Association of Financial Leverage with Cost of Capital and Shareholder Value: An empirical study of BSE Sensex Companies

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Abstract

Purpose - The paper aims to examine the impact of financial leverage on cost of capital and shareholder value. The primary objective of the paper is to offer empirical evidence to establish whether there exists any association between financial leverage and cost of capital, and between financial leverage and shareholder value.

Design / Methodology / Approach - An empirical analysis of 28 companies included in the Bombay Stock Exchange's flagship index 'Sensex' was conducted for a period of three years ranging from 2013 to 2015. A multiple step-wise regression method was used to analyze the association between financial leverage and cost of capital as well as financial leverage and shareholder value.

Findings - The study reveals that financial leverage and cost of capital are negatively correlated. The debt-equity ratio is found to have a statistically significant negative association with market value added, residual income and refined economic value added (EVA). Interest cover is found to have a statistically significant positive correlation with residual income and refined economic value added; however, it is not significantly correlated to market value added.

Implications - The study implies that by raising debt in the capital structure of the company, managers can reduce the overall cost of capital; however, a higher proportion of debt need not necessarily increase shareholder value.

Key words: *Leverage, Cost of capital, EVA, MVA, Shareholder Value*

1. Introduction

Investigating the relationship between financial leverage and cost of capital has always attracted the attention of academics and practitioners alike. They have also been keen to ascertain how changing the amount of debt in the capital structure of the firm affects its cost of capital and finally, whether it leads to maximization of shareholders' wealth. The traditional approach of capital structure hypothesized that raising the proportion of debt in the capital structure up to a point does lower cost of capital and subsequently maximizes value of the firm. On the other hand, there are arguments against the traditional approach claiming that capital structure decision is irrelevant for the firm's value. Earlier, Brigham and Jordon (1968) showed that the cost of capital of a firm depends on how the firm is financing its capital and the value of its stock is dependent on its financing policy. Intuitively, it is quite appealing to use debt given the benefit of interest tax deductibility attached to it. However, increasing the amount of debt also increases financial risk and thus increases the chances of bankruptcy. In this case, it does not pay well to use an excessive amount of debt to maximize the value of the firm. Rather, beyond a point, the benefit of cheaper cost of debt is more than offset by increased cost of equity, resulting in an increase in overall cost of capital. This, in turn, will negatively affect the firm's value.

In this paper, an attempt has been made to examine the impact of financial leverage on cost of capital and on shareholder value. The remainder of the paper is structured as follows: the second section discusses the literature review; the third section specifies the research methodology; the fourth section presents results and the discussion, and the fifth section offers the conclusion and summary.

2. Literature Review

Modigliani and Miller (1958) set out the capital structure irrelevance theorem concluding that leverage did not affect the firm's value when the market is perfect, there are no taxes and transaction costs. Later, Modigliani and Miller MM (1963) corrected

their original model and acknowledged the impact of taxes and other transaction costs. However, they still argued that change in the debt-equity ratio did not have any effect on the firm's value. Solomon (1963) showed that the cost of capital does not remain constant with an increase in leverage. Rather, it rises as the degree of leverage is increased.

Davenport (1971) found the U-shaped cost of capital with respect to leverage and confirmed the traditional view that leverage does reduce the cost of capital up to a point.

Rao and Litzenberger (1971) made a comparative study of the impact of capital structure on cost of capital in India and USA. The findings of their study with respect to Indian companies indicated that a moderate amount of debt reduces the firm's cost of capital. Gapenski (1987) found a strong relationship between financial leverage and cost of equity. Barniv and Bulmash (1988) found that with increase in the financial leverage, cost of equity and cost of capital also increase. Chatrath (1994) found a negative association between financial leverage and cost of capital.

Hall and De Wet (2003) reported that the benefit of higher financial leverage was completely offset by a lower cost of ownership capital. Carpentier (2006) analyzed the impact of change in capital structure on the firm's value in the context of 243 French firms. His study did not find any significant relationship between changes in debt ratios and change in value. Ward and Price (2006) showed that increasing the debt-equity ratio results in higher shareholder returns at the cost of higher risk. Sharma (2006) concluded that there was a direct correlation between leverage and the firm's value. Jahfer (2006) investigated the impact of financial leverage on the wealth of shareholders in the context of 60 listed Sri Lankan firms. He found no correlation between financial leverage and shareholders' wealth. Al-Hasan and Gupta (2013), using the pooled regression analysis, analyzed the impact of leverage on shareholders' return. They found that leverage had a statistically significant impact on shareholders' return. Matemilola, Bany-Ariffin and Azman-Saini (2012) investigated the impact of debt leverage on shareholders' required return in the context of South Africa. The results of their study showed that total debt and long-term debt had a positive relationship with shareholders' required return. Pachori and Totala (2012) reported that financial leverage did not have a significant impact on shareholders' return and market capitalization. Ramadan (2015) found that the leverage level of a firm significantly affects the firm's value. Niresh and Alfred (2014) assessed the relationship between EVA, and leverage. They found that economic value added and leverage did not have a significant impact on market value added (MVA). Vijayalakshmi and Manoharan (2015) analyzed the impact of corporate leverage on EVA and MVA of seven firms listed on the Bombay Stock Exchange and the National Stock Exchange. Using pooled regression analysis, they found that the long-term debt ratio, interest cover, and financial leverage did not have a significant impact on economic value added. Similarly, the long-term debt ratio and financial leverage did not demonstrate a significant impact on market value added. Only, interest cover was found to have a significant impact on market value added.

Barakat (2015) investigated the impact of financial leverage on share value of industrial companies listed on the Saudi Stock Market. He found a negative relationship between financial leverage and stock value. He also reported that there was no statistically significant relationship between financial leverage and value of the company.

Ayeni and Olaoye (2015) suggested that by increasing the debt capital, the firm's value can be increased. They also recommended that the firm should increase its debt so as to increase its bargaining power and market alternatives of suppliers.

Ishari and Abeyrathna (2016) measured the impact of financial leverage on the value of listed Sri Lankan manufacturing companies. They reported a negative relationship between the debt-equity ratio and return on equity. They concluded that financial leverage did not have a significant impact on the firm's value.

Adetunji, Akinyemi, and Rasheed (2016) investigated the impact of financial leverage on the firm's value in the context of listed firms of the Nigerian Stock Exchange. They found a significant relationship between financial leverage and the firm's value.

Venugopal and Reddy (2016) found that the debt-equity ratio had a positive impact on market value and shareholders' wealth of listed Indian cement manufacturing companies; however, this relationship was not statistically significant.

Pandey and Prabhavati (2016) investigated the relationship impact of leverage on the shareholders' wealth of the Indian automobile industry. They found a strong association between financial leverage and returns of the firms.

Pandya (2016) found the interest cover as the most significant predictor of MVA. Further, he also reported that the debt-equity ratio and debt ratio jointly did not demonstrate a significant association with MVA.

3. Research Methodology

This paper aims to provide empirical evidence with respect to the impact of financial leverage on the cost of capital, and on shareholder value. Using secondary data, an empirical study was conducted for the said purpose.

3.1 Research Objectives

- To examine the association between financial leverage and cost of capital.
- To evaluate the association between financial leverage and shareholder value.

The study covers a three-year time period ranging from 2013 to 2015. BSE Sensex companies comprise the sample of the study. Out of 30 companies that constitute the Sensex, 28 companies were included in the study owing to availability of the requisite data for the period of study. The data required for the study was taken from CAPITALINE software.

3.2 Variables of the study

The debt-equity ratio and interest cover ratio were taken as the measures of financial leverage. Market Value Added (MVA), Residual Income, (REIN), and Refined Economic Value Added (REVA) were taken as the measures of shareholder value.

MVA was calculated as the difference between market capitalization and net worth. Residual income was computed as the spread between ROCE and WACC multiplied by the capital invested. The following equation was used to calculate residual income.

$REIN_{it} = (ROCE_{it} - WACC_{it}) * CE_{it-1}$

In the above equation, $ROCE_{it}$ stands for return on capital employed for i^{th} firm in t time period;
$WACC_{it}$ stands for the weighted average cost of capital for i^{th} firm in t time period and CE_{it-1} stands for capital employed for i^{th} firm in t-1 time period.
In order to calculate WACC, the following equation was used.

$WACC = r_D(1-t)(D/V) + r_E(E/V)$

Calculation of cost of debt (r_{Dj}) involves estimating the current rate of interest being offered to investors for investing in bonds of identical risk. However, it is quite impossible to identify a similar kind of company with the similar kind of debt instrument with an identical risk. To sort out this estimation problem, r_D was calculated by dividing the actual interest paid by the company by the average amount of total debt the company carried during that particular year. To estimate the debt ratio (D/V) and the equity ratio (E/V), the book value of debt and market value of equity were used. While determining the relative weighting of the instruments, market value weights are considered to be superior to book value weights as the former reflect future expectations of investors. In case of debt, as it is difficult to estimate the current market value, book value proves to be a reasonable proxy for the weighting purpose. For the purpose of this study, the value of the firm (V) was computed as the summation of the book value of debt and market capitalization of equity.

Computation of REVA requires three inputs - cost of equity, return on net worth (RONW), and equity market value. Equity market value and RONW were directly available from the CAPITALINE database; the cost of equity had to be calculated.

Capital Asset Pricing Model (CAPM) is extensively used in financial literature to calculate cost of equity. CAPM was used for this study also.

As per CAPM, cost of equity can be calculated as below:

$K_e = R_f + \beta_i(R_m - R_f)$

In the above equation, Ke represents the cost of equity, R_f stands for risk-free rate, β_i stands for beta of a stock, and R_m stands for return on the market portfolio. The difference between the return on the market portfolio and risk-free rate is referred to as equity market risk premium. For this study, weighted annual returns on Central Government securities for respective years were taken as the risk-free rates. These were directly taken from the Reserve Bank of India website. Following Fernandez (2014), the equity market risk premium was taken as 8% uniformly for all three years of the study period.

3.3 Hypotheses of the study

The following hypotheses were tested in order to achieve the objectives of the study.

H_1: There is no significant association between financial leverage ratios and the cost of capital.
H_2: There is no significant association between financial leverage ratios and shareholder value.

3.4 Regression Models

Relationship between Financial Leverage and Cost of Capital

Model: $NRWACC_{it} = \beta_0 + \beta_1 NRDER_{it} + \beta_2 NRINTSCR_{it}$

The objective of this model is to test the relationship between cost of capital and financial leverage ratios. Traditionally, it has been observed that usage of debt reduces the cost of capital, as the interest expenses on debt are tax deductible. In order to test this hypothesis, empirically, the aforesaid model was run to examine the statistical significance of the debt-equity ratio and interest cover ratio in explaining the variation in cost of capital.

Relationship between Financial Leverage and Shareholders' Wealth

Model 1: $NRMVA_{it} = \beta_0 + \beta_1 NRDER_{it} + \beta_2 NRINTSCR_{it}$
Model 2: $NRREIN_{it} = \beta_0 + \beta_1 NRDER_{it} + \beta_2 NRINTSCR_{it}$
Model 3: $NRREVA_{it} = \beta_0 + \beta_1 NRDER_{it} + \beta_2 NRINTSCR_{it}$

In order to gauge the association between financial leverage and shareholders' wealth, the aforesaid models were run (Model 1, 2 and 3). Market Value added (MVA), Residual income (REIN) and Refined Economic value added (REVA) were used as the measures of shareholders' wealth. The financial leverage ratios measured in terms of the debt-equity ratio and interest cover ratio were regressed against each measure of shareholders' wealth separately.

4. Results and Discussion

Table 1 presents the descriptive statistics of MVA, REIN and REVA of the sample companies for the study period. The mean values of MVA, REIN and REVA were found to be Rs. 91,030.85 crore, Rs. 160,991.88 crore, and Rs. 1,301,498.96 crore respectively, with the standard deviation of Rs. 83,059.34 crore, Rs. 659,755.92 crore and Rs. 3,580,021.72 crore respectively.

4.1 Descriptive Statistics

Table 1: Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
MVA	84	489365.50	-35890.90	453474.60	91030.8536	83059.34338
REIN	84	3947890.99	-2072235.47	1875655.52	160991.8777	659755.92724
REVA	84	15708271.39	-2570505.79	13137765.60	1301498.9575	3580021.71549
WACC	84	17.41	-.59	16.82	9.5790	4.67473
Valid N (list-wise)	84					

In order to test the relationship between financial leverage and cost of capital as well as between financial leverage and measures of shareholder value (MVA, REIN, and REVA), it was required to transform the values of these variables to demonstrate normality. Following the two-step method of Templeton (2011), these variables were normalized. Further, in order to check the normality of these variables, a normality test was conducted using Kolmogorov-Smirnov test.

The following hypotheses were framed to test the normality.

H0: The observed distribution fits the normal distribution.
H1: The observed distribution does not fit the normal distribution.

The results of the Kolmogorov - Smirnov test are presented in Table 2. These results indicate that variables in question depict normality as p-value being greater than 0.05. Following is the description of the variables used in the test.

NRDER stands for the normalized debt-equity ratio
NRINTSCR stands for the normalized interest cover ratio
NRWACC stands for normalized WACC

NRMVA stands for normalized MVA
NRREIN stands for normalized Residual Income
NREVA stands for normalized Refined Economic Value Added

Table 2: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NRDER	.076	77	.200*	.974	77	.113
NRINTSCR	.089	77	.200*	.985	77	.521
NRWACC	.026	77	.200	.997	77	.999
NRMVA	.022	77	.200	.996	77	.999
NRREIN	.021	77	.200*	.998	77	1.000
NRREVA	.028	77	.200*	.995	77	.988

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

4.2 Correlation Analysis

Table 3 presents the results of correlation analysis performed on the chosen variables. Normalized Debt-Equity Ratio (NRDER) was found to be statistically negatively correlated to NRMVA (r = -0.385, p<0.05), NRREVA (r = -0.385, p<0.05), and NRREIN (r = -.413, p, 0.05). Normalized Interest Cover Ratio (NRINTSCR) was found to be uncorrelated with NRMVA (r = 0.181, p>0.05) and positively correlated to NRREVA (0.611, P,0.05) and NRREIN (r = .386, p<0.05).

Table 3: Correlations

		NRDER	NRINTSCR	NRMVA	NRREVA	NRREIN
NRDER	Pearson Correlation	1	-.847**	-.385**	-.530**	-.413**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	83	82	82	82	82
NRINTSCR	Pearson Correlation	-.847**	1	.181	.611**	.386**
	Sig. (2-tailed)	.000		.104	.000	.000
	N	82	83	82	82	82
NRMVA	Pearson Correlation	-.385**	.181	1	.334**	.223*
	Sig. (2-tailed)	.000	.104		.002	.043
	N	82	82	83	82	83
NRREVA	Pearson Correlation	-.530**	.611**	.334**	1	.528**
	Sig. (2-tailed)	.000	.000	.002		.000
	N	82	82	82	83	82
NRREIN	Pearson Correlation	-.413**	.386**	.223*	.528**	1
	Sig. (2-tailed)	.000	.000	.043	.000	
	N	82	82	83	82	83

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.3 Regression Analysis

In order to analyze the relationship between financial leverage (measured as NRDER and NRINTSCR) and cost of capital (NRWACC), a step-wise regression model was performed. Similarly, to examine the association between financial leverage and shareholder wealth (measured as NRMVA, NRREVA and NRREIN) step-wise regression models were performed.

Tables 4, 5, 6 and 7 present the results of stepwise regression run between measures of financial leverage and cost of capital. At Step 1 of the analysis, NRDER was entered into the regression equation and was significantly related to NRWACC (F (1, 79) =41.647, p<0.001). The multiple correlation coefficient was 0.588, indicating approximately 34.5% variance of the NAWACC could be accounted for by NRDER. NRDER was negatively related to NRWACC (t = -6.453, p<0.001). NRINTSCR was not entered into the equation in Step 2 of the analysis (t = -1.029, p>0.05). The results imply that only the debt-equity ratio has a negative association with the cost of capital; interest cover does not seem to have any association with cost of capital.

As mentioned earlier, three regression models were run to assess the relationship between financial leverage and shareholders' wealth. A step-wise regression was conducted to evaluate whether both NRDER and NRINTSCR were necessary to predict NRMVA. Tables 8, 9 and 10 present the results of this regression. At Step 1 of the analysis, NRDER was entered into the regression equation and was significantly related to NRMVA (F (1.79) = 13.081, p<0.05). At Step 2, both NRDER and NRINTSCR were entered into the regression equation and were statistically related to NRMVA (F=10.144, p<0.001). In Step 1, the multiple correlation coefficient was .377, indicating approximately 14.2% of the variance of the NRMVA could be accounted for by NRDER. In Step 2, the multiple correlation coefficient increased to .454, indicating that approximately 20.6% variation in NRMVA was explained by both NRDER and NRINTSCR. Both NRDER and NRINTSCR were negatively related to NRMVA (t= -4.122, p<0.05, t = -2.515, p<0.05). The results thus imply that both the measures of financial leverage have a significant negative association with MVA.

Using stepwise regression, a second model was run to test the association of NRDER and NRINTSCR with NRREIN. The results of this model are presented in Tables 12, 13, 14 and 15 respectively. At Step 1, NRDER was entered into the regression equation and was significantly related to NRREIN (F(1,79)= 14.867, p<0.001). The multiple correlation coefficient was .398, indicating approximately 15.8% of the variance of the NRREIN could be explained by NRDER. NRDER was negatively related to NREIN (t = -3.856, p<0.001). NRINTSCR was not entered into the equation at Step 2 of the analysis (t = 1.038, p>0.05).

Finally, the association of NRDER and NRINTSCR with NRREVA was examined. The results of the same are presented in Tables 16, 17, 18 and 19. At Step 1 of the stepwise regression analysis, NRINTSCR was entered into the regression equation and was significantly related to NRREVA (F (1,79) =45.065, p<0.001). The multiple correlation coefficient was 0.603, indicating approximately 36.3% of the variance of the NRREVA could be explained by NRINTSCR. NRINTSCR was significantly positively related to NRREVA (t = 6.713, p<0.001). NRDER was not entered into the equation at Step 2 of the analysis (t = -.904, p>0.05).

5. Conclusion and Summary

The study in this paper was aimed to investigate two important issues: (i) Relationship between financial leverage and cost of capital, and (ii) Relationship between financial leverage and shareholders' value. With respect to the first issue, the results of the study highlight that financial leverage and cost of capital are negatively related. This confirms the findings of Chatrath (1994) who also found a negative association between financial leverage and cost of capital. The results also subscribe to the view of Rao and Litzenberger (1971) that increase in debt up to a moderate level decreases the cost of capital, implying a negative relationship between them. On the contrary, the results contradict the findings of Barniv and Bulmash (1988) who found a positive relationship between financial leverage and the cost of capital, implying that an increase in financial leverage increases the cost of capital.

Coming to the second issue, the results represent a mixed bag. The debt-equity ratio was found to have a statistically significant negative association with market value added, residual income, and refined economic value added. This implies that financial leverage (measured in terms of debt-equity ratio) does not have a positive correlation with shareholders' value. It confirms the findings of Barakat (2015) that there is no significant positive relationship between leverage and stock value. This contradicts the results of Ward and Price (2006); Sharma (2006); Matemilola, Bany-Ariffin and Azman-Saini (2012); and Adetunji, Akinyemi and Rasheed (2016) who found a positive relation between leverage and shareholders' value. The results also contradict Jahfer (2016); Pachori and Totala (2012); Niresh and Alfred (2014); and Ishari and Abeyrathna (2016), who found no relationship between financial leverage and shareholders' wealth. The results are also inconsistent with Vijayalakshmi and Manoharan (2015) who reported that financial leverage did not affect market value added. On the contrary, results are consistent with Al-

Hasan and Gupta (2013), Ramadan (2015), Pandey and Prabhavati (2016) who reported a strong association between financial leverage and shareholders' wealth.

Interest cover was found to have a statistically significant positive correlation with residual income and refined economic value added. However, it was not significantly correlated to market value added. This is inconsistent with Pandya (2016) and Vijayalakshmi and Manoharan (2015) who found that interest cover is significantly related to market value added.

The models applied in the study could be considered useful while analyzing the relationship between financial leverage and shareholders' wealth of the companies that are listed on the stock exchange as it is possible to calculate MVA, REIN and REVA only if the company is listed on the stock exchange. It thus enriches the existing literature by providing empirical evidence pertaining to financial leverage and its impact on cost of capital and shareholders' wealth.

5.1 Managerial Implications of the study

The results of this study thus advance the notion that financial leverage measured in terms of debt-equity ratio does affect the cost of capital and shareholders' value, although negatively. This offers several implications for financial managers. One, by raising debt in the capital structure of the company, managers can reduce the overall cost of capital. Second, a higher proportion of debt need not necessarily increase shareholders' value. Managers may also be motivated to maintain higher interest cover as it is positively related to refined economic value and residual income.

5.2 Limitations of the study

The study was confined to only 28 companies that were included in the Bombay Stock Exchange Sensex. The results of the study would thus be limited to those companies that were included in the Sensex. Another limitation was that the study considered only three measures of shareholders' wealth. It did not consider measures like Shareholder Value Added (SVA), Total Shareholder Return (TSR) and Created Shareholder Value (CSV) that are equally important while measuring shareholders' wealth.

5.3 Scope for future research

The study did not segregate the sample companies depending upon the sector to which they belong. The results of the study will set out an overarching implication for the companies working across different sectors. However, to explore a sector-specific association between financial leverage and cost of capital, and between financial leverage and shareholder value, sector-specific studies are warranted.

Table 4: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.588[a]	.345	.337	3.53893	1.099
a. Predictors: (Constant), NRDER					
b. Dependent Variable: NRWACC					

Table 5: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	521.591	1	521.591	41.647	.000[b]
	Residual	989.397	79	12.524		
	Total	1510.987	80			
a. Dependent Variable: NRWACC						
b. Predictors: (Constant), NRDER						

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	11.254	.469		23.998	.000		
	NRDER	-.909	.141	-.588	-6.453	.000	1.000	1.000
a. Dependent Variable: NRWACC								

Table 7: Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	NRINTSCR	-.178[b]	-1.029	.307	-.116	.276	3.627	.276
a. Dependent Variable: NRWACC								
b. Predictors in the Model: (Constant), NRDER								

Table 8: Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.377[a]	.142	.131	74946.92877	
2	.454[b]	.206	.186	72541.50629	.998
a. Predictors: (Constant), NRDER					
b. Predictors: (Constant), NRDER, NRINTSCR					
c. Dependent Variable: NRMVA					

Table 9: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	73475208250.039	1	73475208250.039	13.081	.001[b]
	Residual	443746328411.843	79	5617042131.795		
	Total	517221536661.882	80			
2	Regression	106764466200.396	2	53382233100.198	10.144	.000[c]
	Residual	410457070461.486	78	5262270134.122		
	Total	517221536661.882	80			
a. Dependent Variable: NRMVA						
b. Predictors: (Constant), NRDER						
c. Predictors: (Constant), NRDER, NRINTSCR						

Table 10: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	109321.293	9870.198		11.076	.000		
	NRDER	-10687.011	2954.879	-.377	-3.617	.001	1.000	1.000
2	(Constant)	136637.526	14464.480		9.446	.000		
	NRDER	-22080.439	5357.226	-.779	-4.122	.000	.285	3.509
	NRINTSCR	-4.082	1.623	-.475	-2.515	.014	.285	3.509
a. Dependent Variable: NRMVA								

Table 11:Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	NRINTSCR	-.475[b]	-2.515	.014	-.274	.285	3.509	.285
a. Dependent Variable: NRMVA								
b. Predictors in the Model: (Constant), NRDER								

Table 12: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.398[a]	.158	.148	585711.38887	1.216
a. Predictors: (Constant), NRDER					
b. Dependent Variable: NRREIN					

Table 13: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5100405321525.730	1	5100405321525.730	14.867	.000[b]
	Residual	27101568652922.098	79	343057831049.647		
	Total	32201973974447.830	80			
a. Dependent Variable: NRREIN						
b. Predictors: (Constant), NRDER						

Table 14: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	308583.082	77135.750		4.001	.000		
	NRDER	-89040.623	23092.423	-.398	-3.856	.000	1.000	1.000
a. Dependent Variable: NRREIN								

Table 15: Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	NRINTSCR	.201[b]	1.038	.303	.117	.285	3.509	.285
a. Dependent Variable: NRREIN								
b. Predictors in the Model: (Constant), NRDER								

Table 16: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.603[a]	.363	.355	2749738.93629	1.042
a. Predictors: (Constant), NRINTSCR					
b. Dependent Variable: NRREVA					

Table 17:ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	340736714327796.940	1	340736714327796.940	45.065	.000[b]
	Residual	597324073200042.900	79	7561064217722.062		
	Total	938060787527839.800	80			
a. Dependent Variable: NRREVA						
b. Predictors: (Constant), NRINTSCR						

Table 18: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1013147.528	310706.864		3.261	.002		
	NRINTSCR	219.713	32.729	.603	6.713	.000	1.000	1.000
a. Dependent Variable: NRREVA								

Table 19: Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	NRDER	-.153[b]	-.904	.369	-.102	.283	3.529	.283

a. Dependent Variable: NRREVA

b. Predictors in the Model: (Constant), NRINTSCR

References

- Adetunji, A., Akinyemi, I., & Rasheed, K. (2016). Financial leverage and firms' value: a study of selected firms in Nigeria, *European Journal of Research and Reflection in Management Sciences*, 4(1), 14-32.
- Al-Hasan, A. & Gupta, A. (2013). The effect of leverage on shareholders' return: an empirical study on some selected listed companies in Bangladesh, *European Journal of Business and Management*, 5(3), 46-53.
- Ayeni, T. & Olaoye, B. (2015). Cost of capital theory and firm value: conceptual perspective, *International Journal of Multidisciplinary Research and Development*, 2(10), 632-636.
- Barakat, A. (2015). The impact of financial structure, financial leverage, and profitability on industrial companies' shares value (Applied study on a sample of Saudi industrial companies), *Research Journal of Finance and Accounting*, 5(1), 55-66.
- Barniv, R., & Bulmash, S. (1988). New public stock issues by seasoned and unseasoned firms: a comparative analysis in a turbulent environment - The Case of Israel. *Managerial and Decision Economics, 9*(1), 27-34. Retrieved from http://www.jstor.org/stable/2487690
- Brigham, E. & Jordon, M. (1968). Leverage, dividend policy, and the cost of capital, The *Journal of Finance*, 23(1), 85-103.
- Carpentier, C. (2006). The valuation effects of long-term changes in capital structure, *International Journal of Managerial Finance*, 2(1), 4 – 18.
- Chatrath, A. (1994). Financial leverage and the cost of capital: a reexamination of the value-relevance of capital structure, Cleveland State University, ProQuest Dissertations Publishing, 9520122.
- Davenport, M. (1971). Leverage and the cost of capital: some tests using British data. *Economica*, 38(150), new series, 136-162. doi:10.2307/2552575.
- Gapenski, C. (1987). An empirical study of the relationships between financial leverage and capital costs for electric utilities, Accessed on September 21, 2016, Retrieved from http://warrington.ufl.edu/centers/purc/purcdocs/papers/8701_Gapenski_An_Empirical_Study.pdf
- Hall, J. & de Wet, J. (2003). The relationship between EVA, MVA, and leverage (November 30, 2003). *Meditari Accountancy Research*, 13(1), 39-59.
- Jahfer, A. (2006). The impact of financial leverage on the wealth of shareholders relevant to the firms in Sri Lanka, *Journal of Management*, 4(1), 10-18.
- Modigliani, F. & Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261-297.
- Modigliani, F. & Miller, M. (1963). Corporate income taxes and the cost of capital: a correction, *The American Economic Review*, 53(3), 433-444.
- Niresh, A and Alfred, M. (2014). The association between economic value added, market value added and leverage, *International Journal of Business and Management*, 9(10), 126-133.
- Fernandez, P. (2014). Market risk premium used in 88 countries in 2014: a survey with 8,228 answers, Accessed April 4, 2015, Retrieved from http://ssrn.com/abstract=2450452

- Ishari, M. & Abeyrathna, S. (2016). The impact of financial leverage on firms' value (special reference to listed manufacturing companies in Sri Lanka), *International Journal Of Advancement In Engineering Technology, Management and Applied Science*, 3(7), 100-104.
- Matemilola, B., Bany-Ariffin, A. & Azamn-Saini, W. (2012). Financial leverage and shareholders' required returns: evidence from South Africa corporate sector, Transit Stud Rev, 18, 601-612.
- Pachori, S. & Totala, N (2012). Influence of financial leverage on shareholders' return and market capitalization: a study of automotive cluster companies of Pithampur, (M.P.), India, Paper Presented at 2nd International Conference on Humanities, Geography and Economics (ICHGE'2012) Singapore, April 28-29, 2012.
- Pandey, N. & Prabhavathi, M (2016). The impact of leverage on shareholders' wealth of automobile industry in India: an empirical analysis, *Pacific Business Review International,* 8(7), 79-92.
- Pandya. B. (2016). Impact of financial leverage on market value added: empirical evidence from India, *Journal of Entrepreneurship, Business and Economics*, 4(2), 40–58.
- Sharma, A. (2006). Financial leverage and firm's value: a study of capital structure of selected manufacturing sector firms in India. *The Business Review*, *Cambridge*, 6(2), 70-76.
- Solomon, E. (1963). Leverage and the cost of capital, *The Journal of Finance*, 18(2), 273-279.
- Templeton, G. (2011). A two-step approach for transforming continuous variables to normal: implications and recommendations for IS research, Communications of the AIS, 28, 4.
- Ward, M. & Price, A. (2006). *Turning Vision into Value*. Pretoria: *Van* Schaik Publishers.
- Ramadan, I (2015). Leverage and the Jordanian firms' value: empirical evidence, *International Journal of Economics and Finance*, 7(4), 75-81.
- Rao, C. & Litzenberger, R. (1971). Leverage and the cost of capital in a less developed capital market: comment, *The Journal of Finance*, 26(3), 777-782.
- Venugopal, M. & Reddy, M. (2016). Impact of capital structure on firm's profitability and shareholder wealth maximization: a study of listed Indian cement companies, *IOSR Journal of Business and Management*, 18(4), 21-27.
- Vijayalakshmi, D. & Manoharan, P. (2015). Corporate leverage and its impact on EVA and MVA, *International Journal of Multidisciplinary Research and Development*, 2(2), 22-25.

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