed. Disclosure information in the annual reports has been widely used by previous studies to investigate the extent of CSR disclosure by firms (e.g., Akbas, 2016; Akbas & Canikli 2014; Anzonwu et al., 2018; Fallan, 2016; Hackston & Milne, 1996; Khlif et al., 2015; Niskala & Pretes, 1995; Nor et al., 2016; Ofoegbu et al., 2018; Ong et al., 2016). The variable description and measurements are presented in Table 3.

Table 2 Social Responsibility Disclosure (SORDI) Checklists

No of Items	Parts of Disclosures Index (DI)
1	The company regularly participates in the social development program
2	The company regularly provides financial and non-financial support for the wellbeing of the society
3	The company provides financial and non-financial support to educational institutions for students learning and development-donations: education, scholarships, etc.
4	Healthy and safe workplaces, maintaining diversity and equal opportunities and development opportunities for its workforce (encourage its employees to participate in social development activities)

Source: Annual Reports

Table 3 Variable Description and Measurement

Variables	ABBR.	Measurement	Source	Expected Sign
Dependent variable				
Social responsibility disclosure	SORDI	Dummy: Equals 1 if the information on social responsibility is disclosed, otherwise 0	Annual Reports	
Independent variable				
Firm size	FS	Assets size calculated as the natural logarithm of total assets as at the end of the accounting year	Annual Reports	+
Moderating variable				
Negative earnings per share	NEPS	Dummy: a dummy variable equal to 1 if earnings at the year-end of the company *I* are negative in year *t* and 0 otherwise	Annual Reports	?
Control variables				
Earnings per share	EPS	Earnings (net income)/market value of equity	Annual Reports	+
Financial leverage	FLeve.	The leverage ratio. This is calculated as total liabilities divided by total assets at the end of the accounting year	Annual Report	+
Company age	AGE	Dummy variable equals 1 if the company's financial leverage equals to or greater than 20% and 0 otherwise	Annual Report	+
Share price	SP	Measured by the market value of the firm's share price as at the end, each fiscal year	Annual Reports	+
Industry type	Indty	Dummy variable equals 1 if the company belongs non-financial industry and 0 otherwise	Annual Report	+
Audit firm size	Big4	(1 if the company is audited by Ernest & Young, Deloitte, PwC, or KPMG and 0 otherwise)	Annual Report	+

Firm size (Fs) is regularly used as a determinant of CSR (e.g., Anatami et al., 2019; Handoyo, 2020; Salehi et al., 2019). The natural logarithm of total assets is generally accepted as a good measure of the company size (Ntim, 2016). Earnings per share (EPS) is the variable measuring the firm's profitability. It is calculated by the ratio of profits (net income) to the market value of equity. Previous studies have used it as a good measure of firm earnings performance (Handoyo, 2020). Company age (AGE) is the age of the company. It is measured as a dummy variable equal to 1 if the company's financial leverage equal to or greater than 20% and 0 otherwise (Odoemelam et al., 2019). Financial leverage (FLeve) is the leverage ratio. Similar studies have used financial leverage as a determinant of CSR activities (Odoemelam et al., 2019; Salehi et al., 2019). This is calculated as total liabilities divided by total assets at the end of the accounting year (Ioannou & Serafeim, 2012; Wang, 2017). Stock price (SP) is the price of the sock in the capital market. SP is measured by the market value of the firm's share price as at the end, each fiscal year (Wang, 2017). Audit firm size (Big4) dummy variable equals 1 if the company's financial leverage is equal to or greater than 20% and 0 otherwise. Industry type (INDTY) is the classification of the industry into non-financial and financial (Ioannou & Serafeim, 2012). It is measured by dummy variables equal to 1 if the company belongs to non-financial industry and 0 otherwise. Negative earnings (EPS) is the variable measuring the firm's profitability loss. It is a dummy variable equal to 1 if earnings at the year-end of the company *I* are negative in year *t* and 0 otherwise.

Following the models of Obi and Ode-Ichakpa (2020) and Vacca et al. (2020), the econometric model for our research is a modified Vacca et al.'s (2020) specified in the equations below. The dependent variable,

binary in nature, is modeled in binary logistic form. According to Cox (1958), binary logistic regression analysis aims at determining the likelihood of a binary variable on account of a single or several independent variables, considering if they are categorical or quantitative. Hence our dependent variable is binary, implying that the assumptions of classical linear regression cannot hold. Also, our number of observations is 1,200, which is above 100 as recommended by previous studies (Malik et al., 2020; Peng et al., 2002). Therefore, to achieve the aims of this study, two different logit regression models were estimated.

Model 1:

$$Logit\ Sordi_{it} = \alpha_+ \beta_1 FS_{jt} + \beta_2 EPS_{jt} + \beta_3 FLeve_{jt} + \beta_4 Age_{jt} + \beta_5 SP_{jt} + \beta_6 Indty_{jt} + \beta_7 Big4_{it} + \varepsilon_{jt},$$

where *Sordi*: social responsibility disclosure index (dichotomous disclosure index approach, each disclosure item receives equal weighting); *EPS*, earnings per share: measures profitability; share prices: share price; Firm size: total assets (logarithm of total assets); Big4: audit firm size (1 if the company is audited by Ernest & Young, Deloitte, PwC, or KPMG and 0 otherwise); FLev: financial leverage is the company's total liability divided by total assets;

Age: company age (1 if the company's leverage is equal to or greater than 20% and 0 otherwise); Indty: industry type (1 if the company belongs to the non-financial sector and 0 otherwise); β: coefficients of the parameter estimates; and ε: error term or residual.

Model 1 aimed to investigate the relationship between the firm size and social responsibility disclosure following GRI standards. In model 1, if β_1 is positive, our first conjecture (H1) is supported, indicating the likelihood of an increase in firm size. There will be an increase in SORDI information disclosure. Also, if β_2, β_3, β_4, β_2, β_5, β_6, and β_7 are positive, indicating the likelihood of an increase in profitability, company age, financial leverage, share price, audit firm size quality, and industry type, there will be an increase in SORDI information disclosure.

Model 2:

$$LogitSordi_{it} = \alpha_+ \beta_1 FS_{jt} + \beta_2 EPS_{jt} + \beta_3 xAge_{it} + \beta_4 xFLeve_{it}$$
$$+ \beta_5 xBig4_{it} + \beta_6 xSP_{it} + \beta_7 xIndty_{it} + \gamma NEPS_{jt} + \gamma_1 NEPS_{jt}*Fs_{jt} + \varepsilon_{jt}.$$

Model 2 was constructed, adding the variable of negative earnings (NEPS). It aimed to examine the moderating role of negative profitability in the relationship between the selected firm size and SOR reporting following the GRI standards.

In model 2, the coefficient ($\gamma 1$) indicates the moderating effects of NEPS. If $\gamma 1$ is negative and H1 is confirmed in model 1, our conjecture (H2) of the opposite effect is supported, indicating the likelihood of an increase in the interaction of firm size and negative earnings will lead to a decrease in SOR information disclosure in CSR. On the contrary, if $\gamma 1$ is positive, H1 supported in model 1, our substitution effect hypothesis (H2) is accepted, indicating the likelihood of an increase in the interaction of firm size and negative earnings leading to a rise in SOR information disclosure in CSR. Importantly and empirically, the coefficients (γ and $\gamma 1$) are differential slopes reflecting the effect of reporting negative earnings among the sample firms. A positive figure indicates that companies that report negative earnings are likely to encourage more SORDI information.

RESULTS AND DISCUSSION

Table 4 presents the sample distribution statistics. The CSR mean value is 0.58; the mean value of FS and EPS are 9.75 and 1.15, respectively. The mean value of AGE is 91%, implied that most of the sample firms are old. Also, the

Table 4 Sample Descriptive Statistics (*N* = 1,200)

	CSR	FS	EPS	AGE	FLeve	Big4	SP	INDTY	NEPS
Mean	0.5841	9.7520	1.1578	0.9150	0.6435	0.5991	23.971	0.6391	0.1750
Median	1.0000	9.3900	0.3300	1.0000	0.5500	1.0000	4.235	1.0000	0.0000
Max	1.0000	15.3900	43.580	1.0000	29.000	1.0000	1487.0	1.0000	1.0000
Min	0.0000	4.3300	−211.99	0.0000	0.0100	0.0000	0.4100	0.0000	0.0000
Std. dev.	0.4930	2.1061	7.229	0.2789	1.2714	0.4902	86.368	0.4804	0.3801
Skewness	−0.3415	0.3970	−20.655	−2.9761	16.815	−0.4047	10.631	−0.5795	1.7106
Kurtosis	1.1166	3.0082	633.93	9.8576	317.20	1.1637	143.88	1.335	3.9264
Obs.	1200	1200	1200	1200	1200	1200	1200	1200	1200

Note: The variables have been explained in Table 3

mean value of Fleve is 62%. Furthermore, the mean values of Big4 and share price (SP) are 0.599 and 23.97, respectively; almost 64% of sample firms listed in Nigeria belong to the non-financial industry. Interestingly, to mention that negative earnings are about 18% on average.

The distribution of social responsibility disclosure is presented in Figure 1. As depicted in Figure 1, about 58.42% of the total observed firm-years of the listed firms in Nigeria indicate social activities in the annual reports. Meanwhile, 41.58% of the total observed firm-years revealed non-disclosure of social responsibility. This suggests that a sizeable number of listed firms in Nigeria engage in social responsibility activities.
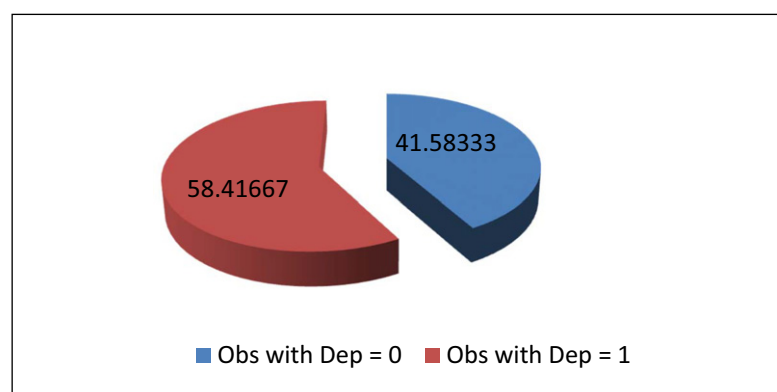

Figure 1 Distribution of Social Responsibility Disclosure

Table 5 presents the Pearson correlation analysis of each variable used in this study. With regard to collinearity, the correlation coefficients among all variables were less than 0.8. The underlying assumption is that when the correlation coefficient between variables is more significant than 0.8, it presupposed collinearity between the variables (Haifeng et al., 2020).

Table 6 presents the inflation factor of each variable (VIF) and found that the average inflation factor score is 1.3, with the highest score to be 1.7. These results suggest that a regression analysis will not produce serious multicollinearity since all VIF values are less than 10 (Ali et al., 2020; Greene, 2008).

Table 7 presents the panel logistic regression results. In testing the proposed hypotheses, our concern is on the sign on the coefficient values, and results are discussed and interpreted based on the logistic regression. Previous studies have shown support for company size and CSR (Ali et al., 2017; Asrori et al., 2019;

Table 5 Correlation Analysis of Variables

	CSR	FS	EPS	AFS	AGE	SP	LEV	INDT	NEPS
CSR	1								
FS	0.1384	1.							
EPS	0.0454	0.0925	1						
Big4	0.0137	0.4335	0.0814	1					
AGE	0.0277	0.0305	0.0157	0.0555	1				
SP	0.0344	0.1693	0.3861	0.1620	0.0601	1.			
FLeve	−0.0033	0.0155	−0.0134	−0.0072	0.0462	0.0029	1		
INDTY	−0.0213	−0.3952	0.0615	−0.0586	0.2065	0.1473	0.0560	1	
NEPS	0.0200	−0.1287	−0.1935	−0.1061	0.0685	−0.0966	0.0762	0.0460	1

Note: The variables have been explained in Table 3

Table 6 Variable Inflation Factor

Variable	VIF
EPS	1.2037
SP	1.3564
FLeve	1.0103
AGE	1.0777
INDTY	1.4521
FS	1.7499
Big4	1.2656
Average VIF	1.3

Note: The variables have been explained in Table 3

Table 7 Logistic Regression

Variable	Model 1 Coef.	Std. Error	Prob.
FS	0.1783 (4.9606)	0.0359	0.0000
EPS	0.0105 (0.9297)	0.0113	0.3525
AGE	0.1319 (0.6110)	0.2159	0.5412
FLeve	−0.0142 (−0.3106)	0.0457	0.7561
SP	−0.0002 (−0.2002)	0.0008	0.8413
Big4	−0.2715 (−2.0066)	0.1353	0.0448
Indty	0.1764 (1.2312)	0.1432	0.2182
Const.	−1.4600 (−3.6996)	0.3946	0.0002
LR-Statistic	30.525		
Prob (LR statistic)	0.0000*		
Log-likelihood	−799.43		

Note: The variables have been explained in Table 3
*Significant at the 1% level, **significant at the 5% level, ***significant at the 10% level
Numbers in parentheses are *z*-statistic values

Baumann-Pauly et al., 2013; Handoyo 2020; Kansal et al., 2014; Mokuolu and Oladele, 2015; Yunana et al., 2016). This study finds significant and positive effect of firm size on social responsibility disclosure. This supports the stakeholder's theory hypothesis that firms have a higher probability of participating in CSR as the company size

increases. According to Činčalová and Hedija (2020), stakeholder theory explains the relationship between the CSR and firm size. It implies that the higher the firm size (more prominent company), there is a firm's likelihood of engaging in corporate social activities. These findings are in tandem with the views of Ali et al. (2017), Udayasankar, (2008), Činčalová and Hedija, (2020), Mc Williams and Siegel (2018), and Zhao (2018) that a larger firm has all it takes to implement CSR activities. According to Zhao (2018), the larger companies become more significant in their social and moral responsibilities they have toward the society. This research suggests that healthy, more prominent firms preferred CSR. Firm's size may influence the ability, if not the willingness to engage in the call for social contribution to the better human race (Mc Williams & Siegel, 2018). "Large firms possess several characteristics that are favourable for promoting external communication and reporting about CSR" (Baumann-Pauly et al., 2013). For instance, larger companies have an excellent organizational structure and sophisticated information system (Uyar et al., 2013).

Importantly, our finding is consistent with the study by Waluyo (2017) on a sample of companies listed on Indonesia Stock Exchange, finds significant and positive relationship between the firm size and CSR disclosure. Similarly, based on Czech transportation and storage industry, Činčalová and Hedija (2020) provided evidence that CSR actions statistically and significantly relate to firm size. Furthermore, the result agrees with the study by Mokuolu and Oladela (2015) on the determinants of CSR activities of 16 listed firms in Nigeria, found that firm size (total assets) has a significant impact on the CSR spending of the firms.

In cognizance of the above analysis that firm size has a significant effect on the information disclosure in the dimension of society in CSR, our study further provided result of the interaction of the company size and negative earnings with a common impact on information disclosure in the aspect of society in CSR. Therefore, we assess the distinct phenomena or several conditions that will have illicit either opposition or substitution effect as a result of the interaction between the variables—the firm size and negative earnings.

Table 8 contains the logistic regression results of model 2. Our primary interest is on the moderating role of negative profitability (measured by NEPS). Considering the conjecture (H2), the coefficient of the interaction term γ_1 (−0.2617) is negative and significant at $p < 0.01$. Then H1 is confirmed in model 1. Our hypothesis (H2) of the opposite effect is supported, indicating the likelihood of an increase in the interaction of firm size and

Table 8 Logistic Regression

Variable	Model 2 Coef.	Std. Error	Prob.
FS	0.2167 (5.6641)	0.0382	0.0000*
EPS	0.0095 (0.8068)	0.0118	0.4198
AGE	0.1153 (0.5310)	0.2172	0.5954
FLeve	−0.0276 (−0.5310)	0.0466	0.5536
SP	−0.0001 (−0.1890)	0.0008	0.8500
Big4	−0.2609 (−1.9229)	0.1356	0.0545*
Indty	0.1687 (1.1766)	0.1434	0.2393
NEPS	2.6386 (3.2068)	0.8228	0.0013*
FS*NEPS	−0.2617 (−2.9979)	0.0873	0.0027*
Const.	−1.8498 (−4.4562)	0.4151	0.0000*
LR-Statistic	41.705		
Prob(LR statistic)	0.0000*		
Log-likelihood	−793.84		

Note: The variables have been explained in Table 3
*Significant at the 1% level, **significant at the 5% level, ***significant at the 10% level
Numbers in parentheses are z-statistic values

negative earnings will lead to a decrease in SORDI information disclosure in CSR. This result implies that there is an inverse relationship between the large firms and the choice of disclosing social activities as the firms record earnings loss. Nigerian-listed firms tend not to participate in CSR activities when there is negative financial performance. Auld et al. (2008) opined *that assessing the forms, types, and impacts on intended objectives are impeded by the conflation of distinct phenomena, which has created misunderstandings about why firms support CSR.* Some studies on CSR toll this part of the reasoning that CSR activities are only carried out by large and highly profitable businesses (Lucky, 2018). We argue first that the significant size–CSR positive effect on CSR activities should be nuanced based on a condition in which the firm is making losses (negative earnings). In the words of Chih et al. (2008), "a firm with CSR in mind tends not to smooth earnings, displays less interest in avoiding earnings losses and decreases." This scholar's conclusion is based on the study conducted using data from 1,653 firms of 46 countries. This may be as a result of repairing reputational damage such as earnings restatements by firms (Chakravarthy et al., 2014).

Furthermore, if firm profitability correlates with CSR, the issue of the decision of corporations engaging in social activities in the face of negative earnings comes to bare. Preston and O'Bannon (1997) argued that managers might seek to divert stakeholder's attention to the poor firm financial performance by promoting the firm's CSR activities. On the other hand, Sampong et al. (2018) opined that managers might reduce expenditures on CSR programs to boost short-term profitability to enhance their compensation. Similarly, corporations with a negative or deteriorating image can improve consumer perception of them with an effective CSR plan (Moravcikova et al., 2015). Perhaps the well-established positive impact of CSR initiatives on consumer's attitudes might lead companies to embrace CSR activities despite substantial cost (D'Astous & Legendre, 2009).

Moreover, the likelihood of the effect of firm size on social responsibility activities disclosure decreases with negative earnings. Wang et al. (2016) argued that companies with limited resources, especially in years of financial turbulence, could hinder the CSR action plan. Moneva et al. (2020) anchored on the instrumental stakeholder and slack resource theories to test the bidirectional connections between CSR performance and financial performance. The study utilized static and dynamic panel data regression and reported that a neutral impact of corporate environmental, social, and governance performance on a firm's financial value. Also, the higher the financial performance of the tourism firms, the lower their commitment to the CSR, which negates the slack resources theory. The finding contradicts the view of Chih et al. (2008). Obi and Ode-Ichakpa (2020) suggest that large firms, irrespective of their financial conditions, are more likely than other firms to invest in social initiatives. In other words, in firms with higher negative earnings, firm size is negatively related to engagement in SORDI. Therefore, the assumption of firm size effect is confirmed positive, and significant and negative earnings assumed a positive impact on the information disclosure in the dimension of society in CSR. The negative interaction effect of firm size and negative earnings is an opposition effect. The interaction effect of firm size and negative earnings on the information disclosure in the dimension of society in CSR is an opposite effect.

There are vital variables that drive the corporation's CSR activities. To prevent spurious results and recommendation bias, we controlled such essential variables, such as profitability (not decomposed into positive and negative earnings), company age, financial leverage, share price, audit firm size quality, and industry type.

The study finds a positive influence of profitability (measured by EPS) on SORDI. Specifically, profitable firms have a lower probability of choosing to participate in social responsibility activities. This finding is in line with that of Chih et al. (2010), and Reverte (2009) showed a positive and insignificant relationship between the profitability and CSR. On the contrary, our results contradict the results of Martínez-Ferrero and

García-Sánchez (2017) and Salehi et al. (2019). Considering the relationship between the profitability and CSR information disclosure, Sánchez-Infante Hernández et al. (2020) stated that the hypothesis of stakeholder theory supports the idea that CSR positively impacts earnings performance. But, Ali et al. (2017), Muttakin et al. (2015), and Petrenko et al. (2016) are of the view that higher profitability encourages CSR activities. However, our results revealed that although profitability strengthens corporate social events, companies with negative earnings can improve community acceptance and customer perceptions of them with an effective CSR plan. This result is consistent and in agreement with stakeholder theory and Yunana et al. (2016), who reported that profitability determines the social activities of the listed conglomerate firms in Nigeria. A recent paper by Činčalová and Hedija (2020) found a significant relationship between the firm financial performance and CSR activities of the Czech transportation and storage industry. Similarly, based on the listed firms on Indonesia Stock Exchange that issued sustainability reporting, Handoyo (2020) reported a positive and significant relationship between the earnings per share (EPS) and CSR disclosure of the sampled companies. Contrary to the stakeholder theory position, Martínez-Ferrero and García-Sánchez (2017) and Salehi et al. (2019) reported a significant negative relationship between the CSR and firm profitability. On the contrary, Chih et al. (2010) and Reverte (2009) found an insignificant positive association between the CSR and profitability.

Also, Table 7, model 1, revealed that company age is positively related to the choice of disclosing in the dimension of society in CSR, as noted in our study. Our results confirm the views of Withisuphakorn and Jiraporn (2016) and Waluyo (2017), more mature firms will be willing to invest more in CSR. We also agree with Salehi et al. (2019). The finding is in tandem with the views of Michelon et al. (2015) and Waluyo (2017) that more mature firms will be willing to compete and invest more in CSR. However, the relationship between the two variables is insignificant. The result validates the findings of Činčalová and Hedija (2020) and Badulescu et al. (2018) that age is not a determining factor of CSR. Firm age is an indicator that firms can compete (Michelon et al., 2015). According to Withisuphakorn and Jiraporn (2016) and Waluyo (2017), more mature firms will be willing to invest more in CSR. Salehi et al. (2019) provided evidence that the age of Iranian companies positively and significantly explains CSR activities. Činčalová and Hedija (2020) and Badulescu et al. (2018) pointed out that age is not a determining factor of CSR.

More so, from Table 7, model 1 revealed that financial leverage is negatively associated with the choice of disclosing in the dimension of society in CSR. The result is in line with Krüger (2015) of the view that high leverage constrains managers to spend corporate resources sensibly. Our finding confirms the conclusion of Yunana et al. (2016). According to Salehi et al. (2019), financial leverage is a significant factor to be considered among Iranian companies' CSR engagement. The study reported a significant negative association between the CSR and financial leverage. Krüger (2015) is of the view that high leverage constrains managers to spend corporate resources sensibly. The result of Yunana et al. (2016) agreed with the view of Krüger (2015). Clarkson et al. (2008) and Bouten et al. (2012) documented a positive relationship between the financial leverage and CSR.

Besides, except for audit firm size quality (Big4), controlled variables, share price, and industry type are not significant determinants of social responsibility disclosure in Nigeria. It suggests that the amount of share price and industry type does not affect the choice of social responsibility disclosure. "Many economists, especially among those involved in antitrust work, believe that economies of scale are of relatively little importance in most industries. These economists argue that if large-scale businesses earn higher profits than their smaller competitors, it is a result of their greater market power. Their size permits them to bargain more effectively, 'administer' prices, and, in the end, realize significantly higher prices for a particular product" (Buzzell & Gale, 1975). In other words, companies aware that contributing to the call for CSR and subsequently

reporting the same can improve their reputation and thus promote their share price/market value (Becchetti et al., 2020; Zhao, 2018). Handoyo (2020) revealed a significant positive relationship between the share price and CSR. The credibility of the audit firm counts as an essential variable that is associated with the earnings return association (Ofoegbu et al., 2018). Odera et al. (2019) investigated factors influencing CSR reporting practices of seven international oil companies (IOCs) in Nigeria. The study adopted a content analysis of the annual reports from 1992 to 2011. Their result indicated the absences of reports on the environment in which the IOCs operate. From a legal origin point of view, Becchetti et al. (2020) investigated the effect of legal origins on CSR. They documented that net of industry-specific effects, firms in common law countries score higher in corporate governance and community involvement.

Table 9 contains the first robustness test using model 2. We extend the moderating role of negative profitability. Considering the conjecture (H1), the coefficient (β_1) remains consistent. Also, H2, the coefficient of the interaction term γ_1 is negative and significant. The opposition effect is supported. Interestingly, the complementary effect was observed on the coefficient of the interaction term (company age and negative earnings), which means that older firm is not deterred by earning losses in competition with other firms with regard to social responsibility. The finding is in tandem with the views of Michelon et al. (2015) and Waluyo (2017) that more mature firms will be willing to compete and invest more in CSR.

Table 9 Logistic Regression

Variable	Model 2 Coef.	Std. Error	Prob.
FS	0.2238(5.5501)	0.0403	0.0000*
EPS	−0.0087(−0.3296)	0.0265	0.7417
AGE	−0.0362(−0.1573)	0.2304	0.8750
FLeve	−0.0515(−0.8881)	0.0580	0.3745
SP	0.0005(0.4977)	0.0011	0.6187
Big4	−0.3006(−1.6744)	0.1522	0.0483**
INDTY	0.1618(1.0057)	0.1608	0.3145
NEPS	0.3777(−0.2916)	1.2950	0.7705
FS*NEPS	−0.2222(−2.0789)	0.1068	0.0376**
EPS*NEPS	0.0265(0.7561)	0.0351	0.4495
AGE*NEPS	1.6482(1.8994)	0.8677	0.0575**
FLeve*NEPS	0.0795(0.6207)	0.1281	0.5348
SP*NEPS	−0.0204(−1.6259)	0.0125	0.1040***
Big4*NEPS	0.3025(0.8627)	0.3507	0.3883
INDTY*NEPS	0.3335(0.8418)	0.3962	0.3999
Const.	−1.7263 (−3.9769)	0.4340	0.0001
LR-Statistic	52.239		
Prob(LR statistic)	0.0000*		
Log-likelihood	−788.57		

Note: The variables have been explained in Table 3
*Significant at the 1% level, **significant at the 5% level, ***significant at the 10% level
Numbers in parentheses are *z*-statistic values

We performed an alternative robustness check test by replacing the moderating variable (negative earnings) in model 2 with the positive earnings (PEPS) variable. The results of the variables of interest presented in Table 10 confirmed our earlier findings.

Table 10 Logistic Regression

Variable	Model 2 Coef.	Std. Error	Prob.
PEPS	−0.0339 (−1.2457)	1.1955	0.2129
FS*PEPS	0.2537 (2.8118)	0.0902	0.0049*
EPS*PEPS	−0.0737 (−0.8418)	0.0876	0.3999
AGE*PEPS	−1.1321 (−1.2354)	0.9163	0.2167
FLeve*NEPS	−0.0831 (−0.6235)	0.1334	0.5329
Const.	−0.3078 (−0.2652)	1.605	0.7908
LR-Statistic	45.75		
Prob(LR statistic)	0.0000*		
Log-likelihood	−791.81		

Note: PEPS, positive earnings per share
Other variables have been explained in Table 3
*Significant at the 1% level, **significant at the 5% level, ***significant at the 10% level
Numbers in parentheses are *z*-statistic values

The coefficient of FS*PEPS is positive and significant in model 2. The coefficient of the moderator variable (FS*PEPS) in model 2 is significant at the 5% level ($\gamma1 = 2.8118$; $p < 0.0049$), indicating that PEPS moderates the relationship between the firm size and SORDI. This result is also consistent with the main findings presented in Table 8. Overall, the results in Tables 8–10 support our hypotheses 1 and 2 and show on the contrary that firm size (FS) has a positive and significant impact on the company's social actions. However, the relationship between FS and SORDI is negatively and significantly (opposite effect) moderated by earning loss (NEPS).

CONCLUSION

In this paper, we not only investigated the relationship between firm size and CSR disclosure, but also examined the moderating role of negative earnings, which affects the relationship. We confirmed the long-aged evidence of a U-shaped relationship between the firm size and social responsibility, which is affected by the firm earnings performance. We find that the earning loss of the firms influences the relationship between the company size and CSR in the opposite direction. Hence, our opposite effect conjecture is upheld. The company's transparent communication with its stakeholders provides insurance-like protection in the time of adverse events that will help preserve the value (Singh et al., 2017). The findings of this study have several implications for both academics and practitioners. The study contributes to the accounting literature by extending the knowledge in the field of CSR and brings new insights into the area of CSR and its application in the Nigerian context. Based on the study, we would expect that the population of the larger firms in Nigeria, the involvement in CSR actions to fight COVID-19 would be less significant in the situation of earning loss. However, older firms among the large firms would respond positively to the clarion call for donations to fight this deadly virus—COVID-19. However, the topic deserves further attention. The use of only firm characteristics was the main limitation of our paper, testing the moderating role of negative earnings in the related corporate governance and social responsibility actions of the firms could be a further research interest.

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