Impact of corporate social responsibility on financial performance of energy firms in India

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Abstract: Corporate social responsibility (CSR) is the obligation of firms towards society in which they exist. The research studies the relationship between the expenditure made on social responsibility activities and the profitability of the energy firms, which are highly polluting in nature. The study also examines the mediating effect of disclosure of CSR activities on the relationship between the two. The study is based on secondary data collected from the annual reports of 38 energy firms listed on Bombay Stock Exchange for the time period from 2010–2011 to 2016–2017. The mediating effect is tested using Preacher and Hayes (2004) approach through process macro of SPSS. The study found a positive and significant relationship between expenditure made on social responsibility activities and financial performance of the firms. The research also demonstrate that the disclosure of CSR activities partially mediate the relationship.

Keywords: corporate social responsibility; CSR; CSR expenditure; mediation; CSR disclosure; energy firms; India.

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1 Introduction

The fact that businesses do not exist in vacuum; and that they must respond to the broader society, within which they operate, has enhanced the relevance of corporate social responsibility (CSR) across nations. CSR refers to a set of activities undertaken by an organisation for the welfare of society; such activities lie outside the periphery of law and a firm's own interest (McWilliams and Siegel, 2001). Various international organisations; and governments have been reasserting the adoption of CSR as a part of normal activities of any business. World Business Council for Sustainable Development (2004) posits that CSR is an obligation of organisations towards the long-term development of an economy, by taking into consideration welfare of the society including employees, their families and local community (c.f. Kercher, 2007). Scherer and Palazzo (2011) after review of several studies posit that in the era of globalisation, corporations must also undertake the responsibility of welfare of the society. An organisation must take into consideration the interest of all the stakeholders while taking decisions (Abaeian et al., 2014).

However, it is noteworthy that primary objective of any business is to take care of the interest of its investors and other stakeholders (Weyzig, 2009; Becchetti et al., 2012; Iqbal et al., 2012), because of which, firms are willing to assess the impact of CSR activities on their balance sheet as well. Past studies (e.g., Vance, 1975; Kedia and Kuntz, 1981; Ullmann, 1985; Shen and Chang, 2009; Erhemjamts et al., 2013; Sun and Yu, 2015) conducted to assess the impact of CSR on financial performance of firms, have reported inconclusive results. These mixed results are explained on different basis by different scholars (Park, 2017). Agyemang and Ansong (2017, p.48) asserted that the variations in results "could be due to neglect of mediating roles of some relevant issues." So, in order to address the issue researches have been conducted recently to study the mediating effect of reputation (Agyemang and Ansong, 2017; Park, 2017), intellectual capital (Jain et al., 2017), earnings management (Mahrani and Soewarno, 2018). In these studies the measures of CSR used are perceptual measures based on questionnaire survey or reputational index which are subjective in nature.

Studies have also shown that firms must disclose their CSR-related activities because any significant impact of CSR on profitability of firms is not seen unless social welfare activities are well communicated (Crisostomo et al., 2011). Firms disclose CSR activities to exhibit their social concern and impress different stakeholders (Mahoney et al., 2013). As per social resilience theory (Zahller et al., 2015), firms that voluntarily disclose their CSR performance are perceived to be trustworthy and credible and are therefore not affected by external incidents beyond the control of any firm that are alarming for the industry. Thus, disclosure of CSR activities creates an image of responsible corporate citizen of the firm and may enhance their reputation. Thus, use of CSR disclosure further reduces ambiguity and provides clearer picture in an emerging economy like India where CSR is in developing stage. Further, CSR disclosure as a measure of CSR activities is also supported by Abbott and Monsen (1979).

In this backdrop, we propose to investigate the relationship between firms' performance and their CSR activities from a new perspective, i.e., cost-benefit approach. The corporate social responsibility expenditure (CSRE) by a firm is taken as a cost to the firm and its returns are assessed on basis of financial performance of the firm. Further, it is perceived that in modern times, information is a critical resource so CSR activities by firms as disclosed in their annual reports is used as a mediating variable between the impact of expenditure made on CSR activities and financial performance of firms.

Our study rests on the research premise that CSRE, CSR disclosure and firm performance are linked synergistically. In order to examine our research premise, we have taken the energy sector in India for a period of seven years from 2011 to 2017. In India CSR activities have emerged recently after the Ministry of Corporate Affairs, Government of India issued a voluntary CSR framework in 2009 for all public sector enterprises. Later the Companies Act, 2013 mandated that all firms which have earned net profits equal to or more than INR 50 million or a minimum turnover of INR 100 million during any financial year, must spend at least 2% of their average net profit of three preceding financial years on activities related to social responsibility. Further, Securities and Exchange Board of India (SEBI, 2012) announced that firms listed on all stock exchanges in India must disclose their CSR activities and expenditure made on such activities. India is an emerging economy and the whole world is looking at it with great curiosity and expectations. Hence a study on India is worthwhile especially in the context of an emerging issue of CSR.

The choice of energy sector is based on various reasons; firstly, energy firms are major spenders on CSR in India as they contribute 39% of total expenditure on CSR in the country (KPMG, 2015). Furthermore, operations of conventional energy firms have a major impact on the environment, for which, it is important that they disclose their CSR activities (Cormier and Magnan, 1999). Lamond et al. (2010) have explored that the effect of CSR on image building varies with the type of industry, i.e., product oriented or service oriented. Hence, focusing on a largely polluting industry may enrich the existing literature.

The paper is primarily analytical based on secondary data appropriated with the help of statistical tools. The next section presents review of existing literature to identify the research variables for our research proposal and build on the hypotheses to be tested. This is followed by analysis of data and discussion on results. Conclusions and implications of the research are presented at the end.

2 Literature review

Theoretical grounding is important for a sound research; hence extant literature has been scanned and reviewed to find support for chosen research variables. The literature review is organised under three sections, to review the past researcher for assessing role of CSR on the dependent variable (financial performance), the independent variable (CSRE) and the mediating variable (CSR disclosure).

2.1 CSR and financial performance

In order of importance CSR pyramid comprises economic, legal, ethical and discretionary responsibilities of firms (Carroll, 1979). Economic responsibilities concerned with the profit objective of the firm, form the base of the pyramid. Therefore, several studies (e.g., Cochran and Wood, 1984; Shen and Chang, 2009) have been conducted to determine the association between CSR and profitability of the firm. However, no consensus could be found in the results; the variation is to the extent that some found no impact, some other found positive impact and others found negative impact also. To briefly look at the previous findings, few prominent studies have been summarised.

2.1.1 No definite relation

A study by Van de Velde et al. (2005, p.137) posited that "sustainable investments performed slightly better than traditional investments but not significantly higher to outperform." Further a research by Fiori et al. (2007) on Italian firms explored that the social welfare activities of the firms do not impact the share prices as shareholders are more driven by the short-term gains whereas CSR yields benefits in the long run. Based on theory of the firm perspective, McWilliams and Siegel (2001) assert that inclusion of CSR attributes in the organisation though add cost to the firm but does not impact profitability. Cegarra-Navarro and Martínez-Martínez (2009) also provide evidence to the theory and investigated that CSR activities do not have any influence on financial performance of the firm as accomplishment of these activities involves initial setup cost which forgoes its benefits. Thus, it was explored that CSR has insignificant influence on profitability of the firm because CSR activities leads to additional expenditure and short-term gains are not visible.

2.1.2 Negative relation

Also, there are studies which even depict negative relationship between the two constructs. Brammer et al. (2006) found that environmental concern of firms enhanced expenditure which had deteriorating effect on stockholder value. Makni et al. (2009) also asserted negative impact of CSR on shareholder value due to increased cost. Further, Nguyen and Nguyen (2015) explored that investment on CSR activities is perceived as money squandering by managers which makes managers suspicious of the firm and hence reduce market value of the firm. Thus, negative impact of CSR on profitability is also driven by enhanced cost of CSR activities.

2.1.3 Positive relation

However, majority of studies (e.g., Griffin and Mahon, 1997; Margolis and Walsh, 2003; Galbreath, 2006) are centred on the positive relationship between CSR activities and financial performance of firms. CSR is considered as an opportunity for firms to increase their profitability (Drucker, 1984). Any firm's concern towards CSR leads to generation of intangible resources such as innovation, human capital, reputation and culture, all of which boost financial performance (Surroca et al., 2010). Other researchers (e.g., Lamond et al., 2010; Khojastehpour and Johns, 2014; Abaeian et al., 2019) also corroborate the study and assert that CSR activities positively impact the image of the company leading to enhanced profitability. Chen and Wang (2011) posit that CSR activities improve financial performance of a firm in the same year as well as in the next year due to augmented support from internal stakeholders such as employees. CSR activities that address various stakeholders can help firms overcome confrontations from non-shareholder groups, by presenting social legitimacy (Ruf et al., 2001) and preventing litigations and providing other 'bottom-line benefits' [Tsoutsoura, (2004), p.18]. Also, engagement of firms in CSR activities benefit firms in terms of increased productivity, higher sales volume, reduced operating costs, enhanced brand image, greater customer loyalty, greater access to capital and better financial performance (Rettab et al., 2009; Said et al., 2009). Investment on CSR activities has been found to have long-term impact on the organisation (Sheikh, 2020) and proactive engagement of firms in social responsibility activities can yield strategic advantages to the firm (Enquist et al., 2008). Gupta (2012) asserted that for firms to attain sustainability, CSR must be ingrained in their operations.

Hence, based on extant literature review it can be proposed that:

> "CSR activities positively influence financial performance of a firm."

2.2 CSRE as a predictor

In the present study, expenditure on CSR has been taken as a measure of CSR activities, especially due to the fact that we have proposed to use the cost-benefit analysis of the CSR activities and it is an objective measure which may answer the concern of prior studies (Abbott and Monsen, 1979). The theoretical support for using CSRE as a predictor of financial performance of the firm exists. Saleh et al. (2011) asserts that companies that invest more on CSR activities improve their profitability due to enhanced customer loyalty. Ogola and Dreer (2012) posited that in order to realise the strategic benefits, firms are increasing their expenditure on CSR activities. Lys et al. (2015, p.70) assert that the positive influence of CSRE on performance "is more likely due to the signaling value of CSR expenditures" as such expenditure is made by firms in anticipation of better future prospects.

Reliable data on CSRE are readily available in the annual reports of the firms firstly because of mandate of Government of India, secondly because the firms have realised the importance of disclosure. CSRE reflects the amount of financial resources spent on CSR activities (Crisostomo et al., 2011; Bolanle et al., 2012; Kaufmann and Olaru, 2012). Hence, it would be worthwhile to assess the relation between financial commitment of firms towards CSR and its impact on their financial performance. Since it is possible to objectively measure the financial performance of the firm therefore it is found logical to use a quantifiable measure of CSR activities.

In order to draw boundary of the proposed model, it is assumed that there is no lag between expenditure and financial performance. This assumption is based on the accounting method of calculating net income in the same accounting year in which various direct and indirect expenses have occurred. Further it is assumed for the model building that other predictors of firm's performance remaining unchanged. Hence the hypothesis is:

H1 CSRE is a predictor of the financial performance of the firm.

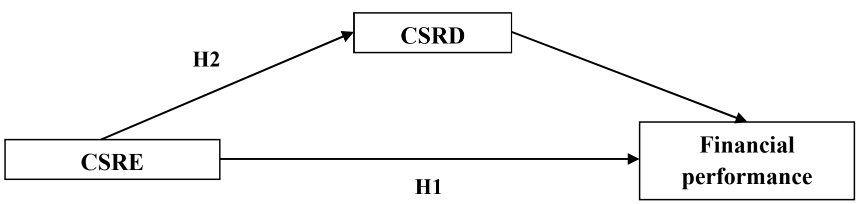
2.3 Mediating effect of CSR disclosure

Though the relationship between CSR and financial performance of the firms has been well researched but inconclusive results are obtained. The meta-analysis (e.g., Orlitzky et al., 2003; Margolis and Walsh, 2003; Griffin and Mahon, 1997) of these studies observed some flaws in the relationship. "They identify sampling problems, concerns about the reliability and validity of the CSP and CFP measures, omission of controls, opportunities to test mediating mechanisms and moderating conditions, and a need for a causal theory to link CSP and CFP" [Margolis and Walsh, (2003), p.278]. The type of measure used for financial performance, i.e., accounting-based or market-based may also have an effect on the association between CSR and financial performance (Peloza and Shang, 2011; Margolis et al., 2009; Orlitzky et al., 2003). Sial et al. (2018) asserted that firms sometimes use symbolic CSR to cover up their earnings manipulation. So as the literature (Orlitzky et al., 2003) supports that transparency in the form of disclosure of CSR activities of firms to its stakeholders is an important factor that can affect the relationship between CSR and firm performance. Therefore, the paper attempts to study the mediating effect of disclosure on the link between CSRE and financial performance of the firm.

Habek and Wolniak (2015, p.560) define CSR disclosure as "the provision of useful information for external and internal stakeholders on the economic, environmental and social results achieved by an organization." Social reporting by firms as per resource-based view provide intangible benefits to the firms with respect to brand, goodwill, etc. (Sharma et al., 2019). Ahamed et al. (2014) are of the opinion that firms' concern for society is reflected through disclosing their CSR activities in annual reports and generate benefits leading to sustainable growth of firms (Trang and Yekini, 2014).

Blacconiere and Northcut (1997) found that firms which provide extensive environmental information are positively perceived by investors to be abiding by rules and regulations and are less prone to regulatory cost. Further, Giannarakis et al. (2014) have also found that the firms in highly polluting industry disclose their CSR activities to build an image of a responsible corporate citizen and minimise regulatory cost. Dutot et al. (2016) found that a well-designed CSR communication strategy of a firm can significantly influence the reputation of the firm.

Figure 1 Model of impact of CSR on firm's financial performance



Crisostomo et al. (2011) established that the benefits from the cost of CSR activities can be realised in an environment where masses are generally aware of the importance of CSR. Baraibar-Diez and Sotorrío (2018, p.6) assert that "Companies spend more and more resources on social issues and to be effective; CSR information must be conveyed to stakeholders." Thus, based on extant review of literature it can be hypothesised that:

H2 Disclosure of CSR activities mediates the relationship between CSRE and financial performance of the firm.

The hypothesised framework for the study is presented in Figure 1.

4 Research design

The research premise is that expenditure on CSR activities by a firm will have a positive impact on its financial performance when the CSR activities are properly disclosed to the stakeholders. The objective of the study is to, firstly determine the influence of CSRE on measures of financial performance of the firm and secondly, examine the mediating effect of disclosure of CSR activities on the association between CSRE and financial performance measures of the firm.

4.1 Sample for study and source of data

The proposed research model is tested and validated on data related to energy sector in India. Energy firms are generally categorised as the polluting firms creating negative effects on the society. Hence, their involvement in CSR activities is high. These firms are the highest spenders on CSR in India (KPMG, 2015).

For collection of relevant data the sample of firms is drawn from top 500 firms listed on Bombay Stock Exchange (BSE) as per market capitalisation (MCAP). Database from BSE is selected as it is one of the oldest stock exchanges and has largest number of firms listed on it (Perwej and Perwej, 2012). Out of these top 500 listed firms, 38 firms from energy sector are chosen.

The 38 energy sector firms included in the study comprises public as well as private sector firms which are part of power and energy industry. These firms are in varying business segments related to energy such as oil and gas exploration, power generation and transmission, coal mining, refinery, etc. Among the firms taken for study, Aban offshore, Oil India Limited (OIL), Oil and Natural Gas Commission (ONGC), Gas Authority of India Limited (GAIL), Petronet LNG Limited, Indraprastha Gas Limited (IGL), Gujarat State Petronet Limited (GSPL), Cairn Energy are engaged in oil and gas exploration. Coal India Limited and Neyvelli Lignite (NLC India Limited) are coal mining firms. Adani Power, National Thermal Power Corporation (NTPC), JSW Energy is involved in generation of thermal power while JP Power, National Hydroelectric Power Corporation (NHPC), Tata Power, SJVN generate hydroelectric power. Bharat Petroleum Corporation Limited (BPCL), Chennai Petroleum Corporation Limited, Indian Oil Corporation Limited (IOCL), Hindustan Petroleum Corporation Limited (HPCL) are oil refining, distribution and marketing conglomerate. KSK Energy, Lanco Infratech Limited (LITL), Reliance Power, Alstom T&D are power project development companies. NB Ventures, Power Grid Corporation Limited, CESC, BF Utilities, Rattan Power are power generating and transmission companies. GMR Infrastructure is involved in generation of power, mining and exploration activities.

The time period for the study chosen is seven years from 2010–2011 to 2016–2017. The categorised data for all the firms is available only from 2010 onwards; one reason could be that prior to 2009, it was not mandatory for firms in India to disclose the CSR efforts. To ensure authenticity, the research data is drawn from annual reports of the selected energy firms including other sources of financial database, Centre for Monitoring Indian Economy (CMIE) Prowess database. CMIE Prowess database is a database of financial information of all the companies that are listed on National Stock Exchange (NSE) and BSE of India.

4.2 Research variables

In the present study expenditure made on CSR activities by firms has been used as an independent variable that predicts the profitability of the firm. Previous studies (Crisostomo et al., 2011; Bolanle et al., 2012; Kaufmann and Olaru, 2012) have also admitted the use of CSRE as a measure of CSR activities carried out by firms. Also, it is an objective measure to conduct the cost benefit analysis of CSR activities of the firm. The data related to CSRE is obtained from the annual reports of the firms selected for study.

The dependent variable of the research, i.e., financial performance of the firm is measured using a set of three profitability indicators, profit before tax (PBT), profit after tax (PAT), and MCAP. The combination of accounting performance and market performance measures provides a comprehensive picture of the financial health of the firm. The main reason for choosing accounting measures of financial performance is that the independent variable is also an accounting measure. Secondly, PAT and PBT are commonly accepted as measures of profit and therefore, can be reasonably used to evaluate the financial performance of the firm. In addition MCAP is used to denote market sentiments on the performance of the firm. Therefore the eclectic blend of dependent variables may be considered justified in the present study, given the research scope. The data related to these financial measures are obtained using CMIE Prowess database.

The mediating variable of the study is CSR disclosure that provides the extent to which CSR activities carried out by firms are disclosed in the annual reports of the firm. CSR disclosure is obtained through content analysis of annual reports using qualitative statistical research (QSR) Nvivo 11 tool. It is obtained using word count of six dimensions of CSR that are identified from Schedule VII of Companies Act 2013. These dimensions include; education, healthcare, environment, water supply including drinking water, social empowerment and promotion of sports and culture.

4.3 Methodology

Based on research variables used for the present study, following research hypotheses are framed with reference to the present model:

H1a CSRE positively impact PBT of the firm.

H1b CSRE positively impacts PAT of the firm.

H1c CSRE positively impacts MCAP of the firm.

H2a CSRD mediates the relationship between CSRE and PBT of the firm.

H2b CSRD mediates the relationship between CSRE and PAT of the firm.

H2c CSRD mediates the relationship between CSRE and MCAP of the firm.

Mathematically, it can be represented as:

$$Y = a + bX$$

where

Y is the dependent variable, i.e., financial performance of the firm

X is the independent variable, i.e., CSRE.

The hypotheses are tested on basis of the data collected from 38 firms of the energy sector in India for a period of seven years.

The vastness of the data and the nature of the variables, demand that a combination of tools is used for data appropriation and model validation. The methodology adopted includes correlation and regression analysis and content analysis. CSR disclosure is obtained through content analysis of annual reports of the firms using QSR Nvivo 11 tool. CSR disclosure is obtained by word count of six dimensions of CSR as mentioned in the Schedule VII of Companies Act 2013 from respective annual reports. To assess the impact of independent variable on dependent variables, correlation and regression analysis is carried out.

Further, to test the mediating effect of CSR disclosure on the relationship between CSRE and financial performance Preacher and Hayes (2004) approach is used. The mediation process tests the indirect effect between dependent and independent variables using process macro through SPSS. The macro utilises the steps 'recommended by Baron and Kenny (1986) as well as the indirect effect with boot strapping and Sobel test' [Ghosh et al., (2016), p.10]. The conditions of Baron and Kenny (1986) are:

- the relationship between dependent variable and independent variable must be significant (c path; total effect)
- the predictor variable must be related significantly to mediator (a path)
- also mediator and outcome variables must be significantly related (b path)
- when the impact of mediating variable is controlled the relationship between predictor and outcome variables is either reduced (partial mediation) or does not remain significant (full mediation) (c' path).

In the subsequent section, data are analysed and findings are presented while elaborating the methodology for each of the tests as and when required.

5 Analysis and findings

Before proceeding for regression analysis the correlation among the variables is observed. The results for correlation analysis are displayed in Table 1 which indicates that CSRE and CSRD are significantly correlated. Also these two measures are significantly related to financial performance measures, PBT, PAT and MCAP.

In the following sub-sections the results of mediated regression analysis are presented for each of the dependent variables.

Table 1 Descriptive statistics and correlation matrix

	Mean	*Std. deviation*	*1*	*2*	*3*	*4*	*5*
CSRE (in Rs. million)	656.77	1,830.207	1				
CSRD (number of words related to CSR dimensions in annual report)	113.29	119.91	.655**	1			
PBT (in Rs. million)	35,879.6	72,003	.596**	.654**	1		
PAT (in Rs. million)	26,901	54,892	.622**	.665**	.992**	1	
MCAP (in Rs. million)	448,108.9	765,250	.612**	.638**	.925**	.934**	1

Note: **Significance at $p < .01$.

5.1 Mediating effect of CSRD on CSRE and PBT relationship

The results of the regression analysis conducted using process macro for studying the mediating effect of CSRD on CSRE and PBT relationship are presented in Table 2.

Table 2 Mediation hypothesis testing with PBT as dependent variable

Path	*B (standardised coefficient)*	*Standard error*	*t statistics*	*p (level of significance)*
CSRE -> PBT: c path	38.5276	1.98	19.414	.0000
CSRE -> CSRD: a path	.0542	.0039	13.771	.0000
CSRD -> PBT: b path	155.76	30.2	5.157	.0000
Total effect, c’	30.0827	2.501	12.026	.0000
Indirect effect of CSRE on PBT				
Effect	*Boot standard error*	*Boot LLCI*	*Boot ULCI*	
8.4448	3.2874	3.333	17.057	
Normal theory/Sobel test for indirect effect				
Effect	*Standard error*	*z statistics*	*(Level of significance)*	
8.4448	1.752	4.818	.0000	

Notes: LLCI: Lower limit confidence interval; ULCI: Upper limit confidence interval; Bootstrap sample size = 5,000.

Table 2 indicates that CSRE is positively and significantly related to PBT (B = 38.528 at $p < .001$) which satisfies the first state of mediation and denotes the direct effect or c path. It indicates that hypothesis H1a is accepted, i.e., expenditure on CSR activities positively and significantly impact PBT of the firm. Also, CSRE has a positive and significant relationship with CSRD, the mediating variable (B = .0542 at $p < .001$) which is the second condition of mediation and represents path a. Further, CSRD, the mediating variable also significantly impacts the outcome variable, PBT (B = 155.76 at $p < .001$) which denotes path b of the mediation. Finally the indirect effect of CSRE on PBT is found to be significant while controlling for CSRD (c’ path) (B = 30.0827 at $p < .001$). However, it can be observed that the value of the coefficient of CSRE is reduced in c’ path as compared to c path, which indicates that a partial mediation effect of CSRD exists in the relationship. Later the significant Sobel test (effect = 8.44 at $p < .001$) confirms the existence of partial mediating effect of CSRD on CSRE and PBT relationship. Hence, Hypotheses H2a is partially approved which indicates that CSRD partially mediate the association between CSRE and PBT.

5.2 Mediating effect of CSRD on CSRE and PAT relationship

The findings of regression conducted using Process macro to determine the mediating effect of CSRD on the association between CSRE and PAT are illustrated in Table 3.

Table 3 Mediation hypothesis testing with PAT as dependent variable

Path	*B (standardised coefficient)*	*Standard error*	*t statistics*	*P (level of significance)*
CSRE -> PAT: c path	30.7121	1.4118	21.75	.0000
CSRE -> CSRD: a path	.0543	.0039	13.842	.0000
CSRD -> PAT: b path	110.143	21.49	5.125	.0000
Total effect, c'	24.729	1.782	13.875	.0000
Indirect effect of CSRE on PAT				
Effect	*Boot standard error*	*Boot LLCI*	*Boot ULCI*	
5.9828	2.3	2.6088	11.936	
Normal theory/Sobel test for indirect effect				
Effect	*Standard error*	*z*	*p*	
5.9828	1.2477	4.79	.0000	

Table 3 exhibits that CSRE significantly impacts PAT (B = 30.712 at $p < .001$) which leads to acceptance of Hypothesis H1b that states CSRE positively influences PAT of the firm. It also accomplishes the first condition of mediation (c path). Second condition is also fulfilled as CSRE significantly impacts CSRD (B = .0543 at $p < .001$) that is path a. Further, the mediating variable, CSRD significantly influence PAT (B = 110.143 at $p < .001$) which denotes path b. Later when indirect effect of CSRE on the outcome variable, PAT is observed while controlling for mediating variable, CSRD, it was found that CSRE significantly impact PAT but the effect is reduced (B = 24.729 at $p < .001$). Thus, it can be inferred from the findings that CSRD partially mediates the relationship between CSRE and PAT. Also, the Sobel test indicates significant indirect effect (effect = 5.9828 at $p < .001$). Hence, Hypothesis H2b is partially supported, i.e., CSRD partially mediate the relationship between CSRE and PAT of the firm.

5.3 *Mediating effect of CSRD on CSRE and MCAP relationship*

The results of the regression analysis to test the mediating effect of CSRD on CSRE and MCAP relationship are displayed in Table 4.

Table 4 indicates that the relationship between independent variable, CSRE and outcome variable, MCAP is significant (B = 426.94 at $p < .001$) which indicates that hypothesis, H1c is accepted that is CSRE has a positive and significant impact on MCAP of the firm. The relationship also explains the direct effect of CSRE on MCAP (c path). The impact of CSRE on CSRD is also significant (B = .0543 at $p < .001$) which denotes path a and fulfils the second condition of mediation. Further, the mediating variable, CSRD is found to significantly impact MCAP and complete the third condition of mediation (b path). At last the impact of CSRE on MCAP is observed to be significant while the impact of CSRD is controlled (c' path), however, the value of coefficient of CSRE is reduced in this case. This exhibits that CSRD partially mediates the relationship between CSRE and MCAP. Thus it can be inferred that the Hypothesis H2c is partially accepted which points out that CSR disclosure partially mediate the association between CSRE and MCAP.

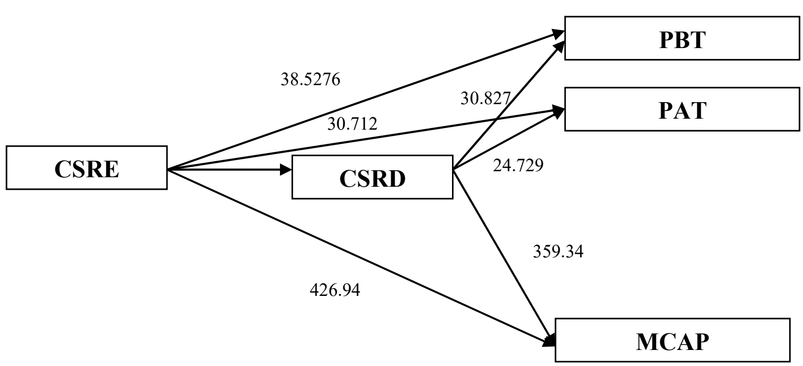
Table 4 Mediation hypothesis testing with MCAP as dependent variable

Path	*B (standardised coefficient)*	*Standard error*	*t statistics*	*P (level of significance)*
CSRE -> MCAP: c path	426.939	19.765	21.6	.0000
CSRE -> CSRD: a path	.0543	.0039	13.84	.0000
CSRD -> MCAP: b path	1,244.48	306.25	4.0636	.0001
Total effect, c’	359.34	25.396	14.149	.0000
Indirect effect of CSRE on PAT				
Effect	*Boot standard error*	*Boot LLCI*	*Boot ULCI*	
67.5987	30.184	24.486	149.149	
Sobel/normal theory test for indirect effect				
Effect	*Standard error*	*z*	*p*	
67.5987	17.3788	3.8897	.0001	

Table 5 Summary of findings

Hypothesis	*Description*	*Result*
H1a	CSRE positively impact PBT	Accepted
H1b	CSRE positively impact PAT	Accepted
H1c	CSRE positively impact MCAP	Accepted
H2a	CSRD mediates the relationship between CSRE and PBT of the firm.	Partially accepted
H2b	CSRD mediates the relationship between CSRE and PAT of the firm.	Partially accepted
H2c	CSRD mediates the relationship between CSRE and MCAP of the firm.	Partially accepted

Figure 2 Validated model of study



The summary of the findings of the research are presented in Table 5 with reference to the research hypotheses. It can be seen that the hypotheses are accepted where H1 is fully accepted and H2 is partially accepted.

The validated research model is presented in Figure 2, which shows that CSRD mediates the relation between CSRE and three measures of financial performance, though partially.

6 Discussion

The present study has corroborated the importance of CSRE as well as CSRD with respect to firm's performance. The findings support many of the previous studies which have highlighted the positive relation between CSRE and firm's profitability (Saleh et al., 2011; Ogola and Dreer, 2012, Abaeian et al., 2019). The validated research model (Figure 2) shows that CSRE is a predictor of PAT, PBT as well as MCAP. Hence not merely accounting variables but market variable is positively affected by CSRE. It also shows that CSRD partially mediates the relationship. This fills the gap found in the literature review that overlooking of mediating variables may not provide desired impact (Agyemang and Ansong, 2017).

The analysis of the study confirms that CSRE positively impacts the financial performance of the firms which satisfies the stakeholders approach to business. The result corroborates the findings of Benabou and Tirole (2010) that expenditure on CSR activities could appear as additional cost initially but yields benefits in the long run. The results disprove the findings that CSR activities by firms though enhance cost but do not impact the financial performance (McWilliams and Siegel, 2001).

The findings of the study also indicate that disclosure of CSR activities partially mediate the CSRE and financial performance relationship which indicates that disclosure of CSR activities by firms contributes significantly to the relationship between CSRE and profitability of the firm. The result is consistent with the studies (Crisostomo et al., 2011; Baraibar-Diez and Sotorrío, 2018) which suggest that the information on CSR activities to stakeholders make investment on CSR more effective. It also confirms the findings of Grewatsch and Kleindienst (2017) that only investment on CSR activities is not sufficient rather the type of CSR activities which are carried out by firms is important. It can be concluded that on the one hand, the expenditure on CSR activities by firms positively impacts their financial performance and on the other hand disclosure of CSR activities facilitates this association between the two. Hence, social resilience theory given by Zahller et al. (2015) is found to be applicable in case of country like India where social reporting has been mandated for firms. Looking at the market dynamics, it may be imminent that firms fairly inform their engagement in CSR activities, apart from spending an allocated amount.

7 Conclusions and research implications

The present study has used cost-benefit analysis approach to assess the impact of CSR on performance of firms by using CSRE, a quantitative and objective measure of CSR and multiple measures of firms' performance such as PBT, PAT, and MCAP. Further, the mediating effect of CSRD on the relationship is studied. The findings fill the research gap of using quantitatively measurable variable, including a mediating variable. The study is validated by using the context of energy sector in India. It is noteworthy that CSR is by and large in a nascent stage in India and if the model is validated using the data from Indian energy firms, the findings assume greater importance. The country context of an emerging economy and the industry context of a polluting sector have added definite value to the research findings.

The findings have major policy implications; not only for the firms but also for the government. A major aspect of the present research is that it has taken the policy framework as the background information, hence it can be said that the results correspond to the CSR policy and guidelines by the Government. Therefore, it can be asserted that policy formulation and implementation has an impact on the conduct of the industry. Needless to say, that economic policy may correlate with social cause and create positive externalities, while fulfilling profit motive of the business units. Hence, the policy makers should target on increasing the awareness of CSR among firms and its strategic advantages to boost the economic growth along with the social development. It provides a framework for the firms to adopt that they should invest on CSR activities and also communicate these activities in various ways to enhance the impact on their financial performance.

The important contribution of the study is that a validated research model is established, which can be used by firms, researchers and policy makers. The research model is grounded in theory as it is developed on the basis of literature review and is validated by authentic data of 38 companies for a period of seven years. Another major contribution is that it has used measurable, authentic and quantitative data for validating the findings.

8 Limitations and scope for future research

The present study attempts to distil the ambiguity on the relationship between expenditure on CSR and firm's financial performance. It also adds to literature by validating a model where CSR disclosure mediates this relationship. However, despite all efforts, this study also has certain limitations which must be brought to light. The major limitation of the study emanates from the assumption that there is no lag between CSRE and its impact on firm's performance. This has occurred because we have taken accounting principle for developing our model. However, future researchers can use the same model with lagged data. Further, only mediated relationship is measured, however it is also possible to use control variables for further validating the model and enhancing its application. It is to conclude that success of a model depends upon how much curiosity it can generate among other researchers for further analysis. Thus, the model so validated provides a scope for extension of this research; it may be further tested on other sectors and in other countries.

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