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Corporate social responsibility, business groups and financial performance: a study of listed Indian firms

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ABSTRACT

This study explores the relationship between corporate social responsibility (C.S.R.) and financial performance of Indian firms. We also examine the relationship between C.S.R. and financial performance in context of Indian business group firms, which are known to have unique characteristics which differ from those of Indian stand-alone firms. Using a sample of Indian listed firms between 2010 and 2015, we find that C.S.R., as measured by E.S.G. disclosure score, has a U-shaped relationship with Tobin's Q, supporting the slack resource theory at lower level of CSR and supporting the stakeholder theory at higher level of C.S.R. The empirical results imply that an improvement in CSR actions does not always result in higher firm value but should exceed a certain level of C.S.R. to have a positive effect on firm value. In addition, we find that at lower level, a negative relationship between C.S.R. and Tobin's Q weakens in group affiliate firms. However, this complement effect of business group disappears at higher level, weakening the positive relationship between C.S.R. and Tobin's Q. This study offers new insights for the different influence of business groups on C.S.R. performance.

1. Introduction

Of late, corporate social responsibility (C.S.R.) has been considered a very important factor in management. In particular, from the viewpoint of shareholder, the issue is whether C.S.R. may serve to enhance corporate financial performance. In this context, the relationship between C.S.R. and firm performance has been explored by many authors (Waddock & Graves, 1997; Griffin & Mahon, 1997; Lin, Yang, & Liou, 2009; Saeidi, Sofian, Saeidi, Saeidi, & Saaeidi, 2015). Numerous studies have attempted to empirically examine these relationships. For instance, while one strand of literatures suggests that C.S.R. has a positive impact on firm performance (Oeyono, Samy, & Bampton, 2011), another strand shows that C.S.R. has a negative impact on firm performance (Servaes & Tamayo, 2013). Moreover, these mixed results have led to

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extended studies on the relationship between C.S.R. and firm performance. However, there are few empirical studies on how C.S.R. influences financial performance in India.

Hence, to bridge the gap to the prior literature, this paper aims to investigate whether C.S.R. influences the financial performance of Indian firms. The motivation behind this research stems from the following three observations:

First, in general, while C.S.R. is high in developed countries that build economic growth, it is less of a concern in developing countries. Among the emerging markets, India has been quite proactive in taking up C.S.R. initiatives. The C.S.R. indicator of Indian firms has rapidly increased. According to the Morgan Stanley Capital International Emerging Markets E.S.G. index, Indian firms such as Infosys and Housing Development Finance Corporation are among the top 10 firms with high C.S.R. even though Indian firms generally exhibit lower levels of C.S.R. compared to developed countries. Moreover, when one considers remarkable growth of emerging markets such as India, an understanding on the relationship between C.S.R. and financial performance is crucial for managers, investors and academics. Unfortunately, C.S.R. research on Indian firms is limited mainly to the use of qualitative research methods such as surveys and its C.S.R. policies (Sood & Arora, 2006). Besides, the relevant literatures on the relationship between C.S.R. and financial performance in India remain inconclusive.

Second, Indian business groups are known to have unique characteristics. Whereas some authors suggest that business groups respond to market failures and high transaction costs (Gopalan, Nanda, & Seru, 2007), others argue that group-affiliated firms perform worse than unaffiliated firms in India (Singh & Gaur, 2009). Gaur and Kumar (2009) document that business group affiliation reduces the positive effect of internationalisation on firm performance, underscoring disadvantage of business group. Interestingly, in the perspective C.S.R., business groups in India have persisted more with C.S.R. activities than have stand-alone firms. For instance, Indian firms such as the Tata and Reliance groups are well known for their C.S.R. initiatives. Hence, it is very meaningful to examine how the C.S.R. initiatives of Indian group-affiliated firms differ from those of Indian stand-alone firms.

Third, Indian firms are facing external pressure such as mandatory regulation of C.S.R. to behave responsibly toward C.S.R., which in turn may influence C.S.R. activities of Indian firms. Recently, India officially promulgated stimulus provision for firms to engage in C.S.R. New C.S.R. regulations came into effect as of 1 April 2014. Specifically, both domestic as well as foreign firms having their branches in India should observe the C.S.R. legislation requiring them to contribute about 2% of their net profits towards C.S.R. activities.[1] This policy suggests that there has been a strong push for Indian firms to adopt a more business model-based approach to C.S.R. where the rationale for considering social and environmental is predominantly related to firm value creation (Narwal & Singh, 2013; Muttakin & Subramaniam, 2015). Hence, Indian case provides a unique case where the effect of change in C.S.R. activities on firm performance can be directly tested.

Main findings of this study are summarised as follows. First, this study finds that the effect of C.S.R. on financial performance is nonlinear in Indian firms. Specifically,

at the low level of C.S.R., Tobin's Q decreases with C.S.R. while at the high level of C.S.R., Tobin's Q increases with C.S.R. More importantly, even after controlling for firm specific variables, these empirical results still show significantly non-linear relationship. However, the effect of C.S.R. on R.O.A. is insignificant in Indian firms, implying that the impact of C.S.R. is related to future firm value but not related to accounting performance. Second, this study finds that the C.S.R. initiatives of group-affiliated firms are higher than those of stand-alone firms but the relation between C.S.R. and firm value is less pronounced in group affiliated firms than in stand-alone firms. The results suggest that group affiliated firms are inclined to actively engage in social activities to enhance group's reputation. This study contributes towards the extant C.S.R. literature by empirically examining the relationship between C.S.R. and financial performance in India.

The remainder of the article is organised as follows. Section 2 presents literature review. Sections 3 and 4 present hypothesis and test methodology. Section 5 presents our empirical results on CSR and financial performance. Section 6 provides summary and conclusion.

2. Literature review

There is an extensive literature on CSR and firm performance. Specifically, the existing empirical evidence regarding the relationship between CSR and firm performance is mixed. The relationship between CSR and firm performance has been a dominant theme in many papers (Alexander & Buchholz, 1978; Cochran & Wood, 1984; Aupperle, Carroll, & Hatfield, 1985; McGuire, Sundgren, & Schneeweis, 1988; Orlitzky, Schmidt, & Rynes, 2003; Tsoutsoura, 2004; Lin et al., 2009; Oeyono et al., 2011).

For instance, Tsoutsoura (2004) documents that CSR has a significant positive effect on firm performance in the S&P 500 firms during 1996–2000. He supports the view that socially responsible corporate performance may be associated with a series of bottom-line benefits. Oeyono et al. (2011) find that C.S.R. has a positive impact on Indonesia's top 50 firms. Lin et al. (2009) document that C.S.R. has a positive impact on financial performance by analysing Taiwan's 1,000 firms that consider their R&D expenditures as one of their business strategies for sustainable development during 2002–2004. They suggest that while C.S.R. does not have a significant positive impact on short-term financial performance, it offers a remarkable long-term fiscal advantage. However, Smith, Yahya, & Marzuki Amiruddin (2007) document a negative impact of C.S.R. on firm performance. Recently, literature examines the nonlinear relationship between C.S.R. and firm performance. For example, Nollet, Filis, & Mitrokostas (2016) examine the nonlinear relationship between corporate social performance and return on capital of the S&P firms during 2007–2011. They find the evidence of a U-shaped relationship between corporate social performance and accounting based measures of financial performance.

Recent studies on C.S.R. and financial performance link in India remain inconclusive. Mishra & Suar (2010) investigate whether C.S.R. influences firm performance in India. They find that managers' initiatives regarding C.S.R. have a positive impact on

firm performance. Further, they argue that Indian firms should implement C.S.R. for the benefit of their stakeholders. Rajput et al. Rajput, Batra, & Pathak (2012) document that C.S.R. has a positive impact on financial performance. Padhi (2013) observes that after C.S.R. has been categorised on the basis of government, firm, and individual, it has a significant impact on firm performance. Kumar (2014) documents that C.S.R. in India has a long-term view from late 1980s. He suggests that the philanthropic ideas of Indian firms based on religious beliefs are similar to those of the West. In particular, C.S.R. has been performed in various forms such as philanthropic contribution to charity, service to local community, and an increase in employment. C.S.R. activities can decrease firm's earning in the short-term, but in fact contribute to firm's earnings in the long-term. More recently, Garg (2016) studies the relationship between C.S.R. and performance in all those companies which are included in the S&P B.S.E. C.A.R.B.O.N.E.X. Index for 10 financial years from 2004–2005 to 2013–2014 through P.R.O.W.E.S.S. database. He finds that C.S.R. impacts the value of Indian corporate sector highly and significantly using panel regression. He suggests that C.S.R. performance of companies impacts corporate performance not only for current year, but also for the following years. Bihari and Pradhan (2011) suggest that C.S.R. activities in Indian banks have positive impact on performance. However, some authors find mixed results on the relationship between C.S.R. and financial performance. For instance, Saxena and Kohli (2012) find that CSR in India has an insignificant impact on firm performance in banking industry. Aggarwal (2013) empirically examines the relationship between C.S.R. and financial performance, suggesting mixed and inconclusive results.

Several studies have empirically examined the C.S.R. performance from business group standpoint (Choi et al., 2018; Guo, He & Zhong, 2018). For example, Choi et al. (2018) find that group affiliated firms in Korea is associated with higher C.S.R., while ownership disparity between cash flow and control by controlling insider shareholders is associated with lower C.S.R., supporting opportunistic rent expropriation theory. On the other hand, business group and a state-owned enterprise (S.O.E.) at the same time have weaker C.S.R. performance, indicating that C.S.R. engagement is a strategy for companies to pursue political justification in China. However, until now it is not clear how C.S.R. affects financial performance in the business group.

3. Theoretical background and hypotheses development

3.1. Relationship between C.S.R. and financial performance

The stakeholder theory documents that treating and managing for stakeholder helps a firm enhance value, that is, good for firm performance (Freeman et al., 2004; Waddock and Graves, 1997). According to the instrumental stakeholder theory, C.S.R. appears to be helpful to firms. That is, the satisfaction of various stakeholder groups is instrumental for financial performance. Moreover, the stakeholder–agency theory suggests that the implicit and explicit contract entailed by bilateral stakeholder–manager relationships serve as monitoring and enforcement mechanisms that curb opportunistic behaviour by managers at the expense of other stakeholders (Hill & Jones, 1992). Further, by addressing and balancing the claims of multiple

stakeholders (Donaldson and Preston, 1995), managers can increase the efficiency of their organisation's adaptation to external demands (Orlitzky et al., 2003). As a strategy, C.S.R. promotes a firm's competitive advantage by weighing and addressing the claims of various constituents in a fair and rational manner. For instance, firms may improve their image, reputation and brand name through C.S.R. activities (Benito-Hernández, Platero-Jaime, & Esteban-Sánchez, 2016).

According to the slack resource theory, however, a company is able to carry out its activities by the resources owned by the firm (Fauzi & Idris, 2009). Slack resources are defined as the pool of resources in an organisation that is in excess of the minimum necessary to produce a given organisation output (Nohria & Gulati, 1996). Patten (2002) suggests that C.S.R. may lead to further consumption of firm resources such as time, labour, and capital. Hence, firms may spend slack resources in order to enhance C.S.R. activity. Specifically, a firm should hold a good financial position to contribute to the corporate social performance. Further, some authors argue that social activities involve financial costs and siphon off capital and other resources from firm (Aupperle et al., 1985; Preston & O'Bannon, 1997).

According to the above arguments, the relationship between C.S.R. and firm performance may have U-shape relation. In other words, an increase in C.S.R. may make management resource more aggravated, thereby reducing financial performance. Specifically, investments in C.S.R. may decrease financial slack.

On the contrary, however, an increase in C.S.R. may align with the shareholder as well as stakeholders, thereby increasing financial performance. As indicated by Kumar (2014), C.S.R. in India can contribute towards firm's earnings enhancing the firm's reputation, brand value and interest convergence of stakeholders.

Taken together, as C.S.R. scores are at a lower level, C.S.R. investment costs may be reflected immediately in firm performance but its benefits may not materialise. Thus, we expect a negative effect of C.S.R. scores on financial performance at a lower level, indicating that slack resource theory dominates at a lower level of C.S.R. scores. However, as C.S.R. scores are above a certain level, C.S.R. investment costs may increase marginally but its benefits may start being reflected in firm performance at last, because C.S.R. investments have accumulated enough to start reaping the benefits by improving firm's image, reputation, and/or brand name. Thus, at a higher level of C.S.R. scores, the relation between C.S.R. scores and firm performance may change from a negative one to positive one, when C.S.R. investment benefits become greater than its costs. Based on the above rationale, we hypothesise that:

Hypothesis 1: The relationship between C.S.R. and financial performance is negative at a low level of C.S.R. scores and becomes positive at a high level of C.S.R. scores.

3.2. Business groups and C.S.R.

Indian business groups are known to have unique characteristics. Business groups play an important role in the Indian economy, and have been doing so during a large part of the twentieth century (Kali & Sarkar, 2005). Indian business groups

strive to serve their communities and the society at large, historically considering social recognition. Indian business groups have persisted more with C.S.R. activities than have stand-alone firms. Group-affiliated firms intend to share the vision and objectives of the group. Hence, their shared C.S.R. activities may result in the enlargement of group's C.S.R. Khanna & Yafeh (2007) indicate that group-affiliated firms are interested in group reputation for risk sharing. Furthermore, Gopalan et al. (2007) argue that group-affiliated firms support financially distressed member firms in order to maintain the group's reputation. In addition, Choi et al. (2018) argue that C.S.R. can be used as a means of improving reputation capital to buffer the bad events.

According to these views, Indian group-affiliated firms share their C.S.R. activities not only to increase group's reputation but also to share risks and costs. On the other hand, compared with stand-alone firms, group-affiliated firms may need more C.S.R. investment costs and more time until they can reap the group's C.S.R. benefits. Cuervo-Cazurra (2018) argue that business groups may need higher costs as C.S.R. activities increase, due to the rapid growth and diversification of business groups.

In sum, at a lower level of C.S.R. scores, C.S.R. investment costs may be shared among group-affiliated firms, resulting in less negative effect of C.S.R. on financial performance, compared with stand-alone firms. On the other hand, for group-affiliated firms, C.S.R. investment costs may still occur considerably until their C.S.R. scores reach a certain level, resulting in less positive effect of C.S.R. on financial performance than for stand-alone firms at a higher level of C.S.R. scores. Based on this rationale, we hypothesise that:

Hypothesis 2: Business group weakens the non-linear relationship between C.S.R. and firm performance.

4. Methodology

4.1. Data collection

To test the hypotheses, we use annual accounting data for all Indian firms listed on the National Stock Exchange (N.S.E.) and Bombay Stock Exchange (B.S.E.) during 2010–2015. This study excludes the data offered by financial companies from the sample, since the financial policy of such firms is often driven by regulatory aspects. All data used are obtained from Bloomberg. The sample starts from 2010 owing to limited environmental, social, and governance (E.S.G.) data. It excludes firms that have either incomplete financial data or negative asset values. The sample includes unbalanced panel 214 firms and 1,191 firm-year observations.

4.2. Research model

This article tests the hypotheses through t-tests and panel regressions and explores the relationship between C.S.R. and financial performance in Indian firms. First, the study uses a t-test to analyze the difference between the group affiliated firms and stand-alone firms. Second, this study uses the panel regression model given in (1) to test our hypotheses. We use this model to control for the time-invariant unobserved

firm features that might be correlated with the explanatory variables in the model. Third, as shown in Table 4, there is an endogeneity problem indicating that companies with a high financial performance can have a high C.S.R. performance. It is well known that all of the pooled O.L.S., fixed effect and random effect models cannot solve the endogeneity problem in the presence of a lagged dependent variable. Thus, we use Arellano & Bond (1991)'s system generalised method of moments (G.M.M.) to solve this problem. The G.M.M. estimation greatly reduces the bias problem. More specifically, this study develops a model implied by Nollet et al. (2016):

$$
\begin{aligned}
\mathrm{FP_{it}} = {} & \beta_0 + \beta_1 \mathrm{ESG_{it}} + \beta_2 \mathrm{ESG^2_{it}} + \beta_3 \mathrm{Leverage_{it}} + \beta_4 \mathrm{Salegr_{it}} + \beta_5 \mathrm{R\&D_{it}} \\
& + \beta_6 \mathrm{Lnasset_{it}} + \beta_7 \mathrm{Profitability_{it}} + \beta_8 \mathrm{Policydummy_{it}} + u_i + e_{it}
\end{aligned}
\tag{1}
$$

$\mathrm{FP_{it}}$ is a firm financial performance indicator. This article uses two proxies for firm financial performance (Yu-Shu, Chyi-Lin, & Altan-Uya, 2015). First, *Tobin's Q* is a proxy for firm value (Jo & Harjoto, 2011; Luo & Bhattacharya, 2006). *Tobin's Q* is defined as the book value of total assets minus the book value of equity plus the market value of equity divided by the book value of total assets. Second, *ROA* is a proxy for firm performance (McGuire et al., 1988). *ROA* is defined as net income divided by the book value of total assets. In particular, *Tobin's Q* is a variable that measures firm value based on market value, and *ROA* is a variable that measures firm performance based on accounting data.

A formal definition of C.S.R. is the commitment of a business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve their quality of life, which has been proposed by the World Business Council for Sustainable Development. According to this definition, C.S.R. has been considered as concept including environment, employee, community, and shareholder. *ESG* is the key variable to measure C.S.R., which is approximated by the Bloomberg's E.S.G. disclosure (Nollet et al., 2016). E.S.G. breaks it into three components: Environmental, Social and Governance. *Environ, Social and Gov* are variables to measure Environmental, Social and Governance of companies, respectively. In particular, E.S.G. is a proprietary Bloomberg score based on the extent of a company's E.S.G. disclosure. The score ranges from 0.1 for companies that disclose a minimum amount of E.S.G. data to 100 for those that disclose every data point collected by Bloomberg. Each data point is weighted in terms of importance, with data such as greenhouse gas emissions carrying greater weightage than other disclosures. The score is also tailored to different industry sectors. In this way, each company is only evaluated in terms of the data that is relevant to its industry sector. Specifically, based on the previous studies (Jo & Harjoto, 2011), we assume E.S.G. affects Tobin's Q.

In addition, square term of *ESG* is a proxy to examine nonlinear relationship between C.S.R. and financial performance. Financial risk (*Leverage*), Sales growth rate (*SaleGr*), Research and Development (*R&D*), Firm size (*Lnasset*), Profit (*Profitability*) serve as control variables. *Leverage* is a proxy variable that analyzes the impact of financial distress costs, and is measured as total debt divided by total assets. *SaleGr* is a proxy variable for growth rate. *R&D* is measured as R&D divided by assets. Firm

size (*Lnasset*) is measured as the natural logarithm of total assets. Profit (*Profitability*) is measured as the earnings before interest and tax divided by total assets. Furthermore, since we expect that new law on C.S.R. policy may influence firm performance from 2013, we include a *Policydummy* variable, which takes the value of 1 during the new law enforcement period (i.e. 2013–2015) and zero otherwise. The parameter u_i denotes the unobservable heterogeneity or the firm's unobservable individual effects, controlling for the particular characteristics of each firm. Finally, e_{it} denotes the random disturbance.

5. Empirical results

5.1. Descriptive statistics

Table 1 presents the descriptive statistics for the variables used in the analysis. On average, *Tobin's Q* is about 0.739 (0.482 at the median), implying that the market value of listed Indian non-financial companies is lower than the book value. The average *ROA* is 0.047, with a standard deviation of 0.071 and a median of 0.040. *ESG* is 19.126 (17.355 at the median), on average, with a standard deviation of 8.203. *Environ* is 12.858 (10.853 at the median), on average, with a standard deviation of 8.982. *Social* is 15.588 (12.281 at the median), on average, with a standard deviation of 12.718. *Gov* is 46.038, on average, with a standard deviation of 5.669 and a median of 44.643. Interestingly, E.S.G. scores of Indian firms are lower than those of developed countries. For example, E.S.G. scores of the U.S., the U.K., Germany, France and Japan firms are 31.28, 31.15, 32.89, 40.61 and 32.30, respectively (Zuraida, Houqe, & Van Zijl, 2016).

Table 2 shows E.S.G. statistics for Indian listed companies. The second and the fourth columns in Table 2 show that E.S.G. and Social scores increased from 21.836 to 22.358 and from 13.819 to 21.676, respectively from 2010 to 2015. However, Environ and Gov scores decreased from 14.691 to 12.542 and from 46.328 to 46.019, respectively, from 2010 to 2015. Overall, for Indian firms, E.S.G. increases, but responsibility on environment and governance decreases. Namely, increase of C.S.R. in Indian firms seems to be mainly caused by a rapid increase of their social responsibility. More specifically, in 2013, E.S.G. increased sharply, but in 2015, E.S.G. decreased rapidly. These results suggest that government's attempts to enhance CSR are not effective.

Table 1. Descriptive statistics.

Variables	Obs.	Mean	Median	Std. Dev.	Max.	Min.
Tobin'Q	1261	0.739	0.482	0.677	2.983	0.020
ROA	1261	0.047	0.040	0.071	1.139	−0.710
ESG	1261	19.126	17.355	8.203	50.000	11.157
Environ	1031	12.858	10.853	8.982	51.938	1.550
Social	967	15.588	12.281	12.718	73.438	3.125
Gov	1261	46.038	44.643	5.669	71.429	10.714
Leverage	1261	0.200	0.168	0.165	0.985	0.000
Salegr	1250	0.234	0.136	1.489	49.897	−1.000
R&D	1261	0.003	0.000	0.009	0.116	0.000

Table 2. Change of ESG.

Year	ESG	Environ	Social	Gov
2010	21.836	14.691	13.819	46.328
2011	22.462	15.217	15.250	46.635
2012	22.848	15.176	16.871	47.183
2013	24.349	16.487	20.312	47.503
2014	24.730	16.692	21.666	47.188
2015	22.358	12.542	21.676	46.019

Table 3. Correlation analysis.

	Tobin's Q	ROA	ESG	Environ	Social	Gov	Lev	Salesgr	R&D
Tobin's Q	1								
ROA	0.367***	1							
ESG	0.117***	0.152***	1						
Environ	0.079***	0.161***	0.959***	1					
Social	0.142***	0.093***	0.884***	0.762***	1				
Gov	0.138***	0.180***	0.803***	0.726***	0.640***	1			
Leverage	−0.214***	−0.657***	−0.039	−0.053	−0.022	−0.001	1		
Salegr	−0.021	0.007	0.015	0.027	0.006	−0.016	−0.005	1	
R&D	0.152***	0.099***	0.065**	0.053	0.071**	0.061**	−0.133***	−0.015	1

Notes: Significant at: $**p < 0.05$, $***p < 0.01$.

Table 3 reports *Pearson* correlation coefficients for dependent and independent variables. Most of the control variables are significantly correlated with *Tobin's Q* or *ROA* at 1% significant level. In particular, *Tobin's Q* and *ESG* show a significantly positive correlation (0.117). And *Tobin's Q* shows a significantly positive correlation (0.079, 0.142, 0.138) with *Environ, Social, and Gov,* respectively. *Tobin's Q* and *Leverage* show a significantly negative correlation (-0.214), which means firm value decreases when it increases financial leverage. *R&D* shows a significantly positive correlation (0.152) with *Tobin's Q* while *Salegr* shows an insignificantly negative correlation (-0.021) with *Tobin's Q. ROA* and *Tobin's Q* show a significantly positive correlation (0.367). *ROA* and *ESG* show a significantly a positive correlation (0.152). In addition, the correlation matrix shows that there are no high correlations between independent variables, indicating the absence of a multicollinearity problem.

5.2. Preliminary test

5.2.1. Comparison between high C.S.R. firms and low C.S.R. firms
This section examines whether the means of variables differ significantly between high C.S.R. and low C.S.R. firms. A parametric *t*-test is used for the comparison of the means. High C.S.R. and low C.S.R. firms are classified by the average of *ESG*. In Table 4, the average *Tobin's Q* for high C.S.R. firms is 1.749, significantly higher than 1.100 for low C.S.R. firms. In addition, the average *ROA* for high C.S.R. firms is 0.082, significantly higher than 0.048 for low C.S.R. firms. It indicates that high C.S.R. firms have higher performance and value. Furthermore, high C.S.R. firms have insignificantly higher *Salegr* and *R&D* (0.006) compared to low C.S.R. firms.

5.2.2. Comparison between group-affiliated firms and stand-alone firms
In this section, we investigate whether the means of variables differ between group-affiliated and stand-alone firms through a parametric *t*-test. In Table 5, we divide the

Table 4. Comparison between high CSR firms and low CSR firms.

	High CSR firms		Low CSR firms			
Variables	obs	mean (a)	obs	mean (b)	Difference (a-b)	p-value
Tobins'Q	322	1.749	868	1.100	0.649	0.000
ROA	322	0.082	868	0.048	0.034	0.000
ESG	322	38.128	869	17.607	20.520	0.000
Environ	322	30.904	869	9.328	21.576	0.000
Social	322	38.196	869	11.142	27.054	0.000
Gov	322	54.480	869	43.989	10.492	0.000
Leverage	322	0.176	868	0.186	−0.010	0.442
Salegr	322	0.251	857	0.169	0.082	0.182
R&D	322	0.006	868	0.004	0.002	0.112

Notes: Significant at: $*p < 0.1$ (t > 1.64), $**p < 0.05$ (t >. 1.96), $***p < 0.01$ (t>. 3.29).

Table 5. Comparison between Group-affiliated firms and Stand-alone firms.

	Group-affiliated firms		Stand-alone firms			
Variables	N	Mean(a)	N	Mean(b)	Difference (a-b)	p-value
ESG	390	25.687	795	21.926	3.761***	0.000
Environ	390	17.768	795	13.898	3.870***	0.000
Social	390	21.682	795	16.803	4.879***	0.000
Gov	390	48.494	795	46.105	2.388***	0.000
Tobins'Q	390	1.072	794	1.384	−0.312***	0.006
ROA	390	0.058	794	0.058	0.000	0.996
Leverage	390	0.204	794	0.174	0.030**	0.016
Salegr	390	0.163	789	0.206	−0.043	0.456
R&D	390	0.004	794	0.005	−0.002	0.112

Notes: Significant at: $*p < 0.1$ (t > 1.64), $**p < 0.05$ (t >. 1.96), $***p < 0.01$ (t>. 3.29).

sample into two groups, namely, group-affiliated and stand-alone firms. The average *ESG* disclosure scores for group-affiliated firms is 25.687, significantly higher than 21.926 for stand-alone firms. In addition, this study examines sub-component (*Environ, Social and Gov*) of ESG. The average disclosure scores of *Environ, Social and Gov* for group-affiliated firms are 17.768, 21.682 and 48.494, significantly higher than 13.898, 16.803 and 46.105 for stand-alone firms, respectively. More specifically, disclosure score of *Social* shows the highest difference among sub-component, suggesting that group-affiliated firms hold higher financial resources than those of stand-alone firms. These are similar to the results of group firms and non-group firms in Korea (Choi et al.,2018), being different from the results of group firms and non-group firms in China (Guo et al., 2018). Interestingly, the average *Tobin's Q* for group-affiliated firms is 1.072, significantly lower than 1.384 for stand-alone firms, indicating that group-affiliated firms have lower growth opportunity than that of stand-alone firms.

5.2.3. Panel unit root test
Before a panel regression analysis, we perform a panel unit root test to identify whether all variables in the model are stationary. If one of the variables used in the estimation is nonstationary, not only the result of estimation has a spurious regression problem, but also the estimated parameters might be biased. In order to avoid the spurious regression problem, all the variables need to be stationary in the estimation. The null hypothesis of non-stationary versus stationary in each variable is tested

Table 6. Panel unit-root test.

Variables	LLC		IPS	
	t-statistic	p-value	t-statistic	p-value
Tobin'Q	−54.703***	0.000	−12.339***	0.000
ROA	−33.034***	0.000	−7.259***	0.000
ESG	−79.952***	0.000	−9.262***	0.000
Environ	−39.940***	0.000	−4.230***	0.000
Social	−10.851***	0.000	−4.122***	0.000
Gov	−7.914***	0.000	−4.826***	0.000
Leverage	−121.705***	0.000	−38.677***	0.000
Salegr	−260.326***	0.000	−32.672***	0.000
R&D	−75.230***	0.000	−13.693***	0.000

Notes: ***, ** and * indicate significance at the 1, 5 and 10% level, respectively.

Table 7. Hausman Specification Test.

Test Summary	Chi-square statistics	Chi-square statistics degrees of freedom	p-value
Cross-section random	82.102772	7	0.000

using the group mean panel unit root test (Cheng, Liu, & Chien, 2010). We employ two different panel-based unit root tests, the Levin-Lin-Chu ADF (L.L.C.) (Levin, Lin, & Chu, 2002) and the Im-Pesaran-Shin PS ADF (I.P.S.) (Im, Pesaran, & Shin, 2003), to investigate the null hypotheses of unit roots of all the variables chosen in the models. Table 6 shows the results of panel unit root tests. The nulls of unit roots are all rejected, which indicates that all the variables are stationary. Thus, we perform a panel regress analysis.

5.2.4. Hausman specification test

Hausman specification test is used to determine which one of the alternative panel analysis methods such as fixed effects model and random effects model is more adequate in the panel regression model. Concerning this, H0 hypothesis suggests that "random effects exist" and H1 hypothesis suggests that 'random effects do not exist'. Table 7 shows that H0 hypothesis is rejected for the model, at the significance level of 1%, thus all of the individual effects in the models are not random, but fixed. In other words, fixed effects model is more effective than random effects model. Consequently, the panel data regression is analysed by the fixed effects model in this study.

5.3. CSR and firm performance

This section examines how CSR affects firm performance through a panel regression model and G.M.M. estimation. Columns (1) and (3) of Table 8 show the fixed effects panel regression results for the effects of ESG and ESG^2 on firm performance. Column (1) indicates the relationship between CSR and $Tobin'Q$ is U-shaped, supporting Hypothesis 1. In particular, the coefficients of ESG and ESG^2 show -0.023 (t=-2.159) and +0.0003 (t = 1.698), respectively. When ROA is used as the variable for firm performance, column (3) does not show the U-shaped relationship with no statistical significance. The coefficients of ESG and ESG^2 are -0.00002 (t=-0.008) and -0.00001(t=-0.027), respectively. Columns (2) and (4) of Table 8 show the G.M.M.

Table 8. CSR and financial performance.

	Tobin's Q		ROA	
	FEM (1)	GMM (2)	FEM (3)	GMM (4)
Constant	2.864***	0.744***	0.291***	0.232***
	(6.447)	(5.061)	(3.711)	(3.354)
ESG	−0.023**	−0.029***	−0.00002	−0.0006
	(−2.159)	(−3.296)	(−0.008)	(−0.353)
ESG^2	0.0003*	0.001***	−0.00001	0.00001
	(1.698)	(3.694)	(-0.027)	(0.331)
Leverage	−0.330***	−1.047***	−0.169***	−0.081***
	(−2.671)	(−9.824)	(−7.762)	(−3.888)
Salegr	0.010	0.017*	−0.00001	−0.00001
	(1.501)	(1.651)	(-0.418)	(-0.206)
R&D	−0.354	11.340***	−0.181	−0.112
	(-0.187)	(6.740)	(-0.537)	(-0.393)
Lnasset	−0.177***	0.012	−0.019***	−0.014**
	(−4.370)	(1.209)	(−2.591)	(−2.157)
Profitability	2.215***	4.547***		
	(8.354)	(15.327)		
Policy dummy	−0.026	−0.103***	−0.015***	−0.020***
	(−1.096)	(−3.259)	(−3.568)	(−5.704)
Fixed effects	Yes	No	Yes	No
Total obs.	1,277	1,241	1,277	1,241
Adjusted R^2	0.804	0.365	0.427	0.522
F-statistics	19.033***		4.287***	
J-statistics		1232***		957***

Notes: Significant at: $*p < 0.1$ (t > 1.64), $**p < 0.05$ (t >. 1.96), $***p < 0.01$ (t>. 3.29).

estimation results for the effects of *ESG* and *ESG^2* on firm performance. They also indicate the relationship between C.S.R. and firm performance is U-shaped. The coefficients of *ESG* and *ESG^2* on *Tobin's Q* in column (2) are -0.029 (t=-3.296) and +0.001 (t = 3.694), respectively, both being significant at 1% level. However, the coefficients of *ESG* and *ESG^2* on *ROA* in column (4) are -0.0006 (t=-0.353) and 0.00001 (t = 0.331), respectively, both being insignificant.

Therefore, we conclude that C.S.R. has a U-shaped relation with *Tobin's Q* in Indian firms, supporting Hypothesis 1. However, C.S.R. is not related to such accounting measure as *ROA*. Furthermore, for the average level of E.S.G. at 19.126 (from Table 1), the total effect of *ESG* on *Tobin's Q* is $-0.023 \times 19.126 + 0.0003 \times (19.126)^2 = -0.330$. Even for the maximum level of E.S.G. at 50 (from Table 1), the total effect is also negative, indicating that the overall effect of *ESG* on *Tobin's Q* is negative. Thus, we conclude that although Hypothesis 1 is supported, the overall effect of C.S.R. on firm performance is still negative even at high level of C.S.R.

In addition, *Leverage* has a significantly negative impact on *Tobin's Q and ROA*, suggesting that financial risk has a negative effect on firm performance. *Policydummy* has a significantly negative impact on *Tobin's Q and ROA* in G.M.M. estimation. All models are statistically significant and the adjusted R-squared is typically in the range 0.365–0.804.

5.4. Group effect on the relationship between C.S.R. and financial performance

In this section, we investigate the relationship between C.S.R. and firm performance of business group affiliated firms compared to that of stand-alone firms. Table 9

Table 9. Group effect on relationship between CSR and financial performance.

	Tobin's Q		ROA	
	FEM (1)	GMM (2)	FEM (3)	GMM (4)
Constant	1.001***	0.738***	0.102***	0.125***
	(6.729)	(4.819)	(6.179)	(8.238)
ESG	−0.030***	−0.035***	0.002*	0.002
	−(3.304)	−(3.835)	(1.787)	(1.579)
ESG^2	0.001***	0.001***	−0.00002	−0.00001
	(3.926)	(4.365)	−(1.005)	−(0.796)
ESG × Group dummy	0.006	0.009**	−0.00022	−0.0004
	(1.459)	(2.264)	−(0.392)	−(0.831)
ESG^2 × Group dummy	0.0001	−0.0003**	0.000004	0.00001
	−(1.532)	(−2.397)	(0.227)	(0.602)
Leverage	−1.037***	−1.107***	−0.132*	−0.124***
	−(9.781)	(−10.100)	−(11.050)	−(11.031)
Salegr	0.017	0.015	0.000	0.001
	(1.620)	(1.471)	(0.300)	(0.577)
R&D	11.596***	0.018	0.506**	0.446**
	(6.673)	(1.694)	(2.522)	(2.461)
Lnasset	−0.005	10.904*	−0.004***	−0.006***
	−(0.537)	(6.405)	−(4.005)	−(5.762)
Profitability	3.724***	4.414***		
	(12.970)	(14.740)		
Policy dummy	−0.133***	−0.108***	−0.020***	−0.023***
	−(4.163)	−(3.360)	−(5.521)	−(6.782)
Fixed effects	No	No	No	No
Total obs.	1,277	1,209	1,277	1,241
Adjusted R^2	0.328	0.361	0.166	0.204
F-statistics	63.333***		29.313***	
J-statistics		1,198***		1231***

Notes: Significant at: *$p < 0.1$ (t > 1.64), **$p < 0.05$ (t >. 1.96), ***$p < 0.01$ (t >. 3.29).

reports the results of a panel regression model and G.M.M. estimation with respect to the joint effect between C.S.R. and business group on firm performance. In columns (1) and (2) of Table 9, C.S.R. and C.S.R. squared show significantly negative and positive relationships with Tobin's Q, respectively, confirming our previous results in Table 8. Furthermore, we use an interaction term (E.S.G. × Group dummy) to examine the role of business group on the relationship between C.S.R. and firm performance. Column (1) of Table 9 shows an insignificantly positive effect on the relationship between E.S.G. × Group dummy and Tobin's Q, which is inconsistent with hypothesis 2. However, consistent with hypothesis 2, Column (2) of Table 9 shows the interaction terms with business group (E.S.G. × Group dummy and E.S.G.^{2} × Group dummy) have significantly positive and negative coefficients, respectively. On the other hand, in columns (3) and (4) of Table 9, all the coefficients of C.S.R., C.S.R. squared and the interaction terms between business group and C.S.R. are statistically insignificant, except C.S.R. coefficient of column (3) that is significant at 10% level.

6. Conclusion

Prior empirical studies have examined the relationship between C.S.R. and firm performance, but the evidence presented is mixed. This paper explores the relationship between C.S.R. and financial performance in Indian firms listed on the N.S.E. and

B.S.E. from 2010 to 2015. This article examines whether improved C.S.R. actions result in higher firm performance in India.

The main findings of the article are as follows. First, when controlling for firm specific characteristics, it has a U-shaped relationship (negative and positive) between C.S.R. and Tobin's Q, supporting Hypothesis 1. However, the relationship between C.S.R. and R.O.A. is not significant. The results indicate that the effect of C.S.R. is related to long-term oriented firm value while it is not related to short-term oriented accounting performance. Further, this result implies that market measures such as Tobin's Q prove to be better predictors of C.S.R. performance than accounting-based measures such as R.O.A., which is different from the empirical results documented by McGuire et al. (1988). Unique characteristic of Indian firms on C.S.R. may cause the difference. C.S.R. in India has its origins in merchant and religious groups that were beneficial to the local community, focusing on community development (Jose, Bandi, & Mehra, 2003). Moreover, C.S.R. of Indian firms has roots in history as well as philanthropy. For example, prior to Independence in 1947, Indian firms made significant contributions to schools, hospitals, and towards rural development (Mohan, 2001). After Independence, large public firms undertook C.S.R. activities. As indicated by Sharma (2011), Indian firms consider C.S.R. as a charitable cause and an ethical commitment. Kansal, Joshi, & Batra (2014) suggest that corporate reputation has been observed to be a significant factor that influences the social disclosures made by Indian firms. In this context, C.S.R. performance of Indian firms may be a long-term investment for growth and development.

Second, we find that at lower level, the negative relationship between C.S.R. and financial performance weakens in group affiliate firms than in stand-alone firms, while at higher level, the positive relationship weakens in group affiliate firms than in stand-alone firms, consistent with Hypothesis 2. This shows implies that C.S.R. engagement in business group mitigates a negative effect of C.S.R. on financial performance at low level of C.S.R. scores. The empirical results suggest give deeper insights for capital market to grasp the different impact of business groups on C.S.R. performance.

This paper contributes to the literature on C.S.R. as well as on corporate finance. Specifically, the study contributes to C.S.R. literature in that the relationship between C.S.R. and financial performance is examined empirically through E.S.G. scores in India.

Note

1. The new C.S.R. law states that it is mandatory for firms to spend 2% of their average net profits of the last three financial years on specified C.S.R. activities provided they fulfill at least one of the following financial strength criteria during any financial year: net worth > INR 5 billion (i.e., around US$80 million), or turnover > INR 10 billion (i.e., around US$160 million), or net profits > INR 50 million (i.e., around US$800,000).

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