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IMPACT OF CSR EXPENDITURE COMPLIANCE ON FIRM VALUE USING P/B-ROE VALUATION MODEL AND INSTRUMENTAL APPROACH

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Abstract:

This paper examines the impact of corporate social responsibility (CSR) expenditure compliance on firm value in the context of the Indian firms by applying instrumental approach of the stakeholder theory and the P/B-ROE valuation model. The study hypothesizes that CSR expenditure compliance will positively affect the firm value. Price-to-book (P/B) ratio of the firm is used as a proxy of the firm value. The sample of firms is selected from NSE-500 Index companies for the period of five years from 2014-15 to 2018-19 and the method adopted is a portfolio grouping approach to form a cross-sectional portfolio regression model. The results reveal that CSR expenditure compliance negatively influences firm value. Thus, instrumental approach which hypothesizes that CSR initiatives improve firm performance is not supported. However, to form a cross-sectional portfolio regression model by using portfolio grouping approach is found to be more appropriate than the individual cross-sectional regression model.

Key words: CSR, PB-ROE, portfolio grouping, firm value, stakeholder theory

1. Introduction

The vision for growth outlined in the twelfth Five-Year Plan (2013-17) of Government of India (hereafter, GoI) called for 'faster, sustainable, and more inclusive growth'. This plan was supported by the World Bank with its Country Partnership Strategy (CPS) for India during this period (The World Bank Report No. 76176-IN, 2013). To achieve the stated objective of the twelfth Five-Year Plan, the GoI with limited means at its end looked forward to seeking a greater participation of the business organizations for humanizing the socio-economic conditions of its masses. Therefore, corporate social responsibility (CSR) has been legislated for firms of specified size in India. The Ministry of

Corporate Affairs (MCA) of the GoI laid down statutory CSR provisions and mandated CSR expenditure per financial year for companies meeting the specified criteria with effect from April 1, 2014 (Companies Act, 2013). A firm is required to meet CSR provisions if it has a minimum net worth of ₹5000 million or turnover of ₹10000 million or net profits of ₹50 million during any financial year. The mandatory CSR expenditure in a given financial year has to be at least 2% of the average net profits before tax of the firm made during the three immediately preceding financial years. The detailed provisions of CSR along with areas of CSR spending are described under section 135 of Chapter IX Account of Companies of the Companies Act, 2013.

CSR and its impact on firm performance has extensively been a topic of discussion among managers, investors, scholars, firms, regulators (Kuntluru, 2019), and governments of developing and developed economies. In India, CSR activities really paced up after the CSR provisions became applicable. How do the market participants in India value the mandatory CSR expenditure provisions in India? This enquiry will give an opportunity to the firms to evaluate the market reaction of following CSR expenditure compliance. Further, policymakers and regulators could also be interested in such enquiry as intention of firms to follow CSR provisions may be influenced by the market reaction. The extant literature shows many studies across the world have examined impact of CSR activities on the financial performance of firms and found a variety of results including positive (Al-Tuwaijri *et al.*, 2004; Bolanle *et al.*, 2012; Erhemjamts *et al.*, 2013; Klerk & de Villiers, 2012; Rodriguez-Fernandez, 2016; Verbeeten *et al.*, 2016; Webley & More, 2003), negative (Aras *et al.*, 2010; Baird *et al.*, 2012; Crisóstomo *et al.*, 2011; Peng & Yang, 2014), insignificant (Fiori *et al.*, 2007; Freedman & Jaggi, 1986; McWilliams & Siegel, 2000; Prado-Lorenzo *et al.*, 2008; Soana, 2011) and U-shaped (Barnett & Salomon, 2012). Similarly, in the Indian context, some studies investigated the effects of CSR compliance on the financial performance of firms in the mandatory regime and informed positive (Bhagawan & Mukhopadhyay, 2018; Bhattacharyya & Rahman, 2019), negative (Bhattacharyya & Rahman, 2020; Kuntluru, 2019; Mukherjee *et al.*, 2018), insignificant (Dharmapala & Khanna, 2016; Nair & Bhattacharyya, 2019; Sydrowski, 2018) and U-shaped (Kim & Oh, 2019) CSR effects. The inconsistency of results indicates that more investigation is required in this regard in the Indian context. Therefore, the present study is an attempt to examine the impact of CSR expenditure compliance on firm value in the mandatory CSR regime in India. The study is based on the instrumental approach of the stakeholder theory which argues that social initiatives by firms lead to higher firm value (Donaldson & Preston, 1995).

To meet the research objective, the study has applied a cross-sectional portfolio regression model using the empirical method of portfolio grouping approach on the basis of an instrumental variable, and the P/B-ROE valuation model. The P/B-ROE valuation model, theorized by Wilcox (1984), explains the price-to-book (P/B) ratio of the firm based on the historical data of return on equity (ROE). Due to insufficient observations, the panel regression model could not be applied. Hence, the cross-sectional portfolio regression model was used. The portfolio grouping approach was adopted by Mandelker and Rhee (1984) and further investigations of the Model using this approach revealed a higher R

square value as compared to that of the Model formed at the individual firm level (Gupta et al., 2016; Huffman, 1989). It is because the portfolio grouping approach (Mandelkar & Rhee, 1984, pp. 52) reduces the error-in-variables bias as portfolios of firms are formed on the basis of the size of the instrumental variables. A variable which has insignificant correlation with dependent variable but significant correlation with the independent variable (s) is considered as an instrumental variable to that independent variable for forming the portfolios of firms under study. The present study uses debt-to-equity ratio (DER) is used as an instrumental variable due to its high correlation with other independent variable, ROE. To correct a potential selection bias at individual firm level (Mandelkar & Rhee, 1984; Theil, 1971, pp. 445), the instrumental variables are used. This means forming a cross-sectional portfolio regression model on the basis of an instrumental variable is more appropriate than forming a cross-sectional firm regression model. Several studies (Bianconi & Yoshino, 2017; Gupta et al., 2016; Huffman, 1989; Mandelker & Rhee, 1984) used instrumental variables to investigate various relationships in financial studies. Further, The P/B-ROE valuation model is a good predictor of future firm performance in terms of P/B, and can include various variables (along with ROE) to examine their impact on firm performance (Wilcox, 1984). Thus, this study uses P/B-ROE model, with P/B as a proxy of firm value, and includes mandatory CSR expenditure compliance (along with ROE) in the model to empirically examine its impact on the firm value. The study has also used net sales as a control variable. The firms that are listed on National Stock Exchange (NSE) of India and are part of a NSE index viz., NSE-500 Index over the period of five financial years from 2014-15 to 2018-19 are chosen for the study.

This study contributes to the existing literature in three ways. Firstly, this study has employed P/B-ROE valuation model and included mandatory CSR expenditure compliance to examine its impact on P/B, used as a proxy of firm value. As explained in the previous paragraphs, this model may incorporate various variables (along with ROE) to examine their impact on firm performance, and is a good predictor of future firm performance in terms of P/B. The extant literature shows that hardly any study has used this model to examine effect of CSR on firm performance. Secondly, this study has adopted portfolio grouping approach to form cross-sectional portfolio regression model for examining the impact of mandatory CSR expenditure compliance on firm value. Due to inadequate firm-level observations, panel regression could not be applied. Therefore, in the present context, this is a novel and more appropriate approach as compared to the cross-sectional regression model at individual firm level. Thirdly, this study contributes in extending the literature concerning impact of CSR expenditure on firm performance in the mandatory regime in India. As discussed in the previous paragraphs, the available studies have shown variety of results including positive, negative, insignificant and U-shaped CSR effects. The present study extends this line of investigation by considering CSR compliance of the Indian firms over a period of 2014-15 to 2018-19 post the CSR regulations in India. This is an area with limited research.

The rest of the paper is organized as follows. In the next section, theoretical framework and hypothesis formulation are introduced. Thereafter, the section on research design describes sample, data collection, variables and model used. The fourth section

presents results and discussion including robustness check for the model used in the study. This is followed by sections on conclusions and implications of the study. Finally, limitations and directions for the future research are presented.

2. Theoretical Framework and Hypothesis Formulation

The credit for the start of modern CSR era is given to Howard R. Bowen whose book, *Social Responsibilities of the Businessman*, published in the year 1953 is considered as a definitive book on the subject (Carrol, 1979). Bowen (1953) put forth that the profit-making function of business concerns should be carried along with the social responsibilities which were further grouped into four categories (discretionary, ethical, legal, economic) by Carroll (1979). Hence, not only the interest of shareholders but also that of all the stakeholders while integrating economic and social responsibilities should be considered by the businesses (Margolis & Walsh, 2003; McWilliams & Siegel, 2000). However, the opponents of CSR agree to the viewpoint of Friedman (1970) who viewed CSR as shareholders' expenses, and opined that firms should have only profit function with a responsibility to increase value for its shareholders. However, despite this debate, an increasing number of firms are making CSR as a priority (Horjoto & Laksmana, 2016). The available literature shows that concept of CSR has evolved in line with the Stakeholder Theory promoted by Freeman (1984). A large number of studies (Bhagawan & Mukhopadhyay, 2018; Bihari and Pradhan, 2011; Clarkson, 1995; Davenport, 2000; Elijido-Ten, 2007; Kapoor & Sandhu, 2010; Kuntluru, 2019; Moser & Martin, 2012; Roberts, 1992; Rodriguez-Fernandez, 2016; Singh & Mittal, 2019; Ullmann, 1985) have applied the stakeholder theory in the domain of CSR in the context of both developed and developing economies including India. The stakeholder concept was developed by Freeman (1984) in the form of two models viz., a model of business planning and policy and a CSR model of stakeholder management (Elijido-Ten, 2007).

Further, various aspects of the stakeholder theory viz, descriptive, normative, managerial and instrumental, have been described by Donaldson & Preston (1995). Previous studies (Bhagawan & Mukhopadhyay, 2018; Jones, 1995; Rodriguez-Fernandez, 2016; Garg & Gupta, 2020) have empirically examined the relationship of CSR and financial performance in line with the instrumental approach. The instrumental aspect of stakeholder theory specifies, "If you want to achieve (avoid) results X, Y, or Z, then adopt (don't adopt) principles and practices A, B, or C." Further, the instrumental approach assumes that firms that take into consideration stakeholders' interests including societal interest are relatively successful in respect of financial performance (Donaldson & Preston, 1995). The shareholders are indirectly benefitted if the satisfaction of various stakeholders is achieved from CSR initiatives undertaken by the firms (Jones, 1995). Since CSR initiatives undertaken by the firms depend on the amount of expenditure made mandatory based on the profits of the firms, therefore the profitability of firms leads to higher firm performance. This means inclusion of profitability along with CSR expenditure may inform better firm performance. Thus, the study considers the P/B-ROE valuation model which was theorized by Wilcox (1984). This model explains the price-to-book (P/B) ratio of the firm based on the historical data of return on equity (ROE). Based on the model, the

previous studies (Halsey, 2001; Penman, 1996; Wilcox, 1984) have empirically revealed that a high ROE leads to high P/B. Further, the use of P/B, as a market multiple and benchmark valuation method, has a high theoretical validity (Agrawal, Monem & Ariff, 1996), valuation accuracy (Cheetham, Nayar, & Skilbeck, 2017; Cheng & McNamar, 2000) and usage ((Fabozzi, Focardi, & Jonas, 2017). The P/B-ROE model leads to only marginal loss of precision and the equilibrium relationship between P/B and ROE is prevailed in almost all industries (Cheetham, Nayar, & Skilbeck, 2017). This model is a good predictor of future firm performance in terms of P/B, and can include various variables (along with ROE) to examine their impact on firm performance (Wilcox, 1984). The various variables included in the past include stable earnings growth, dividend, leverage, and betas (Wilcox, 1984). Hence, based on the instrumental approach of the stakeholder theory and the historical data of return on equity (ROE), the firms complying with the CSR expenditure requirements stand better chance of achieving higher firm value due to higher satisfaction of stakeholders. Therefore, the following hypothesis is formulated.

Hypothesis (H1): *The CSR expenditure compliance will positively affect the firm value, represented by P/B.*

3. Research Design

3.1 Sample and Data

To investigate the impact of mandatory CSR compliance on firm value in India, the NSE listed firms included in the NSE-500 index and fulfilling the laid down criterion (concerning stipulated net worth or turnover or net profit before tax or minimum CSR expenditure) during the study period are considered. The price-to-book value ratio has been considered as a proxy of the firm value. The data for the five financial years from 2015-16 to 2018-19, post the mandatory CSR regime (with effect from April 2014) in India, have been included. The period of 12 months from April 1 to March 31 of the succeeding year is considered as a financial year in India. Hence, the financial year 2014-15 indicates the period from April 1, 2014 to March 31, 2015. The firms with incomplete or missing values of any of the required data variables during the chosen period have not been included. Thus, finally a sample of 358 firms is chosen for the study.

The required data of 358 firms is extracted from the CMIE Prowess Database which is one of the most comprehensive databases used by various previous studies (Bertrand *et al.*, 2002; Gupta *et al.*, 2016; Bhullar & Gupta, 2017, Bhullar *et al.*, 2018) on the Indian business. The extracted firm-wise data included figures of required CSR expenditure as per CSR provisions, spent and unspent CSR expenditure of the firms, beta value, net sales, total assets, return on equity (ROE), return on assets (ROA), debt-to-equity ratio (DER) and price-to-book value ratio (P/B) as on 31st March of every selected financial year. As per the CSR provisions in India, a firm meeting the laid down criterion is required to mandatorily spend 2% of the average net profits before tax of the firm made during the three immediately preceding financial years. Thus, if the CSR spending by a

firm is equal to or greater than the mandatory expenditure requirement, the firm conforms to the CSR compliance. Otherwise, the firm does not conform to the CSR expenditure compliance. Out of the chosen sample of 358 firms, 169 firms are CSR compliant whereas rest of the 189 firms are not CSR compliant.

3.2 Measurement of Variables

A cross sectional portfolio regression model has been formed to test the research hypothesis. This model examines the impact of independent and control variables on dependent variable.

3.2.1 Dependent Variable (Price-to-Book Value Ratio)

The impact of mandatory CSR expenditure compliance on firm value is examined by using the price-to-book value (P/B) ratio as a proxy of firm value of the listed firms. The P/B ratio (mPB) is calculated as mean value of P/B ratios of the firm over the study period of five years. The firm-wise estimation of mean value of PB ratio is represented below in the equation 1.

$$1. \quad (mPB)_j = [(\sum PB_{jt})/5]$$

Where,

$t = 2015, 2016, 2017, 2018, 2019$

PB_{jt} = Price-to-book value ratio of the firm j at year t

$(mPB)_j$ = mean Price-to-book value ratio of the firm j

3.2.2 Independent Variables (Return on Equity, CSR Compliance)

The profitability of the firm is linked to the firm value as it influences the perception of investors in the marketplace. Therefore, return to the equity holders, calculated as return on equity (ROE), while considering the CSR compliance status of the firms is used to explore the impact of mandatory CSR compliance on the firm value. The firm-wise ROE of a firm over the study period (mROE) is estimated as a mean of the yearly ROE of the firm over the study period as per the following equation 2.

$$2. \quad (mROE)_j = [(\sum ROE_{jt})/5]$$

Where,

$t = 2015, 2016, 2017, 2018, 2019$

ROE_{jt} = Return on Equity of the firm j at year t

$(mROE)_j$ = mean Return on Equity of the firm j

To include CSR expenditure compliance status of a firm in the model, a dummy variable (CSRC) indicating CSR compliance of the firm in a specific year is made to

interact with ROE of the firm in that year, and mean value of this interaction $[m(\text{ROE} \times \text{CSRC})]$ over the study period of five years is estimated. For a specific year during the study period, the dummy variable is equal to 1 for a compliant firm and it is equal to 0 for a non-compliant firm. The firm-wise estimations of yearly dummy value of CSR compliance, and mean value of interaction of this dummy variable and ROE of a firm over the study period are presented below in the equations 3 and 4.

$$3. \quad \text{CSRC}_{jt} = 1 \text{ or } 0$$

Where,

$t = 2015, 2016, 2017, 2018, 2019$

CSRC_{jt} = Dummy variable indicating CSR compliance of the firm j at year t

$$4. \quad [m(\text{ROExCSR})]_j = [\sum (\text{ROE} \times \text{CSRC})_{jt} / 5]$$

Where,

$t = 2015, 2016, 2017, 2018, 2019$

$(\text{ROE} \times \text{CSRC})_{jt}$ = ROE multiplied by Dummy variable indicating CSR compliance of the firm j at year t

$[m(\text{ROExCSR})]_j$ = mean of (ROExCSR) of the firm j

3.2.3 Control and Instrumental Variables (Net Sales, Debt-to-Equity Ratio)

Since firm value is linked with size of the firm, it is important to consider this financial variable as a control variable while examining the impact of mandatory CSR compliance on firm value. Further, in the Indian context, the size of the firm in terms of net worth or turnover or net profit is to be considered to apply CSR provisions. The yearly mandatory CSR expenditure for the Indian firms fulfilling size criteria is also calculated on the basis of net profits. Since all these variables viz., net worth, turnover, net profit are linked with net sales, the present study uses net sales as a proxy of firm size. The net sales of a firm ($m\text{NS}$) are calculated as mean of net sales of the firm over the study period. The logarithm of this estimated variable is taken to standardize this variable across the firms. The firm-wise estimation of standardized net sales $[\text{Log}(m\text{NS})]$ is shown in the following equation 5.

$$5. \quad \text{Log}[(m\text{NS})_j] = \text{Log}[(\sum \text{NS}_{jt}) / 5]$$

Where,

$t = 2015, 2016, 2017, 2018, 2019$

NS_{jt} = Net Sales of the firm j at year t

$(m\text{NS})_j$ = mean Net Sales of the firm j

A variable which has insignificant correlation with the dependent variable but significant correlation with an independent variable is considered an instrumental variable

to that independent variable. The debt-to-equity ratio (DER) is used as an instrumental variable because of its high correlation with another independent variable, ROE as explained in the next paragraphs. The debt-to-equity ratio of a firm (mDER) are calculated as mean of debt-to-equity ratio of the firm over the study period as per the below mentioned equation 6.

$$6. \quad (mDER)_j = [(\sum DER_{jt})/5]$$

Where,

$t = 2015, 2016, 2017, 2018, 2019$

DER_{jt} = Debt-to-equity ratio of the firm j at year t

$(mDER)_j$ = mean Debt-to-equity ratio of the firm j

3.3 Method and Model

The present study uses P/B-ROE model, with P/B as a proxy of firm value, and includes mandatory CSR expenditure compliance (along with ROE) in the model to empirically examine its impact on the firm value. A portfolio grouping approach introduced and adopted by Mandelker and Rhee (1984) is employed to test the combined effects of both ROE and CSR compliance on P/B, the proxy of firm value in the present study. A cross-sectional portfolio regression model is formed (as per equation 7) on the basis of mDER which is used as the instrumental variable. To qualify a variable as an instrumental variable, it should significantly be correlated with the independent variable but it can be observed independently of that independent variable (Mandelkar & Rhee, 1984; Theil, 1971, pp. 445). Table I presents the correlation matrix among variables under study. Since mDER has a highly significant correlation (correlation coefficient = .463 at $p < .01$) with mROE, mDER has been given considered as an instrumental variable for ROE to formulate the portfolio regression model given by the equation 7.

Table I: Pearson Correlations

Variable ↓	→	mP/B	mROE	(m) ROE x CSRC	Log (mNS)	mDER
mP/B		1.000				
More		.032	1.000			
(m) ROE x CSRC		-.085*	.796***	1.000		
Log (mNS)		-.044	.113**	.092**	1.000	
mDER		-.058	.463***	.518***	-.150***	1.000

Significance levels: *** $p < .01$; ** $p < .05$; * $p < .10$

To form the portfolio regression model, the data of interaction term and requisite variables, that is, dependent, independent and control variables of 358 firms, estimated as explained in the previous paragraphs, are ranked in ascending order on the basis of the estimated instrumental variable for ROE, of each firm. As per the methodology suggested

by Mandelkar and Rhee (1984), the five firms from above rank order are grouped together to form a portfolio. Hence, out of the sample of 358 firms, 71 portfolios of five firms from the first 355 firms, and one portfolio of the last three firms are constituted. This means the first five firms form the 1st portfolio; the next five form the 2nd portfolio, and so on up to 71st portfolio. However, the last 72nd portfolio consists of three firms only. For each of the portfolios, the respective average values of the requisite variables in respect of the firms forming a particular portfolio are estimated to be considered in a cross-sectional portfolio regression model as per equation 7. The empirical findings of the present study are based on equation 7.

$$7. \quad (PB)_p = \partial_0 + \partial_1 (ROE)_p + \partial_2 (ROExCSR)_p + \partial_3 \log (NS)_p + \epsilon_p$$

Where,

∂_0 = Intercept

$\partial_1, \partial_2, \partial_3$ = regression coefficients

p = 1-72

$(PB)_p$ = Average Price-to-book value ratio of the portfolio

$(ROE)_p$ = Average Return on Equity of the portfolio

$(ROExCSR)_p$ = Average interaction term of the portfolio

$\log (NS)_p$ = Logarithms of Average Net Sales of the portfolio

ϵ_p = Error term

4. Results and Discussion

The ordinary least squares (OLS) regression method is employed to run the Portfolio Regression Model and the results are presented below in Table II. Table II shows that the Model ($F=3.558$, $p < 0.05$) which tests hypothesis H1 significantly predicts the dependent variable, price-to-book value ratio, as indicated by the value of F-statistic at 5% significance level. Further, R square value for the Model indicates that 13.6% variation in the dependent variable, price-to-book value ratio, can be explained by the selected independent variables in the Model.

Table II: Results from Portfolio Regression Model

$$(PB)_p = \partial_0 + \partial_1 (ROE)_p + \partial_2 (ROExCSR)_p + \partial_3 \log (NS)_p + \epsilon_p, p = 1-72$$

Portfolios	∂_0	∂_1	∂_2	∂_3	R^2	F-statistic
Based upon DER, The instrumental variable for ROE.	2.193 (0.74)	0.257 (3.12)**	-0.259 (-3.13)**	0.288 (0.42)	0.136	3.558*

Significance levels: **p < .01; *p < .05; t-statistic in parentheses

Table II further reveals that the estimate for the coefficient of the variable, return on equity, is positive and statistically significant ($\partial_1 = 0.257$; $p < .01$). This suggests a significantly positive impact of return on equity on P/B, a proxy of firm value, in respect of the Indian firms. Hence, it can be assumed that return on equity enhances the firm value. The results of the Model further show that estimate for the coefficient of the interaction term, (ROExCSR), is negative and statistically significant ($\partial_2 = -0.259$; $p < .01$) revealing a statistically significant and negative effect of CSR expenditure compliance on P/B in respect of the Indian firms. This significantly negative effect of mandatory CSR expenditure compliance on firm value represented by P/B indicates rejection of the null hypothesis H1. Further, Table II shows that the control variable, that is, the size of firm represented in terms of net sales, has an insignificant impact ($\partial_3 = 0.288$; $p > .05$) on P/B. Thus, it can be presumed that size of the firm has no role in improving the firm value.

The above findings indicate that firms fulfilling the mandatory CSR expenditure compliance do not have higher firm value. It is rather found that the positive impact of ROE on firm value is significantly reduced by the negative impact of CSR expenditure compliance on firm value. Hence, value of the firms meeting CSR expenditure compliance is perceived negatively by the markets. Thus, the findings of the present study do not support the instrumental aspect of the stakeholder theory. The findings rather support the shareholders' expense view of CSR as argued by Friedman (1970) who believed that mandated CSR spending is considered as an extra tax by the markets which reduces firms' market value. This is especially true in case of the firms which are not inclined to spend on CSR activities. On the similar lines, some researchers (Bhattacharyya & Rahman, 2020; Karnani, 2013; Manchiraju & Rajgopal, 2017) in the Indian context also consider the 2% tax on specified firms as 'back door' tax.

5. Robustness Check

The robustness check of the Model (as per equation 7) with the use of portfolio grouping approach is done by using the regression method at individual firm level. The regression method at individual firm level for the 358 sample firms using firm size (measured as logarithm of NS) and financial leverage (measured as debt-to-equity ratio) as control variables is employed as per the following equation:

$$(mPB)_j = \mu_0 + \mu_1 (mROE)_j + \mu_2 [(m)(ROExCSR)]_j + \mu_3 \log (mNS)_j + \mu_4 (mDER)_j + \xi_j$$

Where,

μ_0 = Intercept

$\mu_0, \mu_1, \mu_2, \mu_3, \mu_4$ = regression coefficients

$j = 1 - 358$

$(mPB)_j$ = mean Price-to-book value ratio of the firm

$(mROE)_j$ = mean Return on equity of the firm

$[(m)(ROExCSR)]_j$ = mean ROExCSR of the firm

$(mNS)_j$ = mean Net sales of the firm

$(mDER)_j$ = mean Debt-to-equity ratio of the firm

ξ_j = Error term

The results of regression model performed at an individual firm level are presented in Table III. The R square value for the model at an individual firm level indicates that only 3.9% variation in the dependent variable, price-to-book value ratio, can be explained by the selected independent variables in the Model. Thus, R square value for the model at portfolio group level (13.6%) is higher than that of the model at an individual firm level (3.9%). Further, due to higher values of significant regression coefficients ($\partial_1 = 0.257$; $\partial_2 = -0.259$; $p < .01$) and insignificant intercept value ($\partial_0 = 2.193$, $p > 0.05$), a portfolio grouping approach (results as per Table II) is considered more appropriate than the individual firm level approach (results as per Table III) with lower values of significant regression coefficients ($\mu_1 = 0.127$; $\mu_2 = -0.125$; $p < .01$) and significant intercept value ($\mu_0 = 6.657$, $p < .01$).

Table III: Results from Firm Level Regression Model

$$(mPB)_j = \mu_0 + \mu_1 (mROE)_j + \mu_2 [(m)(ROExCSR)]_j + \mu_3 \log (mNS)_j + \mu_4 (mDER)_j + \xi_j$$

$j = 1 - 358$

Firm Level	μ_0	μ_1	μ_2	μ_3	μ_4	R^2	F-statistic
	6.657 (3.46)**	0.127 (3.29)**	-0.125 (-3.11)**	-0.471 (-1.08)	-0.138 (-0.85)	0.039	3.558**

Significance levels: ** $p < .01$; * $p < .05$; t-statistic in parentheses

6. Conclusions

The present study examines the impact of CSR expenditure compliance on firm value in the Indian context in line with the instrumental approach of the stakeholder theory. For the purpose, a sample of 358 listed firms included in NSE-500 index of India and meeting the criterion to comply with the laid down CSR provisions is investigated. The firm value is examined in terms of price-to-book value ratio using P/B-ROE valuation model. Further, the cross-sectional portfolio regression model by applying portfolio grouping approach is formed. The finding reveals that mandatory CSR compliance has a significantly negative impact on P/B; hence, it does not contribute towards improving the firm value. The findings do not support the instrumental aspect of the stakeholder theory which suggests that socially beneficial activities by firms enhance their firm value. Thus, the market views mandatory CSR compliance by the firms as against the interests of the shareholders. These results are in line with the findings of the few other previous studies (Bhattacharyya & Rahman, 2020; Kuntluru, 2019; Manchiraju & Rajgoipal, 2017; Mukherjee et al., 2018) in the Indian context. However, the results are contrary to the

findings of many other studies (Fombrun, 2005; Klerk & de Villiers, 2012; Servaes & Tomayo, 2013; Vasal, 2009; Verschoor, 1998; Webley & More, 2003) which generally reveal positive effect of voluntary CSR on firm value. These studies commonly claim that when firms spend voluntarily, they chose an optimal amount for CSR expenditure that may maximize their market value. However, in the mandatory CSR regime in India, the amount and direction of CSR spending has been fixed based on the size of the firm. This forced CSR spending may be sub-optimal (Kim & Oh, 2019) and viewed as an indirect tax (Friedman, 1970) by the investors, and hence, perceived negatively. The Indian government has also been contemplating to institute penal provisions for the firms not able to conform to the CSR provisions. However, in view of the findings of the study, it may be presumed that the firms may not be inclined to comply with the stipulated CSR provisions. On similar lines, Mukherjee and Bird (2016) revealed that CSR spending mandate has not elicited the expected increase in the level of CSR spending by the large Indian firms as it has been avoided by many such firms for whom it became mandatory. Further, some firms may have a tendency to disguise their non-compliance (Guha, 2020). This indicates that CSR mandate may not help the Indian government to achieve the desired participation of firms in CSR activities. Indian Government has already amended the legislation to more precisely specify the direction of the expenditure and may have to further amend it to encourage increased spending on CSR activities (Mukherjee & Bird, 2016). Further, it is suggested that investors may rehash their portfolios to reduce exposure to the potential negative impact of the CSR regulation on stock returns. The study also indicates the utility of portfolio grouping approach over that of firm level regression model in the form of better empirical results. The findings and suggestions could be useful to the regulators and policymakers of other countries who are planning to enact the CSR compliance.

7. References

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