

Corporate social responsibility and financial performance nexus

Empirical evidence from South African listed firms

Financial
performance
nexus

301

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Abstract

Purpose – The paper aims to investigate empirically the impact of corporate social responsibility (CSR) on financial performance in South African listed firms.

Design/methodology/approach – The paper uses panel corrected standard errors to estimate the effect of CSR on firm financial performance and thus addresses contemporaneous cross-correlations across the panel cross sections. The study uses a broad base measure of CSR created by the Public Investment Corporation data set and the combination of accounting and economic means of measuring firm financial performance.

Findings – CSR is found to have a strong positive impact on firm financial performance in South Africa. When CSR is decomposed further into its major components, governance performance positively impacts a firm's financial performance with no evidence of any relationship between social components and firm performance and between environmental components and firm performance. The positive impact of CSR on firm performance is greater in big firms. At the industry level, CSR is noticed to impact positively on financial performance in the extractive industry via good governance and responsible environmental behaviors. It however has no impact on firm performance in the financial sector.

Research limitations/implications – The results should be interpreted with caution and some limitations. Due to the limiting nature of the Public Investment Corporation data set (the survey was carried out on selected firms on the Johannesburg Stock Exchange for three years spanning from 2011 to 2013). This resulted in a sample of 56 firms. It is therefore very problematic to generalize the findings to a larger population over a long period of time. This is more limiting especially on individual sector studies where the sample has further shrunk to a smaller sample. As a result of the smaller sample size, the authors were unable to explore some other sectors which could have given more revealing findings. The authors recommend that future research should explore other data sets or use primary data approach that can allow for more sample size and elongated time period for a more holistic view and for easy generalization of the findings. The authors also identify an important lacuna necessitating further research effort. It would be interesting to empirically examine the threshold point of firms' size beyond which CSR damages firms' performance. Knowledge of this will guide managers of firms in their strategic CSR decision.

Practical implications – This study does not only serve as a reference work for subsequent investigations into the impact of CSR on firm performance in sub-Saharan Africa but also serves as a guide to policymakers on the financial impact of CSR adoption.

Originality/value – This study is one of the pioneering works that comprehensively examines the effect of CSR on financial performance amongst South African firms via size and sector and also controls for contemporaneous cross-correlation effects from the firms in the panel set.

Keywords Governance, Social, Financial performance, CSR, South Africa, Environmental

Paper type Research paper



1. Introduction

Corporate social responsibility (CSR) has in recent times attracted the attention of scholars globally (Orlitzky *et al.*, 2003; Goering, 2010; Oeyono *et al.*, 2011; Emilsson *et al.*, 2012; Gianvito and Terri, 2012; Mahbuba and Farzana, 2013; Hermawan and Mulyawan, 2014; Awan and Akhtar, 2014; Waworuntu *et al.*, 2014; Xu and Zeng, 2015; Elouidani and Zoubir, 2015; Crifo *et al.*, 2016; Lee and Jung, 2016; Gatsi *et al.*, 2016; Famiyeh *et al.*, 2016; Choongo, 2017). Indeed, the growing literature could be attributed to the several vital roles CSR plays in corporations. For instance, CSR equips firms to build corporate image, gain legitimacy, adapt to opportunities, gain protection against external challenges and threats and maximize profits (Greening and Turban, 2000; Barnett, 2016; Choongo, 2017). CSR creates a high reputation for such firms in the minds of its customers and stakeholders and also enhances the efficiency of employees, leading to an overall better performance for the firms (Mishra and Suar, 2010). Some scholars have therefore argued that there is a theoretical link between CSR performance and financial performance of firms (Margolis and Walsh, 2003 and Barnett, 2016). This relationship is built around the two popular theories in finance; the stakeholder theory and the agency cost theory (Jensen and Meckling, 1976).

Supporters of the stakeholder theory believe that for any firm to thrive well and be profitable, it must balance its attention to all its stakeholders who are the shareholders, employees, consumers, community and suppliers. Arguably, the satisfaction of all these stakeholders' needs automatically inures to the financial benefits of the firm. The firm is able to attract the best work force and retain them. Positive image and perception is created by the community, investors and the workers for the firm's products (Greening and Turban, 2000; Mishra and Suar, 2010). Thus, products from the firm are highly patronized than its counter parts that are not socially responsible. According to Barnett (2016), firms that gain favors of their stakeholders sell their products for more and obtain their inputs for less. Besides, such firms are less prone to the attacks of stakeholders, and even when there is an attack, they recover quickly from it (Barnett, 2016). This theory therefore believes strongly that CSR adoption should lead to higher financial performance of such firms. This positive link theory between CSR and financial performance of firms has been heavily supported by some empirical studies (Gianvito and Terri, 2012; Mahbuba and Farzana, 2013; Hermawan and Mulyawan, 2014; Awan and Akhtar, 2014; Mawuruntu *et al.*, 2014; Xu and Zeng, 2015; Crifo *et al.*, 2016; Lee and Jung, 2016; Choongo, 2017).

Contrary to the above line of reasoning, the agency cost supporters opine that firms are established solely to achieve their mandated objectives; hence, any resources spent on other issues that have no direct link on the firm's main objectives is a diversion of resources. They believe that carrying out CSR activities is an additional cost and burden which takes away a lot of resources which would have otherwise been spent on pursuing the achievement of the firm's objectives. This therefore serves as a deviation from the firm's core mandate. In the long run, it increases the firm's expenses and hence decreases its profit and the shareholders' wealth (Friedman, 1970; Cortez *et al.*, 2009). Some empirical evidence also exists to support this line of argument (Elouidani and Zoubir, 2015 and Gatsi *et al.*, 2016).

Despite the conclusion arrived at by Orlitzky *et al.*, (2003) on this relationship, their work failed to include more studies on developing countries. Besides, most of the previous studies on CSR-firms' performance nexus pertain to advanced economies which have relatively efficient firms to the neglect of developing economies, especially African economies (Mahbuba and Farzana, 2013; Hermawan and Mulyawan, 2014; Awan and Akhtar 2014; Mawuruntu *et al.*, 2014; Xu and Zeng, 2015; Crifo *et al.*, 2016; Lee and Jung, 2016; Gatsi *et al.*, 2016; Choongo, 2017). CSR as a practice concept has been in existence for long in developed countries than in developed countries. It is thus possible that firms in developed countries

would practice CSR with more informed reasons and strategies than firms in developing countries. Moreover, while firms in developed countries are more innovative and efficient, firms in developed countries are characterized by small size, difficulties in accessing funds and less innovation. It is thus imperative that the link between CSR and financial performance can differ among developed countries and developing countries.

Additionally, recent studies on the link between CSR and financial performance in African countries have yielded varied results (Gatsi *et al.*, 2016; Choongo 2017). This means the debate is not conclusive in Africa, and this calls for more studies to throw more light on the issues. In the case of South Africa, there is complete dearth of empirical knowledge on this linkage. The few studies that have ventured into the subject matter in Africa are those by Gatsi *et al.*, (2016) and Choongo (2017). These two studies basically have two things in common. They have both been centered on Ghanaian and Zambian firms, respectively. The context of CSR in Ghana and Zambia can, however, be very different from other emerging African economies such as South Africa, and hence, one would expect variations in the adoption of CSR and finance link in these countries. South Africa is more distinct from other African countries as it is one of the first countries not only in Africa but also in the world to formally encourage the adoption of CSR through its Socially Responsible Index project and Kings Reports on Corporate Governance principles, and thus, it practices CSR more than most countries in Africa. More so, firms in South Africa are bigger, older and more innovative than firms in Ghana and Zambia. Apart from this, these two studies have failed to explore the sectoral and firm size effects on the CSR–financial performance link.

Essentially, our study has three main contributions to literature. First, to the best of our knowledge, it is the first study to empirically examine the relationship between CSR – using a unique data set of the Public Investment Corporation (PIC) governance survey – and financial performance in South Africa. The PIC governance survey contains rich contextual data on CSR in South Africa, collected from the top 150 capitalized listed firms on the Johannesburg Stock Exchange (JSE). The PIC data set, which is first of its kind in sub-Saharan Africa, has captured CSR holistically by decomposing CSR into governance performance, social performance and environmental performance. Our study has combined the PIC data set with the JSE data. Though the JSE has been used by a lot of studies, our paper is the first of its kind that has combined the PIC data set with the JSE data to investigate the link between CSR and firm financial performance in South Africa.

Second, unlike previous studies (Margolis and Walsh, 2003; Gatsi *et al.*, 2016; Choongo, 2017) where CSR–financial performance link is studied via the aggregation of all the sectors only, our study went beyond the aggregation of sectors into specific sectors. As noted by Kurokawa and Macer (2008), the relationship between CSR and financial performance varies not only from region to region but also from industry to industry. It is thus imperative to observe also the impact of CSR on firm financial performance in the individual sectors. Moreover, we have also studied the moderating role of firm size on our subject matter, an aspect which has not also been explored by previous studies.

Finally, our investigation made use of both measures of financial performance (return on asset [ROA] and Tobin's Q), thus making our findings more robust. Using only accounting measure, as done by some scholars (Hermawan and Mulyawan, 2014; Elouidani and Zoubir, 2015; Gatsi *et al.*, 2016), only captures the historical performance of the firm. Similarly, the use of only economic measure (Seo *et al.*, 2015; Elouidani and Zoubir, 2015; Ding *et al.*, 2016) incorporates only the market views and future expectations of the firm. Thus, using only one measure gives only a partial view of the financial performance of a firm. Thus, we examined both via a very robust estimator (panel corrected standard errors – PCSE). This estimator does not only overcome any heteroscedasticity by controlling for

contemporaneous cross-correlation but also is able to control for any endogeneity in the models.

From the study, we noticed that CSR has a strong positive impact on firm financial performance in South Africa. However, after decomposing CSR into its various components, we find that governance performance positively impacts firm financial performance with no apparent effect of social and environmental components on firm performance. At the industry level, CSR is seen to impact positively on financial performance in the extractive industry via good governance and responsible environmental behavior. It, however, has no impact on firm performance in the financial sector.

The rest of the paper is organized as follows: Section 2 reviews related literature, while Section 3 focuses on the methodological issues. Section 4 presents the empirical analysis and results, while Section 5 concludes the study with some key implications for policy. Section 6 presents the limitations of the study and directions for future research.

2. Theoretical and empirical literature

The definition of CSR is one of the heavily contested concepts; as such, no consensus has been reached in the literature (Matten and Moon, 2008). It is hence not uncommon to find various definitions in literature on the same concept. One of such definitions is postulated by Carroll, who sees CSR as “economic, legal, ethical and discretionary expectations that society has on organizations at a given point of time” (Carroll, 1979, p. 500). The European Commission, on the other hand, defines it as a “concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis” (European Commission, 2001, p. 366). Despite the varying definitions, a common theme that emerges is the responsibility of satisfying both shareholders and stakeholders of a business simultaneously. Thus, business operations must be carried out in such a way so as to be environmentally friendly, ethically friendly, legally acceptable and customer-oriented.

The theoretical linkage between CSR and financial performance of firms is mixed. While many argue that CSR performance enhances the financial performance of firms, others argue to the contrary that CSR performance rather reduces the firms’ financial performance. For the proponents of the positive link between CSR and financial performance, the financial performance of a firm is correlated perfectly with the image the firm creates in the minds of its stakeholders; thus, the more all the stakeholders’ expectations are met, the better the firm performance (Freeman 1984). Similarly, other scholars believe that satisfying the interest of stakeholders and being accountable to them have positive impacts on the firm financial performance (Greening and Turban 2000; Barnett 2016; Choongo 2017). Again, CSR is noted to create high reputation for a firm, new market opportunities and positive reactions of capital market (Orlitzky *et al.*, 2003). In contributing to the stakeholder theory, Mishra and Suar (2010) believe that a positive consumer inference is created about the quality of a product when a firm is noted to be socially responsible. This leads to an induced goodwill created by the consumer to that firm, therefore increasing the propensity of the consumer in purchasing the product of that firm sometimes irrespective of the price of the product (Mishra and Suar, 2010). Similarly, Mishra and Suar (2010) posit that CSR leads to a unique identity created for a firm, which determines strongly the attraction and retention of both consumers and employees for that firm. If the firm is socially responsible, it is able to attract and maintain workers with positive mental attitude toward the firm, which translate into higher efficiency and productivity. On the parts of customers, higher and frequent purchases are made on such products if by virtue of the CSR, reputable identity is associated with the firm and its activities (Mishra and Suar, 2010).

Information asymmetry makes it very difficult for consumers to clearly distinguish between two products from different companies in terms of quality and other demand-driven forces. Based on this, [Mishra and Suar \(2010\)](#) argue that if one of such companies engages more in CSR than the other, consumers see such company's products to be better as there is one known positive thing associated with that firm than its counterpart. This is not only limited to consumers, but it extends to job seekers; hence, such firms end up getting well motivated and quality workers, who assist the firm, increase productivity.

Contrary to the above line of argument, [Friedman \(1970\)](#) thinks that CSR would lead to low firm financial performance. The logic is that a firm only has one social responsibility, which is to maximize wealth for its shareholders. He stressed that a firm's managers that use the firm's resources for non-profit social activities divert the main focus of the firm and also impose an "illegal tax" on the firm, which has negative consequences on the firm profit margin. This line of argument is reinforced by the agency cost problem ([Jensen and Meckling 1976](#)), which emphasized that the cost incurred on CSR activities far outweigh the benefits; hence, it has an inverse relationship with financial performance.

In supporting this inverse relationship between CSR and financial performance of firms, [Preston and O'Bannon \(1997\)](#) used trade off and managerial opportunism hypothesis to illustrate their position. They believe that engaging in more CSR drains a firm's resources that could have been used to invest in other viable ventures. Other proponents further argue that higher investment in CSR leads to additional costs which put the firm at a disadvantage point against its competitors ([Balabanis et al., 1998](#); [Cortez et al., 2009](#)). [Bhandari and Javakhade \(2017\)](#) argue that firms that want to satisfy all its stakeholders will certainly forgo a lot of positive net present value projects so as to satisfy their stakeholders. On the managerial opportunity, [Preston and O'Bannon \(1997\)](#) argue that managers may engage in CSR not to increase the wealth of shareholders but to enable them gain their personal benefits. Other scholars also argue similarly that managers use CSR to advance their careers or to achieve other personal agendas, which has no bearing on the financial enhancement of the firm ([McWilliams et al., 2006](#)).

Yet, there are some group of scholars who argue that CSR has no significant impact on financial performance ([McWilliams and Siegel, 2000](#); [Hing, 2003](#)). They believe that the profit generated by the adoption of CSR practices is completely offset by the initial cost incurred in carrying out the CSR activities as such the link between CSR and firms' performance does not exist.

Though there is very little literature on the relationship between CSR and firm financial performance in individual sectors ([Curran, 2005](#); [Orlitzky et al., 2003](#)), it is argued that this relationship differs in every region and every industry ([Kurokawa and Macer 2008](#)). In supporting this view, [Waworuntu et al., \(2014\)](#) believe that firms operating in the energy and extractive industries will engage more in responsible environmental activities than other non-heavy industries such as financial institutions where social and governance aspects of CSR will be a serious concern due to the nature of their businesses. Based on this premise, [Waworuntu et al., \(2014\)](#) argue that in the extractive industry, CSR will impact positively on the financial performance of firms than firms in the non-extractive industries.

On the empirical front, varied findings have also been established. A host of studies in advanced and emerging countries have established a positive significant relationship between CSR performance and financial performance of firms ([Goering, 2010](#); [Oeyono et al., 2011](#) [Emilsson et al., 2012](#); [Gianvito and Terri, 2012](#); [Mahbuba and Farzana, 2013](#); [Hermawan and Mulyawan, 2014](#); [Awan and Akhtar, 2014](#); [Mawuruntu et al., 2014](#); [Xu and Zeng, 2015](#); [Crifo et al., 2016](#); [Lee and Jung, 2016](#); [Choongo, 2017](#)). On the other hand, some empirical studies have found that firms that perform better in respect of CSR perform poorly

in financial aspect, thus giving way for an inverse relationship between CSR and financial performance of firms (Elouidani and Zoubir, 2015 and Gatsi *et al.*, 2016). Yet, there are some studies that have not been able to establish evidence to support either the positive or the negative findings (McWilliams and Siegel, 2000; Aras *et al.*, 2010; Crisostomo *et al.*, 2011; Lech, 2013).

Besides the controversies in the above studies and lines of arguments, Griffin and Mahon, (1997) and Margolis and Walsh (2003), in their separate meta-analysis studies, established that the relationship between CSR and firm financial performance has been a very mixed one across several studies. Following the above meta-analysis studies, Orlitzky *et al.*, (2003) carried out a more comprehensive meta-analysis on the subject matter and concluded that the link between CRS and financial performance is positive, and that individual studies that establish negative relationship on this subject matter are attributable to measurement and sampling errors. Besides, it is opined that the varieties of outcome in the relationship between CSR and corporate financial performance from empirics are attributable to the numerous measurements and methods used in the investigations (Waworuntu *et al.*, 2014). It is again believed that the different outcomes exist in studies because of regional and sectoral differences in these studies (Kurokawa and Macer, 2008). Relying on data spanning 2007-2016 for 28 Indian commercial banks listed on Bombay Stock Exchange, Maqbool and Zameer (2018) examined the impact of CSR on financial performance. Results from their study reveal that CSR positively and significantly affects banks' profitability proxied by returns of asset and equity.

Indeed, results produced by these previous studies on CSR are not instructive given their failure to decompose CSR into its various components. Undoubtedly, analyzing the unique effect of CSR component may have important implications for firms' performance and strategy. Apart from this, relative to the earlier studies, we move beyond the direct impact of CSR on a firm's performance to examine whether the precise impact of CSR is conditioned on a firm's size. This study can therefore be thought of as a re-investigation of the standard paradigm relating firms' CSR and their performance. In the next section, we discuss our data and empirical strategy.

3. Data and methodology

3.1 Data

The study used a sample of firms from the JSE for the period of 2011-2013[1], a three-year period. The study used the first 100 largest firms listed on the JSE as its population, which constitute over 85 per cent of the market capitalization (Max, 2009). The stock data were extracted from the McGregor data set while the CSR data of the selected firms were obtained from the PIC corporate governance rating matrix prepared by the Centre for Corporate Governance in Africa, University of Stellenbosch Business School (USB). The PIC in conjunction with USB Centre for Corporate Governance has conducted survey of CSR on 150 listed firms since 2011. In this study, we select firms with balanced data on our variables of interest for the period 2011-2013, and this produced a sample of 56 firms.

With regard to our data, we proxy financial performance relying on an accounting (ROA) and stock market (Tobin's Q) measures. Indeed, the accounting measure has been used by several studies (Aras *et al.*, 2010; Hermawan and Mulyawan, 2014; Elouidani and Zoubir, 2015; Gatsi *et al.*, 2016; Yang and Baasandorj, 2017), and so is the stock market measure (Seo *et al.*, 2015; Elouidani and Zoubir, 2015; Ding *et al.*, 2016; Yang and Baasandorj, 2017). While the accounting measures have the advantage of highlighting the level of economic performance, they can potentially be manipulated by management. On the other hand, while the stock market measure may be difficult to be manipulated, it reflects the subjective

assessment of investors rather than the true economic reality of a firm (Allouche and Laroche, 2005). We therefore use both measures as the weaknesses of one measure may potentially be compensated for by the strength of the other.

In literature, CSR has been measured differently by scholars. For instance, Wang (2011) constructed CSR index based on three elements: economic dimension, social dimension and environmental dimension. The economic dimension refers to the efforts made by the firm to repay its creditors. The social dimension is captured through contributions made by firm to government, employees and suppliers, while the environmental dimension is captured under contributions made to protect the environment. Using the KEJI index, Choi *et al.* (2013) measured CSR using seven elements: soundness of capital structure, fairness of trade, contribution to communities, consumer protection and satisfaction, environmental protection, employee satisfaction and contribution to economic growth.

Similarly, the Socially Responsible Investment index and the Institute for Corporate Social Development measure CSR as the summation of commitment to community, commitment to employees, commitment to environmental issues and good governance. Closely related to this measure is the PIC's Corporate Governance Rating Matrix, which has measured CSR as good governance, social performance and environmental performance. The dependent variables will thus be governance, social, environment and combined average score of the three. These three variables are defined extensively in Appendix 1 and 2. *A priori*, we expect a positive relationship between CSR performance financial performances of firms. Following previous work (Aras *et al.*, 2010; Yang and Baasandorj, 2017; Maqbool and Zameer, 2018), we included size, leverage, age, research and development and industry dummy as control variables.

3.2 Empirical strategy

Following the works of Awan and Akhtar (2014); Elouidani and Zoubir (2015); Yang and Baasandorj (2017) and Maqbool and Zameer (2018), we estimate the following econometric models to capture the effect of CSR on financial performance:

$$PER_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 RD_{it} + \beta_3 LEV_{it} + \beta_4 InAGE_{it} + \beta_5 InSIZE_{it} + \beta_6 IND_{it} + \beta_7 TIME_{it} + \varepsilon_{it} \quad (1)$$

$i = 1, 2, \dots, 56; t = 1, 2$ and 3 .

where PER is a vector of firms' financial performance (ROA and Tobin's Q); CSR is the index and a vector of CSR; $SIZE$ is size of the firm measured in log of total assets of the firm; LEV is firm's leverage measured by the ratio of total debt to total assets; RD is research and development of the firm; AGE represents the age of the firm; IND and $TIME$, respectively, denote the industry and time dummies; ε is the error term; and i and t are firm's and time indices, respectively.

In estimating our model, we used the PCSE estimator.

We adopt the PCSE because of its usefulness in estimating linear models where the disturbances are assumed to be either heteroskedastic across panels or heteroskedastic and contemporaneously correlated across panels. Besides, PCSE provides consistent and efficient results whether the number of firms is less or equal to the time dimension or the number of firms is greater than the time dimension (Reed and Ye, 2011). Besides the PCSE estimator, other panel data estimators that could be used are generalised method of moments (GMM), fixed-effects or random-effects and Pool ordinary least squares. However, with the limited nature of the sample size and short time dimension of our data, we could not use the GMM, fixed-effects or random-effects. We were left with the PSCE and Pool ordinary least squares, and among the

two, PSCE is noted to be more efficient and can overcome heteroscedasticity problems (Reed and Ye, 2011).

3.3 Preliminary findings

Table I shows the summary statistics of the study. From the table, average combined CSR score is 0.57. However, from the decomposed indicators, it is clear that governance with a score of 0.71 is the highest CSR factor, with environmental performance being the lowest representation in CSR, with an average score of 0.41. Similarly, while the governance index has the least score to be 0.31, social and environmental scores have zero scores to be their least. This indicates that most of the companies are doing better with respect to corporate governance performance relative to environmental and social performances. This can be attributed to the fact that most of the governance performances are entrenched in the Company Acts and the Corporate Governance Codes which list firms are compelled to abide by to remain listed.

From the summary statistics, the average ROA is 10 per cent while the maximum ROA is 93 per cent. This means that on an average, firms in South Africa make ROA around 10 per cent. The age of the firms is wide spread. While the youngest firm is just 2 years old, the oldest firm is 128 years old. We computed the coefficient of variation (CV) to compare the inter-variability of our variables. From the results, we notice that research and development has the highest variability, indicating a greater deviation from its mean. Among the CSR components, environmental component has the highest volatility, while governance component is least volatile. Both firms' performance measures have similar volatility given the value of their CV, although ROA variability is higher. Table II presents the correlation matrix of the variables. Among the independent variables, a high correlation coefficient is recorded between size and leverage. This does not however pose any problem of multi-collinearity in the models.

4. Empirical findings and discussions

The estimates of PCSE of all the models using the accounting measure of financial performance (ROA) are presented in Tables III-V. Our full CSR measure is made up of the average of governance, social and environment, while the sub-components of the CSR are

Variable	Mean	Std. Dev.	CV	Min.	Max.
GOV	0.71	0.09	0.13	0.31	0.87
SOC	0.59	0.22	0.37	0.00	1.00
ENV	0.41	0.19	0.46	0.00	0.85
COBS	0.57	0.13	0.23	0.10	0.86
ROA	0.10	0.13	1.30	0.02	0.93
LEV	0.54	0.23	0.43	0.01	1.02
RD	0.009	0.03	3.33	0.00	0.02
SIZE	9.99e+07	2.46e+08	2.46	1,996,932	1.69e+09
AGE	52.81	39.15	0.74	2	128
TOB	1.87	2.17	1.16	0.09	14.08

Notes: ROA is return on asset; GOV is governance index; SOC is social index; ENV is environmental index; COBS is the combined average score of GOV, SOC and ENV; LEV is leverage; RD is research and development; SIZE is the firm size measured as total assets and AGE is firm age' TOB is Tobin's Q; CV is coefficient of determination

Table I.
Summary statistics

represented by the above-mentioned individual components. We also include a multiplicative interactive term of firm size and CSR components in examining the indirect effect of CSR on performance via the size of the firm. To avoid the effect of individual sector and year effects, we control for this by introducing their respective dummies.

Columns 1, 3, 5 and 7 of all the regression tables show the results of our estimations without the interaction term, while Columns 2, 4, 6 and 8 contain the results of the estimation with the introduction of our interactive terms. On the combined average score estimation in Table III, CSR is found to impact positively on corporate financial performance in South Africa. This goes to support the stakeholder theory that when a firm pays attention equally to all its stakeholders' needs, firm image and reputation are improved, leading to value creation and financial performance of the firm (Goss and Roberts, 2011; Awan and Akhtar, 2014; Crifo *et al.*, 2016; Lee and Jung, 2016; Choongo, 2017; Yang and Baasandorj, 2017). The findings, however, contradict the agency cost theory (Cortez *et al.*, 2009; Kotchen and Moon, 2012; Elouidani and Zoubir, 2015 and Gatsi *et al.*, 2016), which argues that when firms spend their resources on CSR activities, they divert their resources away from productive use, which has a negative effect of shareholders' wealth and profit.

It is worthy to note that the significant positive impact of CSR and financial performance finding is heavily influenced by the governance index, which is the only component of CSR that has a significant positive impact on corporate financial performance. There is no evidence of any significant impact of both social and environmental indices on firms' financial performance, although the coefficients are positive. The non-significance of the results supports the argument of McWilliams and Siegel (2000) and Hing (2003) that the initial cost incurred on CSR activities goes to neutralize the benefits associated with CSR. In this study, by decoupling social and environmental elements from the combined score, it is realized that resources committed by firms on social and environmental issues do not have any impact on the financial performance of firms in South Africa.

After the introduction of our interactive term, it is evidenced as shown in Columns 2, 4, 6 and 8 of all our tables of results that size of a firm has a great impact on the link between CSR and financial performance. For instance, in Column 2, the coefficient of governance improved to 0.174, suggesting that once we control for an interactive term, the impact of governance performance is higher by at least 1.17 per cent. This increase in the coefficients after the introduction of the interactive terms has persisted throughout all the interactive terms. Interestingly, the coefficients of the interactive terms are negative irrespective of the CSR component. However, only the indirect channels of firm size and environmental

	GOV	SOC	ENV	COBS	LEV	RD	SIZE	AGE
GOV	1.00							
SOC	0.33*	1.00						
ENV	0.59*	0.37*	1.00					
COBS	0.72*	0.79*	0.82*	1.00				
LEV	0.06	0.31*	0.03	0.19*	1.00			
RD	0.11	-0.05	0.04	0.02	-0.15*	1.00		
SIZE	0.26*	0.20*	0.08	0.21*	0.40*	-0.11	1.00	
AGE	0.11	0.16*	0.01	0.12	0.05	0.04	-0.01	1.00

Table II.
Correlation matrix
among the
independent
variables

Notes: * Signifies a significant correlation between the variables; GOV is governance index; SOC is social index; ENV is environmental index; COBS is the combined average score of GOV, SOC and ENV; LEV is leverage; RD is research and development; SIZE is the firm size measured as total assets and AGE is firm age

Table III.
Results of all firms
using ROA

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA
GOV	0.149** (0.0657)	0.174*** (0.0667)			
GOV* SIZE		-0.0155*** (0.00384)			
SOC			0.0342(0.0327)	0.0370 (0.0354)	
SOC* SIZE				-0.00872*** (0.000554)	0.0476 (0.0515)
ENV					
ENV* SIZE					
COMBS					
COMBS* SIZE					
LEV	-0.0773** (0.0387)	-0.0773** (0.0387)	-0.0813** (0.0393)	-0.105*** (0.0158)	-0.0791 ** (0.0380)
RD	1.075 (0.904)	1.058 (0.908)	2.056** (0.903)	1.749*** (0.636)	1.864** (0.912)
SIZE	-0.0154*** (0.00383)		-0.0128*** (0.00425)		-0.0131*** (0.00445)
AGE	-0.0290*** (0.00396)	-0.0291*** (0.00397)	-0.0266*** (0.00345)	-0.0280*** (0.00244)	-0.0261*** (0.00361)
IND	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES
Constant	0.339*** (0.0560)	0.317*** (0.0517)	0.375*** (0.0514)	0.324*** (0.0143)(0.0143)	0.372*** (0.0480)
<i>Diagnostics</i>					
Wald χ^2 (7)	10800.86	11404.88	24378.42	197.61	327073.52
Prob. > χ^2	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	168	168	168	166	168
R ²	0.217	0.217	0.214	0.221	0.215
Number of firms	56	56	56	56	56

Notes: Standard errors in parentheses *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

(continued)

VARIABLES	(6) ROA	(7) ROA	(8) ROA
GOV			
GOV* SIZE			0.127*** (0.0443)
SOC			-0.0139*** (0.00451)
SOC* SIZE			-0.0902*** (0.0387)
ENV			1.621 (1.029)
ENV* SIZE	0.0601 (0.0616)	0.101** (0.0396)	
COMBS	-0.00670 (0.00683)		
COMBS* SIZE			
LEV			
LEV	-0.103** (0.0398)	-0.0903** (0.0383)	
RD	2.343** (0.912)	1.540 (1.022)	
SIZE			
AGE			
AGE	-0.0249*** (0.00258)	-0.0147*** (0.00438)	-0.0283*** (0.00289)
IND	YES	YES	YES
YEAR	YES	YES	YES
Constant	0.266*** (0.0630)	0.375*** (0.0493)	0.337*** (0.0426)
<i>Diagnostics</i>			
Wald χ^2 (7)	15445.22	4375.88	4751.45
Prob.> χ^2	[0.000]	[0.000]	[0.000]
Observations	166	168	168
R2	0.207	0.217	0.216
Number of firms	56	56	56

Table III.

performance are insignificant. Our further evidence suggests that the direct impact of CSR and its components is higher for the governance measure, and so is the indirect effect. Anecdotally, owing to their size and resource capacity, big firms are more probable to embark on more CSR activities relative to smaller firms, and as such, large firms when interacted with their CSR should increase profitability. However, our finding does not support this in the case of South African listed firms. Our evidence suggests that while CSR spurs performance, increases in firm size dampen the positive impact on CSR on profitability proxied by ROA. However, the positive effect of CSR on firms' performance is exceedingly higher than the dampening effect of firm size and CSR. A conjectural explanation is that large firms may have a low drive to embark on CSR by virtue of their size. To the extent that such firms are often well-grounded in the market, embarking on more CSR may not add value to their performance. As argued by the agency theory, for such firms, any resources spent on CSR may mean a diversion of resources, which inhibits profitability.

We further explored the possibility of variations in results among industries. Due to limited nature of our data, we only examined two industries, the mining and oil industry and the financial sector industry. The results for the two industries are found in [Tables IV](#) and [V](#).

In the mining and oil sector, it is noted that both governance and environmental performance are significantly positive at 5 and 10 per cent levels, respectively. It thus suggests that in the extractive sector, firms that carry out their activities responsibly are rewarded with enhanced financial performance, especially when their responsible behaviors stem from governance and environmental CSR. Though the overall CSR and social performance variables are not significant, they are nonetheless positive. Conversely, we do not find evidence of an indirect effect of CSR given the insignificance of our multiplicative interactive terms at each CSR component.

With the financial sector firms, all our variables are found to be insignificant, meaning CSR does not drive financial performance of firms in South Africa. It is, however, interesting to note that though they are insignificant, all their coefficients are positive. We could attribute these findings to a number of reasons. Our small sample size for the financial service firms could have led to our current findings. Besides, unlike firms in the extractive industries whose activities are normally hazardous to society and environment at large for that matter to ameliorate the negative effects, such firms tend to carry out more CSR activities; activities of firms in the financial sector have no direct consequences on the environment, and so their engagement in CSR activities might be negligible, especially on environmental issues.

On the control variables, leverage, size and age are found to have a significant negative correlation with firm financial performance when proxied by ROA. The results on age and leverage are in tandem with the findings of [Kim *et al.* \(2014\)](#) and [Yang and Baasandorj \(2017\)](#). While the outcome on size contradicts the work of [Roberts and Dowling, \(2002\)](#), it supports the findings of [Seo *et al.* \(2015\)](#) and [Yang and Baasandorj \(2017\)](#). On the other hand, research and development of firm operations leads to high financial performance in our study.

[Wood and Jones \(1995\)](#) argue in their studies that the variation in correlation between CSR and financial performance could be attributed greatly to the mismatch in the measure of CSR and financial performance measure used in a particular study. They suggested, for instance, that the relationship between market measure and market-oriented stakeholders (customers) is significantly positive, while the reverse will be true between market measures and charitable contributions (CSR measure). In supporting this argument, [Orlitzky *et al.* \(2003\)](#) argue that positive correlations would not be expected between measures that cannot

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA	(6) ROA	(7) ROA	(8) ROA
GOV	0.588** (0.563)	0.590** (0.570)						
GOV* SIZE		-0.00105 (0.0125)						
SOC			0.215 (0.130)	0.194 (0.131)				
SOC* SIZE				0.0123 (0.0129)				
ENV					0.0485* (0.110)	0.0370* (0.118)	0.491 (0.303)	0.474 (0.304)
ENV* SIZE						0.00653 (0.0108)		0.0111 (0.0114)
COMBS								
COMBS* SIZE								
LEV	0.0847 (0.0640)	0.0845 (0.0640)	0.149* (0.0837)	0.149* (0.0838)	0.126* (0.0753)	0.127* (0.0750)	0.155* (0.0917)	0.156* (0.0916)
RD	2.420 (9.288)	2.432 (9.299)	-4.376 (9.529)	-4.351 (9.506)	1.096 (8.330)	1.079 (8.287)	-6.559 (11.15)	-6.568 (11.13)
SIZE	-0.000907 (0.0126)		0.0117 (0.0121)		0.00609 (0.0109)		0.0109 (0.0114)	
AGE	-0.136*** (0.0230)	-0.136*** (0.0230)	-0.136*** (0.0196)	-0.136*** (0.0196)	-0.123*** (0.0169)	-0.123*** (0.0170)	-0.135*** (0.0185)	-0.134*** (0.0186)
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
Constant	0.163 (0.350)	0.164 (0.346)	0.228 (0.244)	0.236 (0.239)	0.393* (0.215)	0.394** (0.196)	0.0531 (0.286)	0.0642 (0.274)
<i>Diagnostics</i>								
Wald $\chi^2(5)$	153.25	153.39	93.76	94.79	121.51	122.56	102.33	102.40
Prob. > χ^2	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	45	45	45	45	45	45	45	45
R2	0.341	0.341	0.353	0.353	0.326	0.327	0.354	0.354
Number of firms	15	15	15	15	15	15	15	15

Notes: Standard errors in parentheses; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table IV. Results of mining and oil sector firms using ROA

Table V.
Results of financial
sector firms using
ROA

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA
GOV	-0.0178 (0.0782)	0.0269 (0.0845)			
GOV* SIZE		-0.0231*** (0.00348)			
SOC				0.0190 (0.0295)	
SOC* SIZE			-0.0148 (0.0283)	-0.0216*** (0.00146)	0.0711 (0.0390)
ENV					
ENV* SIZE					
COMBS					
COMBS* SIZE					
LEV	0.0460*** (0.00890)	0.0457*** (0.00867)	0.0547** (0.0223)	0.0550 (0.0425)	0.0286** (0.0136)
RD	-1.752 (3.061)	-1.874 (3.032)	-1.709 (2.675)	-1.649 (3.291)	-1.079 (2.616)
SIZE	-0.0227*** (0.00339)		-0.0231*** (0.000624)		-0.0263*** (0.00121)
AGE	-0.0149*** (0.00342)	-0.0151*** (0.00343)	-0.0156*** (0.00111)	-0.0153*** (0.00148)	-0.0166*** (0.00103)
YEAR	YES	YES	YES	YES	YES
Constant	0.475*** (0.0269)	0.443*** (0.0229)	0.473*** (0.0103)	0.411*** (0.00962)	0.525*** (0.0213)
<i>Diagnostics</i>					
Wald $\chi^2(6)$	6.097.13	5.889.49	19.802.40	86.397.90	8.218.09
Prob. > χ^2	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	39	39	39	38	39
R2	0.666	0.669	0.668	0.635	0.697
Number of firms	13	13	13	13	13

Notes: Standard errors in parentheses *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

(continued)

VARIABLES	(6) ROA	(7) ROA	(8) ROA
GOV			
GOV* SIZE			0.0687 (0.0639)
SOC			-0.0243*** (0.00215)
SOC* SIZE			0.0437** (0.0217)
ENV	0.136 (0.0589)		
ENV* SIZE	-0.0242*** (0.00255)	0.00982 (0.0571)	
COMBS			
COMBS* SIZE			
LEV	0.0394** (0.0158)	0.0429** (0.0218)	
RD	-0.369 (0.951)	-1.953 (2.642)	
SIZE			
AGE	-0.0172*** (0.00193)	-0.0239*** (0.00197)	
YEAR	YES	YES	YES
Constant	0.431*** (0.0242)	0.486*** (0.0290)	0.443*** (0.0285)
<i>Diagnostics</i>			
Wald $\chi^2(5)$	18,124.04	22,054.73	15,187.37
Prob.> χ^2	[0.000]	[0.000]	[0.000]
Observations	38	39	39
R ²	0.628	0.666	0.661
Number of firms	13	13	13

Table V.

be linked theoretically. They specifically cited that CSR disclosures and accounting base measure of financial performance will not yield any positive correlation. To be sure that our results are not based on the mismatch of variables and to check the robustness of our results, we estimated the same models but using Tobin's Q as a regressand, which is an economic measure of financial performance. The results are shown in [Tables VI-VIII](#).

From [Table VI](#), it is noted again that governance index for corporate CSR impacts positively on financial performance of firms with no evidence again exhibited between social and financial performance and between environment and financial performance before the introduction of the interactive terms. With the presence of the interactive terms, however, environmental performance is found to significantly and positively impact on financial performance of firms. Similarly, the combined average score of CSR correlates positively with financial performance. The only difference in the findings is that on the ROA models, the combined average score is significant at 5 and 1 per cent after the introduction of the interactive term, while on the Tobin's Q models, the results are significant 10 and 5 per cent, which indicates a weak impact of CSR on financial performance in general without the introduction of the interactive term. This finding is inconsistent with [Maqbool and Zameer's \(2018\)](#) study in India. Apart from the differences in the settings, [Maqbool and Zameer's \(2018\)](#) study exclusively concentrated on commercial banks relative to our sample. To the extent that our sample of financial sector incorporates both bank and non-bank institutions may drive the different effect regarding the link between CSR and financial performance.

Results from [Table VII](#) are equally consistent with the accounting measure presented in [Table IV](#). Importantly, apart from the level of significance, while the directions of effect are akin, the magnitude of effect differ. For instance, the effect of CSR and the governance CSR component is higher when performance is proxied by Tobin's Q relative to ROA. In addition, the environmental component of CSR effect is only significant on the stock market measure – Tobin's Q – but not on the financial measure proxied by ROA. For the financial sector firms as shown in [Table VIII](#), no significant change took place. All the results presented here confirm the consistency of our findings and further buttress the importance of size in the link between CSR and financial performance in our study.

5. Conclusion

Much debate on the correlation between CSR and financial performance has taken place among scholars in advanced countries. Some of the scholars have therefore concluded that the link between CSR and financial performance is positive across several studies, and hence, there is no need for further studies on the subject matter. However, these studies have failed to include ample studies from developing countries on their meta-analysis study partly due to the non-availability of ample studies in the subject matter on developing countries. More so, a number of results emerging from developing countries in very recent times are varied in nature. This shows an inconclusive debate on the subject matter in developing world, and this has called for more studies on this issue in developing countries. Besides, we departed from most previous studies by exploring also whether size and sector matter in the link between CSR and financial performance.

In contributing to this debate in a developing world context, we empirically examined the link between CSR and firm financial performance in South Africa by using PCSE estimator on 56 listed firms over a period of three years spanning from 2011 to 2013. Findings from the study indicate that CSR impacts positively on financial performance of firms in South Africa. When the CSR is decomposed into social, governance and environmental indexes, it is noted that while governance index positively affects financial performance of firms, both social and environmental indices do not matter in firm's performance. This finding holds

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	TOB	TOB	TOB	TOB	TOB	TOB	TOB	TOB
GOV	3.986* (2.063)	4.695** (2.141)						
GOV* SIZE		-0.437*** (0.0584)						
SOC			-0.341 (0.765)			2.184* (1.222)		
SOC* SIZE			-0.278*** (0.0189)		0.980 (0.835)	-0.366*** (0.0691)		
ENV							0.242* (1.575)	0.953* (1.661)
ENV* SIZE								-0.342*** (0.0544)
COMBS								
COMBS* SIZE								
LEV	-0.678** (0.336)	-0.679** (0.336)	-0.0969 (0.635)	-0.158 (0.685)	-0.661* (0.360)	-0.532 (0.415)	-0.497 (0.566)	-0.481 (0.563)
RD	-102.4*** (25.54)	-102.9*** (25.75)	-68.49*** (13.52)	-70.02*** (13.96)	-79.18*** (15.06)	-76.70*** (19.82)	-73.92*** (21.26)	-73.34*** (21.90)
SIZE	-0.436*** (0.0574)		-0.312*** (0.0359)		-0.366*** (0.0517)		-0.347*** (0.0520)	
AGE	0.130 (0.0882)	0.129 (0.0883)	0.280*** (0.0986)	0.266*** (0.0461)	0.216** (0.0925)	0.227*** (0.0877)	0.229** (0.0927)	0.230** (0.0921)
IND	YES	YES	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
Constant	7.732*** (0.679)	7.102*** (0.682)	8.335*** (0.637)	7.377*** (0.199)	8.586*** (0.811)	7.546*** (0.731)	8.528*** (0.807)	7.818*** (0.761)
<i>Diagnostics</i>								
Wald, $\chi^2(7)$	56.771.23	56.661.24	36.372.24	613.10	1.16e+06	30.428.25	48.618.68	50.628.52
Prob. > χ^2	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	168	168	168	166	168	166	168	168
R ²	0.234	0.234	0.226	0.223	0.224	0.226	0.220	0.219
Number of firms	56	56	56	56	56	56	56	56

Notes: Standard errors in parentheses; ***, $p < 0.01$, **, $p < 0.05$; *, $p < 0.1$

Table VI.
Results of all firms
using Tobin's Q

Table VII.
PCSE results of the
mining and oil sector
firms using Tobin's
Q

VARIABLES	(1) TOB	(2) TOB	(3) TOB	(4) TOB	(5) TOB	(6) TOP	(7) TOB	(8) TOB
GOV	1.12** (0.27)	5.14*** (1.39)						
GOV* SIZE		-1.489*** (0.273)						
SOC			-2.262 (1.267)	-0.170 (1.226)				
SOC* SIZE				-1.201*** (0.218)				
ENV					3.039* (2.647)	5.016* (2.768)		
ENV* SIZE						-1.078*** (0.253)		
COMBS							3.658 (5.483)	5.310 (5.419)
COMBS* SIZE								-1.093*** (0.274)
LEV	2.164 (1.322)	-0.0436 (0.774)	1.567 (0.987)	1.691* (0.960)	2.310 (1.414)	2.268 (1.423)	2.157 (1.321)	2.164 (1.322)
RD	47.05 (95.33)	125.4 (87.51)	183.7* (104.5)	174.9* (103.4)	43.32 (91.29)	38.03 (89.85)	48.72 (95.57)	47.05 (95.33)
AGE	-1.159*** (0.145)	-1.780*** (0.165)	-0.946*** (0.0966)	-0.945*** (0.103)	-1.043*** (0.118)	-1.049*** (0.123)	-1.159*** (0.144)	-1.159*** (0.145)
SIZE	-1.12*** (0.210)		-1.201*** (0.220)		-1.089*** (0.255)		-1.093*** (0.273)	
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
Constant	20.53*** (6.014)	7.632 (5.427)	27.14*** (4.078)	25.17*** (3.589)	22.18*** (4.756)	20.29*** (4.287)	22.09*** (6.358)	20.53*** (6.014)
<i>Diagnostics</i>								
Wald $\chi^2(5)$	102.40	2,361.28	203.38	206.57	127.85	113.13	124.25	122.19
Prob. > χ^2	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	45	45	45	45	45	45	45	45
R ²	0.231	0.498	0.239	0.237	0.242	0.242	0.231	0.231
Number of firms	15	15	15	15	15	15	15	15

Notes: Standard errors in parentheses; ***, $p < 0.01$; **, $p < 0.05$; *, $p < 0.1$

VARIABLES	(1) TOB	(2) TOB	(3) TOB	(4) TOB	(5) TOB
GOV	0.466 (0.775)	0.609 (0.840)			
GOV* SIZE		-0.08666** (0.0343)			
SOC			-0.0635 (0.114)	0.203 (0.182)	
SOC* SIZE				-0.0874*** (0.0121)	-0.0709 (0.326)
ENV					
ENV* SIZE					
COMBS					
COMBS* SIZE					
LEV	-0.953*** (0.0649)	-0.957*** (0.0650)	-0.904*** (0.0839)	-0.695*** (0.144)	-0.926*** (0.101)
RD	31.90 (48.49)	31.94 (48.87)	37.20 (43.88)	42.79 (60.73)	35.46 (41.36)
SIZE	-0.0872*** (0.0335)		-0.0643*** (0.00709)		-0.06335*** (0.0136)
AGE	-0.0469 (0.0418)	-0.0470 (0.0421)	-0.0267 (0.0258)	-0.0403 (0.0300)	-0.0260 (0.0254)
YEAR	YES	YES	YES	YES	YES
Constant	2.666*** (0.230)	2.525*** (0.187)	2.484*** (0.0818)	2.585*** (0.141)	2.470*** (0.200)
<i>Diagnostics</i>					
Wald $\chi^2(5)$	31,410.52	30,415.55	3,940.34	62,759.99	25,551.89
Prob. > χ^2	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	39	39	39	38	39
R ²	0.677	0.676	0.673	0.643	0.673
Number of firms	13	13	13	13	13

Notes: Standard errors in parentheses; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

(continued)

Table VIII.
PCSE results on the
financial sector firms
using Tobin's Q

Table VIII.

VARIABLES	(6) TOP	(7) TOB	(8) TOB
GOV			
GOV* SIZE			0.252 (0.313)
SOC			-0.0701*** (0.0119)
SOC* SIZE			-0.965*** (0.100)
ENV	0.296 (0.492)		36.48 (43.81)
ENV* SIZE	-0.0860*** (0.0277)	0.0870 (0.292)	
COMBS			
COMBS* SIZE			
LEV	-0.716*** (0.156)	-0.967*** (0.103)	
RD	35.42 (46.30)	36.00 (43.24)	
SIZE		-0.0699*** (0.0124)	
AGE	-0.0349 (0.0349)	-0.0293 (0.0251)	-0.0294 (0.0255)
YEAR	YES	YES	YES
Constant	2.500*** (0.262)	2.565*** (0.157)	2.428*** (0.134)
<i>Diagnostics</i>			
Wald $\chi^2(5)$	7.40e + 06	15,448.60	4,660.32
Prob. > χ^2	[0.000]	[0.000]	[0.000]
Observations	38	39	39
R ²	0.657	0.673	0.672
Number of firms	13	13	13

irrespective of the measure of performance. We attribute this to the non-competitive nature of firms and high unemployment in African countries. Unlike the developed countries, where due to high competition and availability of jobs, customers and prospective employees are selective in their choices, in Africa, customers' patronage of a company's goods and employees' search for jobs are more dependent on the availability/cost of products and the availability and pay level of the jobs, respectively, than the CSR adoption of such firms. This could be reason why environmental and social commitment by firms have no impact on the financial performance of firms.

Beyond the direct effect of CSR, we examine the moderating role of firm size in CSR–performance nexus. Our evidence suggests that while CSR spurs firms' performance, well-developed firms dampen the positive effect of CSR on performance. To the extent that such firms are often well-grounded in the market, further increases in CSR drive potentially inhibit their performance as they may be diverting productive resources to inefficient use. While financial performance is impacted positively by CSR via governance performance and environmental performance in the extractive industry, no impact is realized in the financial sector firms. It therefore means that in South Africa, while financial sector firms may be able to perform well financially without executing CSR activities, firms in the extractive industry are punished financially when they fail to engage in CSR activities and are again rewarded accordingly when they engage well in CSR.

We document some key implications for policy. While CSR enhances firms' performance, it is imperative for firms to examine their size relative to the magnitude of their CSR. Knowledge of this may have crucial implication for firms' CSR diffusion. Our evidence presented in this study highlight the need for firms to engage in CRS relative to their overall size when improving on financial performance is the main corporate objective. Indeed, the moderating effect of firms' size cannot be overlooked given the relationship between CSR and firm size.

6. Limitations and suggestions for future research

The results should be interpreted with caution and some limitations. Due to the limiting nature of the PIC data set (the survey was carried out on selected firms on the JSE for only three years spanning from 2011 to 2013), a sample of 56 firms was obtained. It is therefore very problematic to generalize the findings to a larger population over a long period of time. This is more limiting, especially on our individual sector studies where our sample has further shrunk to a smaller sample. As a result of the smaller sample size, we were unable to explore some other sectors which could have given more revealing findings. We recommend that future research should explore other data sets or use primary data approach that can allow for more sample size and elongated time period for a more holistic view and for easy generalization of the findings. We also identify an important lacuna necessitating further research effort. It would be interesting to empirically examine the threshold point of a firm's size beyond which CSR damages the firm's performance. Knowledge of this will guide managers of firms in their strategic CSR decision.

Note

1. McGregor BFA has data on firms only from 2006 onward, but the PIC Corporate Rating Matrix conducted by USB Centre for Corporate Governance has its data points starting from 2011.

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Variables	Descriptions
CSR	It is made up of governance, social and environmental provisions of the firms. The combined score is the average score of the indicators of CSR in each firm $\Rightarrow (governance + social + environmental)/3$ It ranges from 0 to 100, with zero being the lowest performance while 100 being the highest
TOB	It is computed as market value of equity plus book value of assets, minus book value of equity and then divided by the book value of assets. It is expected to be greater than one as an indication that the company is doing well in its investment decision
ROA	Ratio of operating profits (profit before interest and tax) to total assets
SIZE	Defined as the total assets of the firm. It is estimated in a natural log form
AGE	Measured as the number of years since incorporation of the firm. It is expressed as a log of age
LEV	It is ratio of debt to assets
INDRDYEAR	This is a categorical dummy where 0 represents manufacturing sector, 1 represents health sector, 2 represents goods and services, 3 stands for mining and oil while 4 represents financial sector. This refers to whether or not the firm engages in research and development activities. It is a binary dummy with 1 representing research and development in the firm while 0 represents the absence of research and development in the firmtime dummy (0 representing 2011, 1 representing 2012 and 2 representing 2013)

Table AI.
Operationalization of variables

- (1) Board
 - Chairperson independence
 - Independent non-executive directors in majority
 - Diversity (female directors' presence and black directors' presence)
 - Evidence of board development program
 - Evidence of board performance evaluation
 - Composition of audit committee
 - Composition of remuneration committee
 - Composition of nomination committee
- (2) Individual directors
 - Percentage of directors over boarded
 - Company secretary should not be a director of the company
 - Percentage of directors who attended less than 75 per cent of scheduled board meetings
 - Percentage of directors who attended less than 75 per cent of scheduled board committee meeting
- (3) Executive management
 - Diversity (female executive committee members)
 - Diversity (black executive committee members)
 - Disclosure of CEO's terms of contracts and notice terms
 - Succession planning for directors and executive management
- (4) Remuneration
 - Average percentage increase in executive directors' base salary
 - Average percentage increase in executive directors' bonus
 - Prospective approval of remuneration
 - Existence of share options per director
 - Existence of performance targets linked to remuneration
 - Existence of "golden parachutes"
- (5) Shareholder treatment
 - Existence of one share one vote principle
 - Diversified ownership
 - Existence of dedicated investor relations section
- (6) Auditing and accounting
 - Unqualified audit report
 - Direct reporting line for internal auditor
 - Independence of external auditor
 - Recognition received for quality of finance report
 - Recognition received for quality of non-financial report

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- (7) Disclosure and reporting
 - Clear description of principle risks and uncertainties and how it will be managed
 - Disclosure of company economic value
 - Disclosure of audit committee's report to shareholders and how it has fulfilled its duties during the financial year
 - Integrated Report in line with minimum information required by King III
 - (8) Corporate behavior
 - Disclosure of prosecutions, legal contraventions, judgments and fines
 - Anti-competitive practices and behavior
 - Consumer treatment
 - Evidence of stakeholder analysis and engagement
 - Disclosure of policies and payments made to political parties
 - (9) Corporate culture
 - Commitment to accountability, probability and disclosure (voluntary standards)
 - Existence of compliance officer/function
 - Evidence of anti-corruption programs
 - (10) Sustainability report
 - Did the company issue a sustainability report?
 - Is the report externally verified?
 - Is it an integrated report as per King III?
 - Is it a GRI report?

Social

- (1) UN Global Compact
 - Participant
 - Status
 - Last communication on progress CEO statement
 - Last communication on progress issues covered
 - Last communication on progress measurement of outcome
- (2) Human Rights (only for UN Global Compact Active Companies; see list)
 - Support and respect for the protection of internationally proclaimed human rights
 - Non-complicity in human rights abuses
 - Uphold freedom of association and the effective recognition of the right to collective bargaining
 - Elimination of all forms of forced and compulsory labor
 - Effective abolition of child labor
 - Elimination of discrimination in respect of employment and occupation
- (3) Transformation
 - Ownership
 - Employment equity
 - Disclosure of procurement practices
 - BBBEE level contribution

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- (4) Health and safety
 - Detailed disclosure of accidents, deaths and injuries (only if appropriate to sector)
 - Evidence of HIV/AIDS policy
 - Corporate responsibility (CR)
 - Evidence of CR policy that acknowledges strategic role as opposed to philanthropy
 - CR spent as percentage of profit after tax
 - (5) Other
 - Percentage of disabled employees

Environmental

- Precautionary approach to environmental challenges
- Initiatives to promote greater environmental responsibility
- Existence of board sub-committee responsible for environmental/sustainable development
- Executive performance linked to sustainability performance
- Participation in voluntary standards and net works
- Total paper usage of company
- Direct energy consumption by primary energy source
- Indirect energy consumption by primary source
- Energy saved due to conservation and efficiency improvements
- Total direct and indirect greenhouse gas emission by weight
- Initiatives to reduce greenhouse gas emission and reductions achieved
- Total water withdrawal by source
- Percentage and total volume of water recycled and re-used
- Total water discharged by quality and destination
- Initiatives to mitigate environmental impacts of products and services and extent of impact mitigation
- Environmental performance of suppliers and contractors
- Percentage of materials used that are recycled input materials
- Total weight of waste by type and disposal method
- Total number and volume of significant spills
- Encourage the development and diffusion of environmentally friendly technologies