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Corporate social responsibility intensity: Shareholders' value adding or destroying?

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Abstract: This paper examines whether an intensification of corporate social responsibility activities adds or destroys firms' value in Nigeria. Fixed effect regression analytic tool was used to analyze the data from a sample of 56 listed firms on Nigerian Stock Exchange (NSE) between 2009 and 2018. We followed environmental, social and economic responsibility activities rating based on Global Reporting Initiative (GRI) disclosure guidelines and Korean Economic Justice Institutes (KEJI) social responsibility efficient interpolation rating formula in the measure of firms' social responsibility. The study found that firms that engage in intensive social responsibility yielded positive and insignificant effect on firms' stock value. This implied that an aggressive social responsibility is not the best approach as it possesses the potential to destroy shareholders' value. On the other hand, we found evidence that medium social responsibility model significantly affected firms' financial performance (coefficient = 0.165; p-value >0.05), which suggests that the best social responsibility strategy that significantly increases shareholders' value is the middle course model. A further test showed that generally environmental, social and economic responsibility activities of firms significantly add to firms' market value (Coefficients = 0.028; 0.216; 0.037; p-values<0.05). However, the degree of the effect is contingent on the intensity of the activities and governance structures.

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PUBLIC INTEREST STATEMENT

Firms are becoming under pressure to invest in corporate social responsibility (CSR) globally. The idea is that CSR advances firms' financial position and encourages sustainability. While this may be true, it is important to understand how CSR would actually affect shareholders. CSR could be value-destroying, which could lead to corporate failure. This study advocates implementation of CSR models that would be value-adding rather than value-destroying. We discovered that the model that adds to shareholders' value is the CSR moderate model. Firms, which follow an industry average in CSR deliver significant vale and are being considered CSR low-risk firms. Moderate approach to CSR attracts stock premium. However, above the industry average, the investors resist by discounting stock of the aggressive CSR investors. By inference, the laggards incur the same risk as the aggressive CSR investors.

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Governance structure and board diversity explained firms' efficient CSR strategy that promotes middle course strategies while CSR aggressiveness is explained by unitary model of board leadership. Thus, implementation within an industry average performance adds significantly to investors' value provided that there is effective corporate governance structure.

Subjects: Economics; Finance; Business, Management and Accounting

Keywords: corporate environmental; corporate social; corporate economic; value adding; value destroying; CSR; intensive; responsibility; financial performance

1. Introduction

Corporate Social Responsibilities (CSR) including economic and environmental responsibilities embrace all processes whereby corporations make deliberate effort to operate in a manner that creates and fosters a win-win situation for all stakeholders (Henricks, 2006). It also embraces and enhances corporate sustainability (Aladwan, 2018) and societal resilience. Hence, firms are constantly being pressured to disclose their social, environmental and sustainability practices based on existing standard (Mahjoub, 2019) and accept a "social contract" implied in the CSR legitimacy and "win-win" practices by allocating a portion of their earnings to the society (Deegan, 2002; Deegan & Unerman, 2011; Hunter et al., 2019; Kolkailah et al., 2012). But beyond the societal and stakeholders' increasing pressures on firms to be socially responsible, and practice sustainability, several firm-focused theories such as instrumental theory have emerged, which appeal to firms to be highly involved in CSR activities to maximize return on equity, to enhance market value and achieve higher customer brand loyalty (Al-Ghamdi et al., 2019;.Husam-Aldin & Saima, 2018). Firms have also been called to intensify CSR activities in order to increase liquidity by accessing available fund given evidence that CSR activities of firms can give them good opportunity to access finance (Ansong, 2017a). The idea that intensive CSR is positively related to corporate financial performance originates from a strategic approach to social responsibility, where intensifying CSR is seen as a key instrument to reaching business financial goals (Carroll, 1991).

However, while the instrumental theories advocate higher involvement in CSR to maximize profit, it is not clear if higher involvement in CSR activities could be value-destroying or value-adding. Afonso et al. (2012) showed that different thresholds of CSR activities affect firms' value differently in Poland. However, their study was on different environment, where disclosure practices are of higher standard. Overall, higher involvement in CSR could signal risk to investors, which could be transferred to the firms' stock value. While there is substantial research in CSR and firms' value in Nigeria, most of the literatures such as Aliyu and Noor (2015), Usman and Amran (2015), Babalola (2012), and Fabio et al. (2013) did not directly examine the magnitude of CSR activities and firm value. This gap sends warning and suggests that managers need to exercise great caution in CSR activity practices. Moreover, several of the studies in Nigeria found contradictory evidence. For example, Babalola (2012) found that a positive link existed between CSR and firms' value in Nigeria, which led him to recommend higher involvement in CSR to increase firms' value. Aliyu and Noor (2015) on the other hand, discovered that a negative relationship existed between environmental disclosure and financial performance. As such, they indirectly caution firms' against higher involvement in CSR activities. Following these contradictions, there exists need to reconcile these studies by examining whether variations in results could be accounted for by the intensity of CSR activities.

Therefore, in this study, we examine the extent corporate involvement in CSR adds or destroys firms' financial performance in Nigeria to establish a correct model of CSR that will enhance firms' value rather than impairing it. Nigerian managers have aggressively pursued CSR within the past few years. Through this study, we would be able to ascertain correctness or otherwise of their strategies. Such discovery will help the investors to determine which firms to channel their investment to mitigate any potential stake diminution despite the subsequent call for firms to be aggressive in CSR investment. Our study provides additional evidence whether governance

structures and board diversity could explain firms' adoption of certain CSR intensity strategies to expound further the best approach to mitigate risk associated with CSR strategies.

Following the increasing trend in CSR expenditures, investors have truly begun to realize the true value of CSR behaviour and consideration as an effective means of managing risk and improving performance (US SIF, 2018). They are aware that business social and environmental irresponsibility yield some risks. In a recent study, World Bank confirms that countries and different communities around the world experience increased climate change effects such as droughts, floods, more intense and frequent natural disasters and sea-level rise in connection with high industrial energy consumption and production activities. In this case, the poorest and most vulnerable are being largely affected and are being hit the hardest (World Bank, 2019). Thus, with each passing year, there are high risks of climate change impacts, which are occasioned by business activities. Before the industrial revolution, the level of atmospheric CO_2 was around 280 parts per million, but by 3 June 2019, the level of CO_2 had stood at 414.40ppm and most of the emissions over- 41.8% - come from China (27.2%) and US (14.6%) (Fleming, 2019). Research warns that without urgent action including information awareness creation, developing market-based information framework, enforcing regulatory control and encouraging corporate self-commitment, climatic change effects could push an additional 100 million people into poverty by 2030 (The World Bank, 2019). This certainly would defeat 2030 climate and energy targets aimed to cut greenhouse gas emissions by 40%, to share at least 32% of renewable energy and to improve energy-use efficiency by 32.5% and could have drastic corporate performance effect.

But do corporate organizations actually care about carbon foot prints and how such actions could affect them in the future? We are in a neo-classical world where the primary interests of corporate organizations have always been to maximize wealth despite the ecosystem impact. Businesses have always been about increasing efficiency and optimizing performances of the parts of social-ecological systems that deliver defined profits. Most often, businesses falter in recognizing the spillover effects and feedbacks that alter the natural working of the bigger system, including changes to unrecognized benefits and compensate for them.Increasing efficiency is a desirable strategy for corporate organizations if not for anything, efficiency encourages business economic viability. However, when increasing efficiency is carried out with less regard to the larger systems' implication, it can lead to total economic collapse.

Part of this awareness campaign has been to make corporate managers realize the effect of their corporate carbon foot prints on their firm value despite their need for business efficiency. Studies in this regard have provided mixed-based evidence claiming that the overall effect depends on the approach the researchers adopt (Rahman et al., 2017). Thus, while several researchers have found environmental and social responsibilities to be financial performance and value enhancement strategies, others have concluded that to be environmentally, socially, and economically responsible is to damage corporations' shareholders' value. In this regard, several studies have found contradictory results (Rahman et al., 2017), which led to the conclusion that results varied widely, from negative (Aliyu & Noor, 2015; So et al., 2016) to positive (Husam-Aldin & Saima, 2018; Rashid & Radiah, 2017; Rezaul & Hanh, 2017) impact. In addition, it was revealed in Cheng et al. (2014) that there is also evidence of an inverse U-shaped effect of corporate social and environmental responsibility on firms' performance. Literature provides reasons for such variations. According to Rahman et al. (2017), and Cheng et al. (2014) theoretical or methodological limitations, the study settings, firms' age, measurement errors, and neglect of incidental variables explained the variations in the results. Therefore, though a well-researched area, CSR performance-financial linkage is still an emerging empirical issue in Nigeria due largely to the methodological limitations. Therefore, there is a need for studies that would reconcile these diverging results, to enable informed decision. This present study is geared towards achieving the purpose.

The rest of this paper deals with the literature review, research design, and the results, which include the analyses, discussions, conclusion and recommendations in that order.

2. Review of literature

Research has examined the effect of corporate social and environmental responsibility on firms' performance. There is evidence that the effect is both positive and negative, which depends on several factors including the methodology, sample size, study setting and variables analyzed. We examined some of these studies below and drew an inference from the review of how our study makes contribution.

Chiara and Silvia (2017) analysed the CSR on firm performance in six Latin American economies namely Argentina, Bolivia, Chile, Colombia, Ecuador and Mexico economies. They found that CSR has a positive impact on firm performance though results vary across the six countries. However, the study did not focus on how CSR intensity influences corporate values. In related study, Rashid and Radiah (2017), Riyadh et al. (2019), and Makanyeza et al. (2018) found that CSR activities including disclosure practices enhanced firms' value. Thus, stocks of socially responsible firms' do well compared to the environmental laggards. However, the evidence and the degree of the effect differ across different countries (Chiara & Silvia, 2017). Eveline et al. (2005) study investigated the effect of sustainability on financial performance and consistently found that high sustainability-rated portfolios have performed better than low-rated portfolios. Dafna et al. (2015) examine the relationship between corporate environmental contribution and financial performance. Consistently, they found evidence that firms that are proactive in supporting social responsibility and sustainability yielded higher profit measures.

Güler et al. (2010) examined the relationship between CSR and firm financial performance in Pakistan. Between 2005 and 2007, the authors found a significant relationship between financial performance and CSR. Li (2012), Rezaul and Hanh (2017), and Lucely (2016) though focused in different sectors and countries found that significant positive association occurs between CSR and financial performance and found that a significant and positive association exists between CSR and financial performance. Thus, in these studies, share prices could rise because engagement with CSR (Lucely, 2016). The positive effect of CSR on financial performance was also confirmed in Mehdi et al. (2015), George et al. (1998), Otuo and Abraham (2017), Husam-Aldin and Saima (2018), and Haifa and Mohamed (2017). Though the studies cut across several countries including Saudi Arabia (Al-Ghamdi et al., 2019; Husam-Aldin & Saima, 2018), China (Honghui, & Xiayang, 2011), Ghana (Otuo & Abraham, 2017), UK (George et al., 1998), there is consistent evidence that firms participating in CSR enhance their market share value. However, analysis has detected that changes in the market value because of CSR may not result in positive change in profitability (Mehdi et al., 2015). Thus, while there is evidence that CSR enhances firms' value (Haifa & Mohamed, 2017; Sebastian & Malte, 2010), the effect of CSR on firm performance also depends on the performance measure. Significant positive effect is detected based on share value relative to profit margin effect (Mehdi et al., 2015).

Among SMEs in Ghana, Ansong (2017b) found that CSR activities resulted in improved financial performance of SMEs. Riyadh et al. (2019) also found evidence that CSR disclosure positively impacted firm performance though the evidence is insignificant, which was also confirmed in Riliang (2009) where it was found that CSR activities lead to value creation. Consistently, Iwamoto et al. (2019) evidence on the relationship between corporate financial performance and CSR activities in Japan showed that CSR activities directly impact firms' financial performance. However, the effect is not consistent in Japan given Gnanaweera et al. (2018) finding that the CSR disclosure practices of 85 Japanese companies had no strong association with firms' financial performance in consistent with Yanni and Yongrok (2014) and Jessica and Seleshi (2013) where it was found that CSR was the cause of firms' higher performance. Similar evidence was also obtained by Juanita et al. (2011), Giacomo Kamalesh, & Giovanna, (2013), María et al. (2018) who all found that CSR activities of firms resulted in higher financial performance of firms. From employee perspectives, Arisleidy et al. (2017) found evidence CSR programmes positively and significantly enhanced firms' performance. Among Thai companies, Benjamas and Panya (2015) provided evidence that involvement in CSR created value. Finally,

Hanna et al. (2015) found positive impact of CSR activities on retailers' performance, which thus positively affected retailers' firm performance.

Only a couple of study reported a negative and an insignificant effect of CSR on firms' value and performance. For example, in Brazil, Vicente et al. (2011) examined the relationship between CSR and firm performance and found that CSR is value-destroying. They found significant negative correlation between CSR and firm value. Moreover, they found that a neutral relationship characterises the mutual effect between CSR and financial performance. Similarly, Consistently, Güler, Eyad and Murad (2016) that explored the nature of the relationship between CSR and nonfinancial organizational performance in Yemen found insignificant influence of CSR on financial performance. Aliyu and Noor (2015) discovered a corroborative evidence that a negative relationship exists between environmental disclosure and financial performance implying that the disclosure of environmental performance could be value-destroying in Nigeria. On the other hand, they provide evidence that the performance among 68 Nigerian-listed companies was enhanced by their community involvement disclosure, products and customer disclosures and human resource disclosures. In addition, analysis of listed companies in Nigeria by Usman and Amran (2015) yielded a negative relationship between environmental disclosure and corporate financial performance, which indicates that disclosure information about CSR, could be value-destroying in Nigeria, inconsistent with Babalola (2012) and Fabio et al. (2013). The authors found that a positive link existed between CSR and firms' value in Nigeria. In this, conclusion was reached that in Nigeria; socially responsible efforts of firms trigger improved market value.

Therefore, the effect of CSR on firm performance differs across nations and could depend on country and methodology used (Chiara & Silvia, 2017). The knowledge gap occurred because in none of the above studies was different strategies modelled to explain when CSR could be value-creating or destroying.

3. Theoretical framework and hypotheses development

The corporate world is going green for environmental security and this is what to many it means to be socially responsible as a corporate citizen. Theoretical framework of CSR has evolved with time (Dahlsrud, 2008). There are several theories explaining the relationship between sustainability disclosure and firms' market value and performance (Loh et al., 2017). However, we anchor this work on instrumental theory. The link between CSR and CFP yield is largely based on the instrumental theories of CSR. These theories provide foundations upon which most empirical tests on the link between CSR and CFP are built and carried out. Business and associated activities have always been viewed as sources of and means of advancing shareholders' wealth. Since CSR is a part of business activities, the proponent of this theory view CSR as an instrument of wealth creation. According to Garriga and Mele (2004) this group of CSR theories is considered solely as a strategic model to realize economic goals. According to them instrumental theory of CSR leads ultimately to wealth creation. Instrumental theory originates from Friedman (1970) view that business has only one responsibility towards society, which is to maximize profits to the shareholders as long as they operate within the legal framework and the ethical custom of the country. Researchers believe that instrumental theories have a long tradition (Garriga & Mele, 2004; Windsor, 2001). As such, the theories are relevant to business goals including wealth creation, market penetration, and have witnessed wide acceptability from the business and academic community. Specifically, Windsor (2001) pointed out that "a leitmotiv of wealth creation progressively dominates the managerial conception of responsibility". Thus, this theory is highly dominated by concern for profits through CSR activities.

Another important theory that provides explanation to CSR and firms' performance is the stakeholder approach. Extant literature notes that socially responsible firm is one whose managerial staff balances a multiplicity of interests. It maintains that instead of fighting only for efficiency and larger profits for its shareholders, a socially responsible firm also considers employees, suppliers, dealers, local communities and the nation. Firms' model of CSR based on meeting diverse interests in society may be challenging but could also be rewarding (Chen & Lee, 2017). When the stakeholders are well treated, they would pay back by building their trust on the firms, which may increase their brand loyalty (Al-Ghamdi et al., 2019).

However, to exercise CSR in that direction, there are three basic activities the firms should consider (Dura & Drigă, 2017). The objectives must be set and well defined. The decision must be made regarding whether to pursue given CSR objectives. Finally, the financing of these objectives must well be defined not to engage in CSR at the expense of profitability. There has always been argument since 1980 (Dura & Drigă, 2017) CRS bears "the notion that corporations have an obligation to constituent groups in society other than stockholders and beyond that prescribed by law and union contract" (Thomson, 1967). The stakeholders' theory has provided explanations to why firms engage in CSR and how such activities affect the firms' value. Such firms generally increase their reputation, which positively affects stakeholders' purchase intention and indirectly increase their shareholders' value through higher sales (Rahman et al., 2017).

Agency theory is also one of the key theories of firms, which explains firm's behaviour in relation to CSR activities. It states that voluntary disclosure of firms regarding social and environmental aspects is a means to minimize agency costs. It also provides a means to reducing future agency cost that may occur in the form of legislation and regulation (Cormier et al., 2005 & Tagesson et al., 2009). Loh et al. (2017) argue that this reduction in the agency costs will affect the risk profile and profitability of firms. In turn, this will affect the market value. Similarly, Signal Theory suggests that companies that disclose on environmental issues send a signal that they are engaged in proactive and intensive environmental strategies (Bakar et al., 2011; Clarkson et al., 2008). Such companies are incentivized to inform shareholders and other stakeholders by voluntarily disclosing more according to the researchers.

While each of these theories explains firms' CSR implementation with respect to firms' value the stakeholders' and instrumental theories provide the root cause of the intensity of CSR either to advance stakeholders' interest or to solely advance shareholders' interest at the expense of other stakeholders. Thus, we anchor our analyses on the two CSR theoretical foundations.

3.1. Hypotheses development

Firm value is a measure of a company's total value or worth. It includes in its calculation the market capitalization, short-term debt and long-term debt. In evaluation of firm, enterprise value is used in take over exercise. Shareholder value creation concept remains a construct that is highly misunderstood and multidimensional in nature (Hart & Milstein, 2003), which has resulted in the emergence of several shareholder value creation frameworks (Thomson, 1967). There are at least four dimensions to shareholder value framework that firms must follow to maximize shareholders' value namely innovation and repositioning, growth path and trajectory, cost and risk reduction, and reputation and legitimacy (Hart & Milstein, 2003).

The empirical review shows that there is a significant link between ***CSR*** and firms' value though the effect depends on several factors including the setting and the methodology (Chiara & Silvia, 2017; María et al., 2018). For the purpose of this study, the dependent variable is the firm value while CSR is the independent variable. This means that the value of firms depends on the CSR activities. Increase in CSR is expected to either increase the market value of firms or decrease it. According to Moskowitz's (1972) financial theory, relationship may exist between ***CSR*** and market-value. Thus, socially responsible investing (SRI) initiative of firms could be an instrument of fulfilling their social and financial obligations (Guenster et al., 2011). Following the potential of firms to deliver values through CSR activities, Moskowitz (1972), have developed value-based theoretical frameworks that either support or reject the validity of CSR from an investor-value creation views. Engaging in CSR could increase value because investors benefit from holding stocks of firms that are socially responsible. However, it is a function of how the market participants perceive CSR activities. In this regards, Heinkel et al. (2001) argue that market participants could respond to CSR information in three different ways. Firstly, market participants may not value CSR. In this case, if CSR is not a priced factor in the market, then investors do not expect socially and environmentally responsive companies to deliver stock returns different from nonresponsive firms, all else equal (Guenster et al., 2011). Investors believe that CSR is expensive and could decrease shareholder wealth. In this regard, Henderson, (2002), and Walley and Whitehead (1994) argue that CSR initiatives require large portion of firms' financial resources. There is thus, possibility that CSR activities

could be value-destroying when a large proportion of firms' resources is spent on CSR activities. Vicente et al. (2011), and Aliyu and Noor (2015) found evidence that CSR was value destroying. We reason that if CSR cost increases above certain cost threshold, investors would most likely consider the activities as risky and could discount the value of the firms' stock in the market. Thus,

H_1: High involvement in CSR significantly destroys firms' value.

Secondly, investors do value CSR based on the Heinkel et al. (2001). This is also consistent with the instrumental view, where CSR is used as a strategy for advancing firms' value. While evidence has shown that firms with low CSR intensity may not do well financially, it is reasonable to argue that firms that adopt the middle line course in which case they are not excessively and intensively spending for CSR and not avoiding it entirely could do better. Then, a middle line model is a matter of judgment and cost monitoring. A middle line approach to CSR is not being submerged by the rhetoric of CSR or spending excessively for CSR in order to maintain competitive position. This reasoning as well puts to question CSR rhetoric of Carroll (1991) that highlights that once corporations consistently do good in terms of high CSR performance to the society in spirit and principle that what follows is harvest of financial success. CSR responsibility enhances firms' reputation, which translates into higher brand loyalties and sales. Investors place a premium on the stocks of firms that engage in efficient CSR. Afonso et al. (2012) document that relationship between CSR and firms' value Portuguese is contingent on CSR cluster performance, which indicates that depending on the measure for firm value such as return on assets (ROA), return on equity (ROE) and return on sale (ROS), the impact varies across three clusters of low, high and medium CSR performance. However, the study suggests that moderate approach to CSR intensity could yield better financial performance in relation to ROA for the practicing firms. In this study, we examined the impact of middle line CSR model on firms' value using evidence from Nigeria. One moderating factor on the impact of CSR on CFP is country-specific (Marti et al., 2015; Waddock & Graves, 1997). Specifically, Marti et al. (2015) demonstrated that the level of economic growth and development moderate firms' involvement in CSR, which in turn determines the level of the impact on the firms' value. Compared to Portugal, Nigeria is less advantaged economically and this disadvantage could make the use of Afonso et al. (2012)'s result inefficient predictor of the impact of CSR intensity on CFP in Nigeria. Hence, from Nigerian context, we propose that adopting a medium CSR intensity model could significantly add value to the shareholders compared to other models. Research such as Shane and Spicer (1983) and Spicer (1978) show that companies that have strong social or environmental performance records may gain investor trust. More recent evidence shows that investors' loyalty could be won by CSR activities (Al-Ghamdi et al., 2019). Positive effect of CSR on firms' value is an indication that the market efficiently priced CSR activities. There is empirical confirmation that efficiently priced CSR lead to higher corporate performance (Yanni & Yongrok, 2014; Jessica & Seleshi, 2013; Iwamoto et al., 2019; Güler, et al. 2016). Al-Ghamdi et al. (2019), and Otuo and Abraham (2017), found evidence that firms participating in CSR enhance their market share value. We reason that such firms must have followed the moderate approach which is estimated to be very efficient and value-adding (Afonso et al., 2012). Therefore, we postulate that:

H_2: Engaging in medium CSR model significantly adds to firms' value.

Thirdly, there is the possibility that the risk paradigm could be violated in practice. This suggests that the market does not efficiently price CSR activities. Heinkel et al. (2001) argued that in this case, the stocks of companies that are socially responsible can be undervalued or overvalued when compared to the stocks of those firms that are environmental laggards. Thus, CSR could increase firms' value and as well could decrease it. There are really significant positive and negative links between ***CSR*** and firms' value defined in terms of shareholders' value. According to Moskowitz's (1972) financial theory, relationship may exist between ***CSR*** and market-value, in which case the theory either rejects or accepts the authenticity of the relationship from market participants in particular investors' perspectives (Guenster et al., 2011). Therefore, based on risk-return paradigm, the benefit likely to accrue to investors based on

holding the stocks of the pro-active socially responsible firms is contingent on the premium capital market participants place on CSR strategy (Guenster et al., 2011). Evidence shows that capital market can react to CSR strategic and tactical information disclosure of firms in three ways (Guenster et al., 2011; Hamilton et al., 2005) namely capital market does not place any premium on firms; value, which is a negative effect, investors value ***CSR*** (Shane & Spicer, 1983; Spicer, 1978), and the market does not price CSR efficiently (Derwall et al 2005). If capital market does not place any premium on ***CSR***, it shows that the strategic ***CSR*** involvement will not positively affect share valuation. Hence, the stock value of the environmental laggards will not differ from the environmental strategy of the highly involved. In a scenario where investors place higher premium on CSR, then it is reasonable to suspect that CSR expenditure will be priced by the market participants thus yielding positive effect. Therefore, firms with a effective ***CSR*** strategy will be regarded as less risky firms, which imply that investors will demand lower return on their investment.

Empirical research has confirmed that the relationship between ***CSR*** and firms' value such as the level of ***CFP*** can either be positive or negative. In terms of negative relationship, research shows that trade-off occurs, which decreases the profitability position of firms that are engaged in aggressive ***CSR*** strategies (Guenster et al., 2011). Researchers reason that CSR is expensive and could decrease shareholder wealth. In this regard, (Henderson, 2002), and Walley and Whitehead (1994) argue that CSR initiatives require large portion of firms' financial resources. Unfortunately, according to them, the financial benefits of such cost-intensive strategy are not within the foreseeable future if at all there are such benefits. Because CSR is hard to define, evidence shows that managers use corporate social responsibility as a means of achieving their personal goals at the expense of the real owners. Under the negative synergy, evidence shows that ***CSR*** results in negative synergy, which reduces firms' values (Guenster et al., 2011; Preston & O'Bannon, 1997). Therefore, we postulate non-directional hypothesis that:

H_3: Corporate social responsibility significantly affects firms' value

4. Data and research methodology

The researcher used secondary data in the analyses. Thus, an expost facto design was used in this work, which enabled us to focus on the verifiable data. The study had focussed on 180 listed firms in Nigerian Stock Exchange (NSE) as of 23 April 2018. Using a judgmental sampling technique, 56 listed firms were selected based on the data availability within the time window 2009 and 2019. That means that 124 firms were eliminated as they did not have the data set required in this study. Most of them did not follow normal CSR disclosure practices recommended for Nigerian firms and as such it was not clear if they were involved in some specific CSR items. Thus, firms selected and studied were firms that have substantially complied on data disclosure requirement of NSE. All together, we studied 616 financial statements of 56 firms for 11 years. In analyzing the data, which were sourced from the financial statements of the sampled firms, and NSE database, we engaged Predictive Analytic Software (PASW) version 17.0 and Eviews Students' version. The study used multiple regression analysis in testing the effect of social responsibility on firms' market value.

To measure CSR, the study followed both the Global Reporting Initiative (GRI) guidelines and Korean Economic Justice Institute (KEJI) CSR rating calculation approach. The researchers used GRI because Nigerian CSR disclosure follows the recommendations of GRI. GRI has economic, environmental and social reporting framework, which all members are expected to disclose. Economic dimension has 4 items. Environment has 12 items while social has sub-categories namely labor practice and decent work, human rights, society and product responsibility. All together, GRI social dimensions have 36 items. However, the researchers follow KEJI rating formula to assign weights. According to Yu and Lee (2017), and Chung et al. (2018), three steps are followed namely (i) calculate the actual value of a given indicator based on the formula, (ii) convert actual values to 100-point scale, based on the rating formula (interpolation method) and (iii) calculate a final score weighted by the indicator. Based on KEJI guidelines, six categories are used as indicators-namely, soundness (25 points), fairness (20 points), social contribution

(15 points), consumer protection (15 points), environmental management (10 points), and employee satisfaction (15 points) (Yu & Lee, 2017). The percentages were based on the intensiveness of disclosure. Following this approach, we convert GRI categories to percentage leading to the following result.

In application of KEJI CSR rating, we took the interpolation method approach to convert actual values to rating values. Based on the KEJI work, the following best interpolation formula (Chung et al., 2018; Yu & Lee, 2017) was used:

$$\text{Rating value} = [\text{Rating value} = \text{min rating} + \frac{Cmax\ rating - minrating) * (actual\ value - \text{min}\ value)}{(\text{max}\ value - \text{min}\ value)}]$$

Following prior studies and KEJI procedure, we used the scaled values derived using the above interpolation equation to weight each indicator. Therefore, the CSR scores we used in this study are final scores got from the three procedures (Cho, Chung, & Young, 2019).

We follow the usual trend of measuring firm value and performance, which is to define firm performance in terms of return on asset (ROA) and market price per share. Several researchers including Afonso et al. (2012) and Chetty et al. (2015) used this performance measure in their analyses of the role of CSR in shaping financial performance and market value of firms. ROA is an accounting measure usually estimated as the ratio of profit after tax to total asset. However, it is subject to error and manipulation. Therefore, in this study, we used market price per share, which is measured as the stocks' price divided by the total number of shares.

Our econometric model follows by way of adaptation the Ohlson (1995) model of corporate valuation, which is based on economy with risk neutrality and homogenous beliefs. In this case, the market value of the firm equals the present value of future-expected dividends and cash flow. According to the scholar, given further that the interest rates satisfy a nonstochastic and flat term structure, the first assumption reduces to

$$\boldsymbol{P_t} = \sum_{t=1}^{\infty} Re_f^{-t}\, \boldsymbol{Ex\{}di_{t+r}\boldsymbol{\}} \tag{1}$$

Where $\boldsymbol{P_t}$ = the market value, or price of the firm's equity at date $\boldsymbol{t.}$; $\boldsymbol{di_t}$ = net dividends paid at date $\boldsymbol{t.}$; $\boldsymbol{Re_f}$ = the risk-free rate plus one. $\boldsymbol{Ex_t\{.\}}$ = the expected value operator conditioned on the information at date $\boldsymbol{t}$. The model pushes market value to be conditioned on accounting information because the information affects the evaluation of the present value of expected dividends (Ohlson, 1995). Ohlson (1995) then developed a relatively general framework in which value depends on earnings and book value in addition to current dividends. By way of notation, $\boldsymbol{wx_t}$ = earnings for the period ($\boldsymbol{t\text{-}1,t}$) while z$\boldsymbol{Y_t}$ = (net) book value at date $\boldsymbol{t.}$ Labelling of $\boldsymbol{wx_t}$ x_t and z$\boldsymbol{Y_t}$ y_t is obviously arbitrary. The model also exploits structural attributes inherent in accounting namely the change in book value between two dates, equals earnings minus dividends, thus, the model imposes the clean surplus relation (Ohlson, 1995) and dividends reduce current book value, but they do not lower current earnings. To formalize these two aspects of owners' equity accounting, the scholar introduced the mathematical restrictions, which simplify to:

$$P_1 = zy_t + \beta_{1w} x^a{}_t + \beta_2 va_t \tag{2}$$

Where

$\boldsymbol{P_1}$ is the market price, which measures firm value. $\boldsymbol{zy}$ is the undetected variables including errors and control variables, which affect firms' value. $\boldsymbol{wx^a{}_t}$ is the firms' earnings which affect firms' returns, and consequently firms' market value. $\boldsymbol{va}$ is the measure of the firms' characteristic defined in terms of book value. The above equation 3b implies that the market value equals the book value adjusted for both the current profitability as measured by abnormal earnings and other information that modifies the prediction of future financial performance (Ohlson, 1995). The latter could include firms' approach to social responsibilities. A couple of observations concerning the

valuation coefficients, β_1 and β_2 help to understand the economics of the model. The functions β_1 and β_2 are increasing in their arguments.

We thus build on this model by introducing other variables that possess the potential to affect and modify the prediction of future financial performance (Ohlson, 1995). The key among these variables is the CSR and their intensity interaction dummies. Thus, our base-modified model based on Ohlson (1995) framework, used also by Chetty et al. (2015) and Loh et al. (2017) equals:

$$P_{it} = \alpha + \beta_1 wx_t + \beta_2 va_t + \beta_3 CSR_i + \beta_4 Control_{it} + er_{it} \tag{3}$$

For the purpose of hypothesis testing, and to be able to mitigate potential multicolinearity problem and test for robustness, we transform the model into two:

$$P_{it} = \alpha + \beta_1 Lagwx_{it} + \beta_2 va + \beta_3 CSR_High_{it} + \beta_4 CSR_Med_{it} + \beta_5 Firm_Size_{it} + \beta_6 lev_{it} + \beta_7 RDE_{it} + \beta_8 ADE_{it} + \beta_9 Gov_{it} + \beta_{10} Gen_{it} + {}_t \tag{4}$$

$$P_{it} = \alpha + \beta_1 Lagwx_{it} + \beta_2 va +_t \beta_3 CSR_Econ_{it} + \beta_4 CSR_Environ_{it} + \beta_5 CSR_Soc_{it} + \beta_6 Firm_Size_{it} + \beta_7 lev_{it} + \beta_8 RDE_{it} + \beta_9 ADE_{it} + \beta_{10} Gov_{it} + \beta_{11} Gen_{it} + {}_t \tag{5}$$

i = 1.N, N = the number of firms which is 56., t equals the time under consideration, which falls in the window (2009,- 2018). x_t **=** firms earnings at year ***t*** scaled by firms' total assets. $\boldsymbol{v_t}$ is the firms' book value of common equity of firm *i* at year **t.** ***P*** equals corporate financial performance defined in terms of firms' stock market price divided by the firms' total shares. $\boldsymbol{\alpha}$ is the intercept that takes care of any uncontrolled effect on ***P. Lag*** $\boldsymbol{wx_t}$ is the firms' earnings which affect firms' returns, and consequently firms' market value (Hanssens et al., 2001; Rahman et al. (2017)). v is the measure of the firms' characteristic defined in terms of book value of common equity. $\boldsymbol{\beta_1}$ and $\boldsymbol{\beta_{12}}$ are the gradients of the independent variables. $\boldsymbol{CSR_{it}}$ is the firm i ***CSR*** score for year t. ***CSR_Econ*** is a measure of the effect of economic dimension to CSR report. It is calculated from GRI and KEJI CSR interpolation index. $\boldsymbol{CSR_Environ_{it}}$ captures the effect of environmental dimension of firms' value measured from the firms' CSR from economic perspective. $\boldsymbol{CSR_Soc_{it}}$ is a measure of the social dimension impact of CSR on firms' value.

CSR_High$_i$ is the CSR variable featured to capture the effect of CSR on the value of firms with high CSR index score based on the interpolation method. Thus, it takes value 1 if a firm's CSR index rating falls on the upper percentile or above the overall average. The second intensity variable for CSR is **CSR_Med**. This variable is featured to capture the impact of CSR on the firm values of firms whose CSR scores fall below industry average score but did not hit the lower quartile. Thus, it takes 1 if firms CSR score falls between upper and lower quartiles and 0 otherwise.

Lev is a control for capital structure, which is essential because firms' capital ratio influences firms' performance. We determine capital structure in terms of the amount of long-term debt (Chetty et al., 2015; Inoue & Lee, 2011; Margaritis & Psillaki, 2010; Rahman et al., 2017, 2017). ***RDE*** controlled for research and development (R&D) activities following Servaes & Tamayo, (**2013**) and Rahman et al. (2017) who found that R&D expenditures affect corporate financial performance. Thus, a higher level of expenditure on R&D could result in enhanced product that can add value to firms. ***ADE*** controls for advertising intensity following Rahman et al. (2017). This variable is measured as the ratio of advertising expenditure to sales revenue. Rahman et al. (2017) hypothesis showed that advertising CSR activities affects market performance by directly or indirectly creating a higher level of awareness among consumers, which increase their desire to purchase company products. $\boldsymbol{Firm_Size_i}$ controls for firms' size. It is measured as the value of firms' total assets divided by sales value. ***Gov*** controls for the effect of corporate governance on firms' shareholders' value following evidence that governance factors affect firms' financial performance (Sriram, 2018; Vij & Kaur, 2018). We measure this variable by board leadership duality, which takes value 1 if board chair is different from CEOs and 0 otherwise. ***Gen*** measures the effect of gender on firm's market value as control variable. Evidence shows that inclusion of female directors is positively related to the financial performance of firms (Kilic & Kuzey, 2016). We measure the variable by proportion of female directors or female board members.

4.1. Test for endogeneity

We included different control variables to reduce the impact of omitted variables since omitted variable can be a problem (Gujarati, 2004). However, we confirm the present and otherwise of the endogeneity problem particularly omitted variables and reverse causality (Cahan et al., 2015; Rahman et al., 2017 by conducting Durbin-Wu-Hausman test. We found that the endogeneity is absent and thus negative ($\chi^2_{\text{Durbin-Wu-Hausman test}} = 9.2$, $p = 0.146$). Cahan et al. (2015) predicted that reverse causality could cause a serious problem in present study environment. A Granger causality test showed that the effect took firm performance-CSR direction ($F_{\text{Granger test}} = 0.25$, $p = .2452$).

4.2. Structural panel-data model

Our model follows structural dimension as recommended by Gujarati (2004) that either fixed effect or random effect is appropriate approaches in a time series data. It is clear that the pooled regression can result in misspecification of the relationship between endogenous and independent variables across firms and time. As such, this study avoided pooled regression model, but carried out tests to establish the appropriate model. Thus, we re-specified the previous equations as follows:

$$P_{it} = \alpha + \beta_1 Lagwx_{it} + \beta_2 va + \beta_3 CSR_High_{it} + \beta_4 CSR_Med_{it} + \beta_5 Firm_Size_{it} + \beta_6 lev_{it} + \beta_{10} RDE_{it} + \delta_i + \mu_i + {}_t \quad (6)$$

$$P_{it} = \alpha +_t \beta_1 CSR_Econ_{it} + \beta_2 CSR_Environ_{it} + \beta_3 CSR_Soc_{it} + \beta_4 Firm_Size_{it} + \beta_5 lev_{it} + \beta_6 RDE_{it} + \beta_7 ADE_{it} + \beta_8 Gov_i t + \delta_i + \mu_i + {}_t \quad (7)$$

$\boldsymbol{\delta}$ is the time effect coefficient. It is assumed to be constant for firm i over time t. $\boldsymbol{\mu_i}$ is the specific firm fixed effect error. It is also assumed to be constant for a given firm ***i***. $\boldsymbol{€_t}$ is the main stochastic error term.

The Table 2 below is a concise presentation of the key variables used in this study while Table 1 below shows the conversion of GRI item numbers to percentages.

5. Empirical results and discussion

Based on Table 3 above, the firms that engage in intensive CSR have 1 and 0 as their maximum and minimum values, respectively, which shows that some other firms engaged in low CSR. The standard deviations are not high, which shows that the data were good for regression analysis.

5.1. Determination of the presence of unit root in the series

The presence of unit root is important for the use of data in the regression analysis. Data that have no unit root are non-stationary and are not good for regression analysis. Therefore, we determined the presence or otherwise of the unit root by carrying out Augmented Dickey-Fuller Test (ADF) to examine the stationarity of the data.

Table 1. Converting GRI items numbers to percentage

Categories & Dimensions	Items KEJI	Conversion	Social	Items in Social	Social Conversion
Economic	4	8	Labor Practice & Decent work	9	25
Environment	12	23	human rights	12	33
Social	36	69	society	8	22
Total	52		product responsibility	7	20
Total	52	100		36	100

Source: Author Using GRI Sustainability Reporting Guidelines

Table 2. Summary of variable definitions

Variables	Symbols	Definition
Market Price Per share	**P**	**This is the value of the firms' market price relative to total shares driven by firms' CSR policies. It is thus measured as the price of the equity shares divided by total shares (**Ohlson, 1995)
Performance lag	***Lag wx$_t$***	It is the firms' earnings which affect firms' returns, and consequently firms' market value (Hanssens et al., 2001; Rahman et al. (2017).
Book Value	V	This is the measure of the firms' characteristic defined in terms of book value of common equity (Ohlson, 1995)
Economic Dimension of sustainability	***CSR_Econ***	It is a measure of the effect of economic dimension to CSR report. It is calculated from GRI and KEJI CSR interpolation index.
Environmental Dimension of sustainability	***CSR_Environ$_{it}$***	This variable captures the effect of environmental dimension of firms' value measured from the firms' CSR from economic perspective.
Social Dimension of sustainability	***CSR_Soc$_{it}$***	This measures the social dimension impact of sustainability practices on firms' value.
High-Level Sustainability Score (Above industry average)	**CSR_High$_i$**	**This i**s the CSR variable featured to capture the effect of CSR on the value of firms with high CSR index score based on the interpolation method. Thus, it takes value 1 if a firm's CSR index rating falls on the upper percentile or above the overall industry average.
Medium-Level Sustainability Score	**CSR_Med.**	This is a sustainability intensity variable for CSR. It is featured to capture the impact of CSR on the values of firms whose CSR scores fall below industry average score but did not hit the lower quartile. Thus, it takes 1 if firms CSR score falls between upper and lower quartiles and 0 otherwise.
Leverage	***Lev***	***Lev*** is a control for capital structure, which is essential because firms' capital ratio influences firms' performance. We determine capital structure in terms of the amount of long-term debt (Margaritis & Psillaki, 2010; Chetty et al., 2015; Rahman et al., 2017; Rahman et al., 2017; Inoue & Lee, 2011). f firms (Kilic & Kuzey, 2016).
Research and Development Expenditure	***RDE***	***RDE*** controlled for research and development (R&D) activities following Servaes & Tamayo, (**2013**) and Rahman et al. (2017) who found that R&D expenditures affect corporate financial performance. Thus, a higher level of expenditure on R&D could result in enhanced product that can add value to firms.
Advertising Expenses	***ADE***	***ADE*** controls for advertising intensity following **Servaes &Tamayo, (2013**), and Rahman et al. (2017) as CSR activities can influence firms positively as awareness increases. This variable is measured as the ratio of advertising expenditure to sales revenue.
Firms' Size	***Firm_Size$_i$***	***Firm_Size$_i$*** controls for firms' size as larger firms perform better than smaller firms. It is measured as the value of firms' total assets divided by sales value.
Governance Characteristic	***Gov***	***Gov*** controls for the effect of corporate governance on firms' shareholders' value following evidence that governance factors affect firms' financial performance (Sriram, 2018; Vij & Kaur, 2018). We measure this variable by the board duality, which takes value I if the board chair is different from the CEO and 0 otherwise.
Gender Diversity	***Gen***	***Gen*** measures the effect of gender on firm's market value as a control variable. Evidence shows that inclusion of female directors is positively related to the financial performance

Source; Author

Table 3. Full-scale descriptive statistics

Variables	Observations	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic
P	616	0.03	0.60	0.4000	0.02002
Firm_Size	616	0.24	3.59	1.7717	1.06139
CSR_Econ	616	0.20	0.60	0.4	0.23000
CSR_Envon	616	0.4	0.9	0.62	0.32000
CSR_Soc	616	0.21	0.78	0.56	0.45070
CSR_High	616	0.00	1.00	0.3393	0.47775
CSR_Med	616	0.00	1.00	0.2857	0.45584
Lev	616	0.1460	0.7995	0.357510	0.1093911
RDE	616	0.3430	0.3105	0.100134	0.1091440
Lagwx	616	1.03415	3.16566	1.885305	0.42968623
Va	616	0.31223	2.32212	1.922112	.32221112
Gov	616	0.0	1.00	0.698500	0.5009800
Gen	616	0.45010	2.34000	1.560	0.3322099

Source: Author Using SPSS with data from Table 2 **above**

From the above Table 4, the null hypothesis was rejected as the probability associated with the t-statistic- 0.006 is less than ADF critical value of 0.05. This means that the unit root does not exist, which makes the data stationary for regression analysis. The risk of rejecting the null hypothesis is only 0.6%, which is insignificant.

5.2. Correlated random effect-Hausman test

In Table 5, we carried out the Hausman model specification test to determine whether to use fixed effect or random effect models. Based on the outcome, fixed effect model is much better than random effect model for the study. The Chi-Sq. Statistic equals 16.9987 and the p-value is 0.3067,

Table 4. Unit root test

	T-Statistic			Prob*.
Augmented Dickey-Fuller Test	−3.8907			0.0060
Test Criteria Value	1%			−3.4766
	5%			−2.9887
	10%			−2.7654
*MacKinnon (1996) One Sided D-Value				
Augmented Dickey-Fuller Test				
Dependent Variable D(Performance)				
Included Observations 185 After Observations				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CSR(−1)	−0.521	0.0543	−9.5948	0.0002
C	0.753	0.2562	2.94141	0.0265

Source: Eviews

Null Hypothesis: There is a unit root for the CSR series

Exogenous Constant

which implies that the fixed effect model is best. Therefore, we based the discussion on the fixed effect model, which is displayed concurrently in Table 4.

5.3. Univariate analysis

At the Univariate level, we found from the above Table 6 that there is a significant negative correlation between market price and CSR for highly socially responsible firms. This correlation is significant at 5% level of significant. Hence, it is reasonable to infer that the relationship is not by chance. For the low and medium socially responsible firms, we find evidence of significant negative and positive correlation, respectively. Low values of correlation coefficients show that multicollinearity is not a problem in this present result.

5.4. Fixed effect regression analysis

The Table 7 below shows the fixed effect regression output. The effect is mostly significant and positive. The fixed effect statistics are normal with 42.9% of the dependent variable variability being explained by the model.

5.5. Results and discussion

Our analysis shows that the explanatory variables well explained the behaviour of market value of firms in terms of market price per share (MPPS). In the analysis as shown in Table 7 above, R-Square equals 0.879, which means that up to 87.9 percent of the behaviour of firms' market value is accountable for by the independent variables namely CSR-High, CSR-Med, and other control variables. The adjusted R-Squared is 0.432, which means that the model is not heavily penalized because of any omitted variables. The difference between R-Squared and Adjusted R-Square is very high meaning that only insignificant proportion of the models' explanatory

Table 5. Fixed-random effect-Hausman test result: test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi.Sq. d.f		Prob
Cross-section random	*16.9987*	*10*		*0.3067*
Cross-Section random effects test comparisons:				
Variables	*Fixed Effect*	*Random Effect*	*Var(Diff.)*	*Probability*
CSR_HIGH	0.18561	0.08766	0.00323	0.1112
CSR_MED	0.16501	0.12009	0.00765	0.0554
Va	0.53021	0.04122	0.00564	0.3221
Firm_size	1.23321	0.05321	0.00432	0.3102
LagX	0.09876*	0.00987	0.05690	0.4332
Lev	−0.1203	−0.0122	0.02178	0.0128
RDE	0.23489*	0.01008*	0.00017	0.6665
ADE	0.08790	0.91398	0.00765	0.0765
Gov	0.67998**	0.02109	0.00578	0.1654
Gen	0.23827*	0.05476	0.00112	0.0021
Statistics				
R-Squared	0.87908	0.2339		
Adjusted R-Squared	0.43298	−0.0459		
F-Statistic	3.97777	0.8797		
Prob (F-Statistic)	0.00000	0.2345		
Durbin-Watson Statistic	2.97887	1.9887		
Period Included	56	56		
Total Panel Observations	616	616		

Source: Authors; * = significant at 5%; ** = significant at 1%.

Table 6. Correlation coefficients for univariate analysis

Variables	P	CSR_Econ	CSR_Environ	CSR_Soc	CSR_High	CSR_Med	Firm_Size	Lev	RDE	Gov	Gen
P	1										
CSR_Econ	0.42	1									
CSR_Environ	0.56*	−0.074	1								
CSR_Soc	0.220	0.138	0.027	1							
CSR_High	−0.42*	0.023	0.137	0.362	1						
CSR_Medium	0.203*	0.023	0.137	0.362	0.450	1					
Firm_Size	−.218*	0.151	−0.158	0.149	0.272	0.27	1				
Lev	0.431	−0.101	−0.033	−0.032	0.096	0.096	0.055	1			
RDE	0.056	−0.029	0.012	−0.022	−0.155	−0.15	−0.095	0.014	1		
Gov	0.032	0.021	0.0321	0.321	0.3219	0.325	0.0321	0.0432	0.165	1	
Gen	0.2300	0.211	0.3210	0.165	0.432	0.2145	0.2445	0.0560	0.4431	0.0221	1

Source: Eviews; * = Correlation Significant at 5%; ** = Correlation Significant at 1%. Observations (N) = **616**

Table 7. Fixed effect regression results

Variables	Fixed Effect Model
C	−0.76651
(T-Stat)	−1.16567
CSR_HIGH	0.18561
(T-Stat)	0.62386
CSR_MED	0.16501
(T-Stat)	2.14564*
Va	0.53021
(T-Stat)	0.60420
Firm_size	1.23321
(T-Stat)	1.38251
LagX	0.09876*
(T-Stat)	3.41522
Lev	−0.1203
(T-Stat)	1.83384
RDE	0.23489*
(T-Stat)	2.64869
ADE	0.08790
(T-Stat)	0.97666
Gov	0.67998**
(T-Stat)	3.42518
Gen	0.23827*
(T-Stat)	2.67418
Statistics	
R-Squared	0.87908
Adjusted R-Squared	0.43298
F-Statistic	3.97777
Prob (F-Statistic)	0.00000
Durbin-Watson Statistic	2.97887
Period Included	56
Total Panel Observations	616

Source: Authors; ** = Correlation Significant at 5%; ** = Correlation Significant at 1%

variables is penalized. The model has no serial and residual auto-correlation problem as Durbin-Watson (DW) statistic is 2.978. Overall, the statistics indicate that the hypotheses can be tested without errors. Thus we proceed with the tests.

The hypothesis that "***High involvement in CSR significantly destroys firms" value'*** was analyzed and tested. The decision rule was to accept the hypothesis if the p-value associated with the test statistic is less or equal to 0.05 and the direction of influence is positive. Otherwise, the hypothesis would be rejected if the effect is positively or negatively insignificant. Based on the above Table 6, the p-value is greater than 0.05 (0.234). However, the vector of the effect is positive (coefficient = 0.185). Therefore, we reject the hypothesis and conclude that high involvement in CSR do not destroy firms' value but does not add to firms' value. This means that firms that aggressively pursue CSR beyond the industry average do not perform very well financially. Thus, the idea that firms place a premium on the stocks of firms that engage in social responsibility is limited by the extent of the involvement. As firms' social and environmental practices move above the industry average, investors could begin to consider such as risky, a deviation and an impression

management, which can lead to corporate failure. This puts to question the social impact hypotheses, available funds hypothesis, and positive synergy that argue that higher environmental social performance leads to higher financial performance (Carroll, 1991). While this is true, there must be need to state the level of involvement. This result is also diametrically against the reputationalists' theory, which states that high CSR builds high reputation that will translate into financial performance as customers are always more disposed to buy from the firms that are more socially responsible than those that are not. Perhaps, this may be true depending on the degree of CSR involvement and expenditure. Reasonably, high involvement in CSR may undermine the real purpose of being in the business, which is to make profit for the shareholders. For one thing, it may result in low-cost effective and efficient management that may in turn reverberate on the overall firms' financial wellness. At times, there could be some compensation. However, the degree of the trade-off may not really more than compensate for the financial expenditure most often. Consistently, this result seems to support the amoralists' proposition that business has only one responsibility and that is to make much profit for the owners and any deviation from such are such giving part of the firms' resources to the non-shareholders is kind of irresponsibility that could negatively impact of firms' financial wellness. This also suggests that the market does not efficiently price CSR activities. Consistent with Heinkel et al. (2001), the stocks of companies that are socially responsible can be undervalued or overvalued when compared to the stocks of those firms that are environmental laggards.

Thus, overall, whether CSR increases shareholder value depends on how financial markets perceive CSR and may not necessarily be on the quantity of amount spent on CSR. However, as firms aggressively pursue, CSR, investors could consider their actions risky. Our result is also consistent with Rashid and Radiah (2017), who found that socially responsible investment portfolio made up of the stocks that demonstrate a relatively less proactive approach to the social and environmental concerns outperforms a stock portfolio that consists of companies that have a relatively proactive approach to stakeholder engagement. Our study also supports Graeme and Chyi (2012) who found that the environmental, social, and corporate governance dimensions of CSR are not currently separately priced by investors, with most of the performance accounted for by the financial factors. This study also supports So et al. (2016) whose analysis shows that CSR has a negative synergistic impact on a restaurant firm's value performance. In addition, this study's result is inconsistent with Iwamoto et al. (2019) who found that in Japan, CSR activities directly impact firms' financial performance while it also supports Gnanaweera et al. (2018) who found that disclosure practices of 85 Japanese companies listed on Tokyo Stock Exchange in the first section between 2008 and 2014 have no positive relation with performance. Similarly, it supports Makanyeza et al. (2018) who found evidence that environmental relations, diversity relations and supplier relations forms of social responsibility did not significantly influence firm performance.

In the next test, we examined the effect of middle-level model of CSR on firm value. We postulated that "e***ngaging in medium CSR model significantly adds to firms" value'.*** The decision rule is to accept the hypothesis if the effect is positive and the p-value associated with the effect is less than or equal to 0.05. Based on Table 4, the coefficient is positive (0.165), and the p-value is less than 0.05(0.022). Thus, we accept the alternate hypothesis and conclude that e***ngaging in medium CSR activities significantly adds to firms' value.*** This means that firms should follow industry average in pursuing their CSR activities. This is an efficient approach that considers the interest of stakeholders (Jain & Jamali, 2016). Based on this result, shareholders do value firms that are not environmentally aggressive. This also implies that the stocks of highly proactive firms or laggards are discounted. There must be moderation in environmental, social, and economic responsibility pursuits based on this model. Overall, firms should engage in CSR while monitoring the effect on business cost model. Our analysis suggests that the effectiveness of CSR needs to be aligned with firm value and cost efficiency. Otherwise, we may according to the amoralists please the public at the expense of the shareholders. Our evidence supports Makanyeza et al. (2018) finding that employee relations, customer relations, community relations and investor relations all

had a positive effect on firm performance. The middle course social responsibility evidence also supports the work of Afonso et al. (2012) where it was found that firms that were not aggressively involved in social responsibility performed financially well.

Regarding the control variables, we found evidence that firms with high leverage perform poorly in firm valuation. As such, firms which want to maximize the positive effect of CSR should try to minimize their rate of leveraging. Otherwise, as investors react negatively to high leveraging by CSR firms, such reaction could wipe away the gained positive effect thus leading to destruction of firms' value. Evidence also shows that research and development activities of firms enhance corporate value, though the effect is insignificant based on this study. This shows that if firms improve their research activities and offer better and quality services, shareholders could reward such investment thus helping to build firms' value. This finding supports Servaes & Tamayo, (**2013**) and Rahman et al. (2017) who found that R&D expenditures affect corporate financial performance. They show that a higher level of expenditure on R&D could result in enhanced product that can add value to firms. Firms' characteristics based on book-value yields insignificant positive effect, which means that a good book value including size could be combined with corporate social, environment, and economic activities to add to firms' value. Both governance and gender variables yielded positive significant effect on market prices of firms. This means the variable can mediate the effect of CSR on firms' performance.

5.6. Robust analysis 1: separating the CSR components and comparing accounting and multiple market performance measure effect

In the prior analysis, we looked at the effect of CSR on firms' value when three components of CSR namely environment, economic and social were locked up. It is thus difficult to determine how firms' focus on specific economic, environmental and social activities affects firms' valuation. In this robust analysis, we unlock the measures and examined how each impacted firms' shareholders' value. This gives us a view of how CSR affects firms' value generally from the perspective of the three dimensions. We also test whether significant differences in the effect would arise based on the type of performance measures. Thus, we use both accounting and other market measures namely ROA and Tobin's Q (Konar & Cohen, 2001).Following Guenster et al. (2011) and Kaplan and Zingales (1997), we measure Tobin's Q as the quotient of the market value of corporate assets and the book value of assets. We defined the assets' market value as the addition of the book value of corporate gross assets and the market value of outstanding common stock less the sum of the book value of common stock and statement of financial position deferred taxes (Guenster et al., 2011; Kaplan & Zingales, 1997). We measure ROA as the profit after tax divided by the total gross asset expressed in percentage.

We used the following model in our robust estimation.

$$P_{it} = \alpha + {}_t\beta_1 CSR_Econ_{it} + \beta_2 CSR_Environ_{it} + \beta_3 CSR_Soc_{it} + \beta_4 Firm_Size_{it} + \beta_5 lev_{it} + \beta_6 RDE_{it} + \beta_7 ADE_{it} + \beta_8 Gov_{it} + \delta_i + \mu_i + {}_t \quad (8)$$

$$Q_{it} = \alpha + \beta_1 Lagwx_{it} + \beta_2 va + \beta_3 CSR_High_{it} + \beta_4 CSR_Med_{it} + \beta_5 Firm_Size_{it} + \beta_6 lev_{it} + \beta_7 RDE_{it} + \delta_i + \mu_i + {}_t \quad (9)$$

$$ROA_{it} = \alpha + {}_t\beta_1 CSR_Econ_{it} + \beta_2 CSR_Environ_{it} + \beta_3 CSR_Soc_{it} + \beta_4 Firm_Size_{it} + \beta_5 lev_{it} + \beta_6 RDE_{it} + \beta_7 ADE_{it} + \beta_8 Gov_i t + \delta_i + \mu_i + {}_t \quad (10)$$

$\boldsymbol{Q_{it}}$ equals Topin's Q for firm i in year t and $\boldsymbol{ROA_{it}}$ equals return on assets of firm i in year t.

5.7. Robust test discussion

The test in Table 8 shows as well that the explanatory variables well explained the behaviour of market value of firms. In the three models, R-Square yielded values of 0.609, 0.899 and 0.347, respectively. The models are not significantly penalized for any omitted variables as Adjusted

R-Square does not indicate such. The difference between R-Squared and Adjusted R-Square is not high meaning that only insignificant proportion of the models is penalized for inclusion or exclusion.

In this robust test, we analyzed the proposition that ***corporate social responsibility significantly adds to firms' value.*** Our decision rule is to accept the hypothesis if combined probability that CSR adds to shareholders' value is less or equal to 0.05. Otherwise, the hypothesis would be rejected. Based on the analysis, p-value associated with the CSR_ECON, CSR_ENVIRON & CSR_SOC perspectives is less than 0.05 and the coefficients are positive (coefficients = 0.028; 0.216 & 0.037, p-Values <0.05). Moreover, the combined effect yielded a significant effect on firm value. Therefore, we accept the hypothesis that c***orporate social responsibility significantly adds to firms' value*** consistent with the

Table 8. Fixed effect Robust test regression results

Variables	***Market Value (p) Model1)***	***Market Value (Tobin's Q model 2)***	***Accounting Measure (ROA Model 3)***
C	0.102	−0.788	0.125
(T-Stat)	(0.192)	(1.188)	(0.014)
CSR_High	-	0.098	-
(T-Stat)	-	(0.665)	-
CSR_Med	-	0.197*	-
(T-Stat)	-	2.511)	-
CSR_ECON	0.028**	-	0.232
(T-Stat)	(2.641)	-	(1.434)
CSR_ENVRON	0.216*	-	0.015*
(T-Stat)	(1.975)	-	(1.911)
CSR_SOC	0.037**	-	0.117*
(T-Stat)	(3.109)	-	(2.011)
Firm_Size	0.015	1.189	0.161
(T-Stat)	(0.126)	(1.435)	(1.431)
LagX	0.018	0.076*	0.031
(T-Stat)	(0.523)	(2.76)	(0.112)
Lev	−0.024	−0.010	−0.010
(T-Stat)	(−1.212)	(−1.089)	(−1.089)
ADE	0.060*	0.0764	0.030*
(T-Stat)	(2.112)	(1.081)	(2.562)
RDE	1.031**	0.31*	1.31
(T-Stat)	(3.609)	(2.215)	(1.609)
Gov	0.433*	0.546*	0.307*
(T-Stat)	(1.982)	(2.105)	(1.961)
Gen	0.045	0.331*	0.127*
(T-Stat)	1.128	2.576	1.976
Statistics			
R-Squared	0.609	0.899	0.347
Adjusted R-Squared	0.417	0.421	0.323
F-Statistic	5.793	3.599	2.793
Prob (F-Statistic)	0.001	0.002	0.045
Durbin-Watson Statistic	2.120	2.230	2.980
Observations (N)	616		

Source: PASW Analytic Tool.

previous tests. CSR yielded a combined significant positive effect as all the coefficients of CSR variables are positive. Involvement in economic responsibility, environmental responsibilities and social responsibilities significantly builds company value. This means that on average firms that engage in CSR increase shareholders' value by improving their market financial performance. This evidence is supported by the social impact hypotheses, available funds hypothesis, and positive synergy that argues that higher environmental social performance leads to higher financial performance. Our finding also aligns with the instrumental theory because CSR is being used as an instrument of building firms financial values (Hart & Milstein, 2003). Moreover, our result also supports the recent evidence which shows that investors' loyalty could be won by CSR activities (Al-Ghamdi et al., 2019). Such companies that perform high in CSR might be regarded as less risky vis-à-vis firms that perform poorly on CSR (US SIF, 2018), which is consistent with this finding. This also implies that social and environmental leaders are less risky investments than are laggards. This shows also that investors demand a lower (expected) return on these firms' stocks, and that these companies have a relatively lower cost-of-capital (Guenster et al., 2011; Wu et al., 2014). Thus, our analysis implies that as investors place a reduced discount rate to expected future cash flows of companies that are socially responsible, these firms' value would increase. Empirically, our result is also consistent with Rashid and Radiah (2017), Al-Ghamdi et al. (2019), and Riyadh et al. (2019), who found that a positive relationship exists between social performance and market valuation. Our study is also consistent with Chiara and Silvia (2017) and Rezaul and Hanh (2017) whose results show that CSR has a positive impact on the firms' performance.

When CSR effect on firm value is tested with Tobin' Q value, we found a confirmatory evidence that only CSR-med model significantly adds to firms' value. Higher involvement in CSR neither adds nor destroys firms' value as previously found. Analysis using ROA shows that only environmental and social practices of firms yield a significant value to shareholders. Focusing on economic concern neither adds nor destroys firms' value. Governance and gender diversity also positively influenced firms' values when measured with different firms' performance parameters.

5.8. Robust analysis of governance and diversity as explanatory factors of CSR intensity

We provide evidence that firms engage in higher CSR, which has corporate governance implication. Thus, we further examined whether governance leadership models play key role in firms' choice of CSR intensity model. Empirical evidence has provided link between CSR performance and governance characteristics (Chintrakarn et al., 2016). In their analysis, the authors found that intensity of CSR depends on the effectiveness of governance leaders. This evidence was supported by Zhongtian et al. (2019). That strongly suggests that firms' governance structure has a CSR-mediating role. To check the mediating role of governance structures with evidence from Nigeria, we follow slack interactive dummy term. We consider the board leadership models of the firms and their CSR performance. Where the CSR is in the fourth quartile in year t-1, and the firm's board leadership model is unitary in year t-1 rather than dualistic, we assigned value 1 to the interactive variable; otherwise, it took value 0. We did this because agency conflict and transaction opportunism will be higher in unitary governance model as CEOs could use CSR score as instrument of achieving promotion and compensation enhancement (Cai et al., 2011). This behaviour will map out in year t of firms' CSR performance. In a dualistic board, the board chair would most likely constitute a check on the CEOs' CSR excesses, which would lead to higher effectiveness in CSR activities (Zhongtian et al., 2019). As such, the variable takes value 1 if board chair does occupy managerial position in the first year if the CSR score is at the upper quartile, and takes 0 when the board chair is separated from the role of CEOs. Thus, we believe that higher CSR performance could be sensitive to and positively related to unitary form of governance while the medium model could be explained by dualistic model of board governance.

Increasing demand for gender equality in work places is redefining firms' attitude towards some social concern. The broad view is that women directors possess social attitude relative to their men counterpart. Thus, they have broader stakeholders' interest compared to men and would pursue

social and environmental causes to meet their desires (Issa & Fang, 2019). Thus, they can enhance the effectiveness of stakeholders' management (Jain & Jamali, 2016; Pucheta-Martinez et al., 2018). CSR medium would most likely be sensitive to gender balance while aggressiveness in CSR may not be sensitive to gender board balance.

In this robust check, we measure gender diversity by the proportion of female directors in the board (Issa & Fang, 2019; Martin-Ugedo & Minguez-Vera, 2014). We check robustness using Shannon index (Shannon, 1948) measured as:

$$\text{Shannon index} = \sum_{i=1}^{N} PiXIn(Pi).$$

Where **P*i*** = the percentage of male or female directors; and ***N*** is the number of distinguished categories of gender in the organizations. The Shannon index factors the similarities and dissimilarities of the female and male categories. The range of values obtained in Shannon index lies between 0 when there is no gender diversity and 0.69 when each category's proportion is the same. Another robust measure of diversity is the Balu index measured as:

$$\text{Blau index} = \mathbf{1}\text{-} \sum_{i=1}^{n} Pi^2$$

The parameters are as defined above. Though both indices are alike, Blau index is not highly sensitive to small differences in the gender make up of the governance board (Issa & Fang, 2019; Martin-Ugedo & Minguez-Vera, 2014). The highest value in Blau index is 0.5, when the number of males equals that of the females. The index equals 0 when there are only females or males on the board. Shannon index is more qualitative similar to those of the Blau index. However, Shannon index will always have a larger value than the Blau index and is more sensitive to small differences in the gender composition of boards as it is a logarithmic deflation of diversity (Issa & Fang, 2019).

We use the following model in the second robust analyses.

$$CSR_High_{it} = \alpha +_t \beta_1 Gov * CSR_{t-1} + \beta_2 Gen_{it} + \beta_3 Firm_Size_{it} + \beta_4 lev_{it} + \beta_5 RDE_{it} + \beta_6 ADE_{it} + \delta_i + \mu_i +_t \quad (11)$$

$$CSR_Med_{it} = \alpha + \beta_1 Gen_{it} + \beta_2 Gov * CSR_{t-1} + \beta_3 Firm_Size_{it} + \beta_4 lev_{it} + \beta_5 RDE_{it} + \delta_i + \mu_i +_t \quad (12)$$

The variables have been described above.

All the three models in the above Table 9 show that different CSR models could be significantly explained by the independent variables specifically the governance and board diversity models. The combined F-statistics show that effects are significant while the models show an absence of serial correlation problems as the DW statistics are higher than 1. The robust analysis shows that high CSR performance has strong board governance implication, which means that unitary board leadership drives firms' high CSR score. On the other hand, dualistic governance approach constrains aggressive CSR often most likely motivated by opportunistic behaviour. This robust test supports the idea that effective corporate governance leads to efficient CSR implementation (Jain & Jamali, 2016; Pucheta-Martinez et al., 2018). There is no significant effect of unitary board leadership model on effective moderate CSR performance. However, we found gender diversity has significant effect on medium approach to CSR implementation. This suggests that female directors approach CSR not with opportunistic tendency but with desire for effective stakeholders' management (Issa & Fang, 2019; Jain & Jamali, 2016). In the diversity explanation to CSR intensity, both Shannon and Blau indices show that the effect of female board directors is significantly positive on value-adding CSR model. This confirms that women directors can limit CSR aggressiveness that would be value-destroying by promoting medium value-adding approach.

Table 9. CSR intensity corporate governance and board gender diversity explanatory Robust tests

Variables	*CSR_High (Model)*	*CSR_Med (Model)*	*CSR_Med (Shannon—Blau Indices Model)*
C	0.135	−0.210	0.025
(T-Stat)	(0.321)	(1.001)	(0.114)
Gov (Leadership model)	0.345**	0.029	-
(T-Stat)	2.223	(1.601)	-
Gen (Proportion)	0.121	0.197*	-
(T-Stat)	0.062	2.511)	-
Shannon Index	-	-	0.103**
(T-Stat)	-	-	(2.531)
Blau Index	-	-	0.216*
(T-Stat)	-	-	(1.981)
Firm_Size	0.101	0.130	0.161
(T-Stat)	(0.113)	(1.322)	(1.104)
Lev	−0.104	−0.013	−0.110
(T-Stat)	(−1.011)	(−1.130)	(−1.149)
ADE	0.022*	0.161*	0.032*
(T-Stat)	(2.112)	(1.981)	(1.962)
RDE	1.103**	0.124*	0.331
(T-Stat)	(2.969)	(2.015)	(1.369)
Statistics			
R-Squared	0.561	0.622	0.647
Adjusted R-Squared	0.313	0.411	0.402
F-Statistic	4.910	3.003	2.103
Prob (F-Statistic)	0.002	0.003	0.025
Durbin-Watson Statistic	2.020	1.980	2.340
Observations (N)	616		

Source: PASW Analytic Tool.

6. Conclusion

In this study, we have examined the effect of CSR on firms' value. We postulated three hypotheses regarding the effect of CSR intensity activities on firms' value. As robust check, we tested board leadership models and diversity as potential explanatory factors of firms' CSR intensity. We tested the overall effect of CSR on firm performance. We categorized the study into CSR models of aggressiveness, and middle model strategies. We found that the effect of CSR activities on firms' value is significantly positive on firms' value. Consideration of the effect from environmental, social and economic perspectives all yielded significant positive effects. This result suggests that on average, firms that engage in CSR activities reap financial benefits. Such activities must have improved investors' trust. Investors consider that firms that engage in such activities are less risky. However, we narrowed the effect based on quartiles of CSR scores. The upper quartiles are the firms whose CSR scores are high-from 10% above industry average. We found that the firms' social performance in this class of CSR insignificantly affected their financial performance. Our analysis shows that this has significant implication for CSR aggressiveness. While CSR activities are being rewarded by investors, it does appear that there must be a threshold and the effect depends on the strategies. As firms aggressively pursue CSR, investors consider such a move as risky in that it shows that firms may not actually understand the key purpose of being in the business, which is to enhance shareholders' value.

This confirms the theory that investors may not place a high premium on the stocks of environmental proactive investors. Thus, the stakeholders' interest pursuit is at the detriment of the shareholder. This analysis sends caution to corporate managers to balance their CSR policy with shareholders' ultimate goal. We drew a conclusion that high-level involvement in social responsibility is not the ideal for creation of firms' value. This conclusion was also reached by Gnanaweera et al. (2018).

Further analysis revealed that the middle strategy of CSR adds significantly to shareholders' value. When checked in robust analysis, both the Tobin's Q and ROA responded positively, thus confirming the result that middle approach to CSR delivers value to shareholders. This provides support to stakeholder theory. Thus, both the shareholders and other stakeholders' place premium on the stocks of firms that are neither CSR aggressive nor laggard. In further robust test, moderate CSR model is largely driven by board leadership structures and diversity. Unitary form of board leadership associates with higher and aggressive CSR activities. However, dualistic model of board leadership enhances efficient implementation of CSR activities, thus separation of board chair from the role of CEOs helps in the pursuit of moderate CSR activities which delivers higher value to shareholders. This only suggests in conclusion that efficient CSR model could easily be achieved through checks on the opportunistic behaviour of CEOs, who might engage in higher CSR activities to achieve targeted compensation and to manage impressions. Moreover, gender balance enhances effective CSR implementation. Firms with female directors and adequate concentration of female directors promoted medium CSR activities, which positively impacted on their firms' value. This confirms the idea that women are more concerned about the stakeholders' welfare relative to men (Issa & Fang, 2019).

Invariably, we can also infer that the environmental laggard activities could lead to a reduced firms' market value. Firms, whose CSR scores are below the median value, could destroy firms' value. Investors could consider such firms as risky and discount their stocks in the markets. This also has strong policy implication for corporate sustainability. Firms should not ignore CSR activities as this negligent brings penalties that affect firms' value. This conclusion was also reached by Chiara and Silvia (2017) and Rezaul and Hanh (2017) that less involvement in CSR has a negative impact on the firms' performance. Low CSR activities do not enhance investors' trust and loyalty and as such, purchase intension of customers could fall thus leading to lower demand of the firms' products (Cheng et al. (2014); Rahman et al., 2017).

In conclusion, moderate involvement in CSR activities enhances firms' market value. Firms in this category do well financial following the efficient and moderate administration of their CSR model. This has implication for managerial policies. Firms should not engage in aggressive CSR activities nor be laggards. They should adopt strategies that would be consistent with industry average. Any policy likely to deviate from industry average CSR score would lead to firm value destruction. This conclusion was confirmed in Afonso et al. (2012). They showed that aggressiveness in corporate social responsibility in Poland was negatively associated with firms' financial performance while engaging in moderate activities positively influenced market value. This finding demands that firms should follow industry average in the pursuit of social and environmental responsibilities. Our conclusion is valid for studies that controlled for the effect of firm size, leverage, economic development, advertisement, research and development expenditure, and lag of financial performance. With the exception of leverage, all other control variables positively affected firms' value. This means that firms would likely increase their value with respect to CSR as their performance, size and economic development increase and improve. Increase in research and development cost and advertisement may also help in increasing firms' potential to reap the benefit of CSR. Thus a lower advertisement could reduce firms' chances of reaping the benefit of CSR despite choosing the correct model.

6.1. Contribution to knowledge, research limitations and future research

This study provided evidence of the degree of CSR involvement in Nigeria and the value delivery potential. We contributed to CSR knowledge by using quartiles approach to CSR performance to establish the degree of involvement that is shareholders' value-adding and destroying. We are the first in Nigeria to provide evidence that the median CSR performance is value addition while the

above industry average and below the average attract investors' risk premium, that leads to stocks' price discount. We provided explanation of the potential reason for specific implementation of CSR models, which is based on the governance structures and gender balance.

The study was limited by the criterion for establishing the intensity threshold. We did not use a proved threshold at which it would be considered as an aggressive CSR activity. Thus, we used industry performance as a measure of threshold, which is limited to some extent because extreme values could bias average threshold. We tried to overcome this by transformation of size effect. Moreover, we ignored the lower quartile CSR performance to avoid dummy trap. Thus, our interpretation of the laggards was based on assumptions and inference because of iteration relationship.

We recommend further research that tests the laggards by focusing on the lower quartile CSR score. With increasing push on the CSR, we recommend further study that increases the year sample as this study did not extend beyond 2018. Further study that would focus on cost threshold could also offer insight on the intensity of CSR activities and firms' market performance. There is evidence that higher expenditure on CSR evokes investors' risk consideration. However, it is not clear when this risk consideration is considered injurious to firms' value. Further test on the role of governance and diversity on moderating the effect of CSR intensity should be carried to identify specific mechanisms that are responsible for firms' CSR intensity strategy implementations. Specifically, governance structures of different industries should be studied to understand which of them engage in CSR intensity disclosure either for impression management or for incremental information.

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