International Journal of Enhanced Research in Management & Computer Applications
ISSN: 2319-7471, Vol. 11 Issue 6, June, 2022, Impact Factor: 7.751

Relationship between Profitability and Financial Leverage: Empirical Evidence from Selected Indian Banking Institutions

Naveen Garg

ABSTRACT

This research article examines the relationship between profitability and financial leverage of selected listed Indian banking institutions for a period of five years from 2016-17 to 2020-21. The choice of the institutions is based on the size of their total asset, liquidity, and the availability of data. The study considers profitability factors such as return on assets (ROA), return on equity (ROE), and earnings per share (EPS) as dependent variables (DV); and leverage factors such as debt-equity ratio (DER) and total debt ratio (TDR) as independent variables (IV). Size of the Banking Institutions and their liquidity are taken as control variables. The impacts of these variables are empirically analyzed on the basis of multiple regression models. The findings indicate a negative correlation between DER and the profitability factors. The findings further indicate that TDR is negatively correlated with ROA and ROE, but positively correlated with EPS. The study concluded that the profitability of listed Indian banking institutions is largely affected by the debt-equity ratio, total debt ratio, size of the institution, and liquidity.

Keywords: Indian Banks, Profitability, Return on Equity, Return on Assets, Earning per Share, Financial Leverage, Debt-Equity ratio, Total Debt Ratio.

INTRODUCTION

The foremost goal of managing finance is to increase the wealth of the company's shareholders. This goal can be achieved based on financing decisions or capital structure decisions. Various studies have considered the Capital structure theory to be the most significant corporate financial theory, emphasizing the importance of leveraged financing. The capital structure is determined by the company's financial leverage, representing the combination of debt and equity financing. Leverage alludes to choosing the appropriate mix of debt and equity to attain the most advantageous leveraged capital, so as to minimize the overall cost of capital and to maximize the returns. In addition, leverage decisions largely influence the company's ability to respond to the competitive environment and maximize the returns of various stakeholders.

As the Indian banking industry plays a key strategic role in the overall development of the country, the economy also develops around its modernization, development, and restructuring. To this end, it requires a large amount of investment, mainly borrowed funds. As a social entity with leveraged financing, it has a moral obligation to satisfy investors and shareholders who take risks. In the context of banking institutions, exploring the impact of leverage on its determinants has become the top priority of this research. Further, a large number of studies have concentrated on the individual determinants such as profitability and leverage (Afolabi, 2019; Rahman et al., 2020), the size of the organization and leverage (Marfuah & Nurlaela, 2019), liquidity and leverage (Darianto et al., 2018), and so forth. This study adopts a broader perspective with the aim to examine the impact of different explanatory variables of leverage with reference to various profitability factors (i.e., Return on Assets, Return on Equity, and Earnings per Share) for identified listed Indian banks.

REVIEW OF LITERATURE

Chandrakumarmangalam and Govindasamy (2010) investigated the relationship between the financial leverage of selected cement companies and earnings per share to describe the relationship between DER (leverage) and EPS (profitability) and to explain how these companies can effectively use debt financing. Statistical tools like one-way ANOVA and t-test were used to test the hypotheses. The results show that leverage and profitability are related, and leverage has an impact on the company's profitability.

Pratheepkanth (2011) in his research paper analyzed the impact of capital structure on the corporate financial performance of Sri Lankan businesses during the five-year period from 2005 to 2009. The results show that there is an insignificant negative correlation between capital structure and financial performance, with the coefficient of determination at 0.013, and the t value at -0.605. The results show that Sri Lankan businesses mainly rely on debt financing and pay high interests, which have a negative impact on profitability.

Akhtar et al. (2012) conducted a study to analyze the relationship between financial leverage and the financial performance of Pakistan's fuel and energy industry. The findings indicate a positive association of financial leverage with corporate performance. The findings confirm that enterprises with high profits may enhance their financial performance by attaining a higher degree of financial leverage.

Kumar (2014) conducted exploratory research study on leverage and its relationship with profitability in Bata India Limited by collecting data from Bata India Limited's financial statements over a span of 7 years (from 2005-06 to 2012-13). The study proved that financial leverage is positively correlated with financial performance, indicating that Bata India's financial leverage is not at the optimal level. The study recommended that the company must revise its capital structure to include the best mix of debt and equity in order to have a positive impact on its returns and obtain the benefits of financial leverage.

Zeitun and Saleh (2015) used the dynamic generalized moment estimation method to study the impact of financial leverage on the corporate performance of Gulf countries. The results show that leverage is an important determinant of corporate performance.

Singh and Bansal (2016) investigated the impact of financial leverage on the financial performance of 60 listed FMCG companies in India and found that leverage has a significant negative impact on financial performance. The study highlighted that the company must have the right mix of equity and debt financing to reduce its bankruptcy risk and maximize its financial performance.

Abubakar (2017) used descriptive statistics and panel data techniques to statistically analyze the influence of leverage on the financial performance of eleven listed Nigerian companies. The findings show that TDR has no significant impact on profitability, while the DER has a significant negative impact on the profitability measured by ROE.

Darianto et al. (2018) investigated the effect of leverage and liquidity on the profitability of three listed realestate companies from Indonesia over a five-year period (2012 to 2016). The results show that the liquidity and total debt ratio are negatively correlated with the return on assets (ROA).

Dalci (2018) uses SEM, random effects, fixed effects, OLS, and GMM approaches to explore the effect of leverage on the financial performance of 1503 listed Chinese companies. The findings evidenced that the association between leverage and corporate profitability is reversed U-shaped, wherein the positive effect may be due to the tax shield, while the negative effect may be attributed to financial distress or bankruptcy issues.

Afolabi (2019) used econometric models and regression analysis to study the impact of financial leverage and profitability of Nigerian firms. The results indicated a significant positive impact between financial leverage (DER and TDR) and profitability, suggesting that the firms should continue to use debt financing in order to benefit from the available tax shields and ultimately increase profitability.

Rahman et al. (2020) used a sample of 22 listed textile companies in Bangladesh to analyze the effect of leverage on corporate profitability. A combination of OLS and GMM models was used to test this impact. The study uses ROE to measure corporate profitability. Both short-term and long-term debts are used as agents of financial leverage. The findings indicated a negative and significant association between leverage ratios and corporate profitability. It recommended paying greater attention to raising funds internally to meet their own financing needs.

Objectives of The Study

In the context of the above theoretical framework and empirical research, the present study aims to achieve the following objectives:

- Analyze the relationship between leverage factors and profitability factors of identified listed banks in India.
- Study the impact of leverage determinants on profitability factors of identified listed banks in India.

RESEARCH HYPOTHESES

H_{01}: DER exerts no significant impact on ROA.

H_{02}: TDR exerts no significant impact on ROA.
H_{03}: DER exerts no significant impact on ROE.
H_{04}: TDR exerts no significant impact on ROE.
H_{05}: DER exerts no significant impact on EPS.
H_{06}: TDR exerts no significant impact on EPS.

RESEARCH METHODOLOGY

The article examines the influence of financial leverage determinants on the financial performance of selected Indian banking institutions for a period of five years from 2016-17 to 2020-21. A total of five banking institutions – HDFC Bank, ICICI Bank, State Bank of India, Axis Bank, and Kotak Mahindra Bank were selected based on the size of their total assets, liquidity, and on the availability of data. The study considers profitability factors such as return on assets (ROA), return on equity (ROE), and earnings per share (EPS) as dependent variables (DV) and leverage factors such as debt-equity ratio (DER) and total debt ratio (TDR) as independent variables (IV). Size of the Banking Institutions and their liquidity are taken as control variables, with the purpose of improving the modelling and explain the profitability of listed Indian banking institutions that cannot be obtained by leverage factors alone. The connotations of the variables used in the present study are clarified in Table 1 below:

Table – 1: Study Variables Defined

Study Variables	Connotation	Sign
Dependent Variables:		
Return on Assets (ROA)	Earnings before Interest & Tax / Total Assets	
Return on Equity (ROE)	Earnings after Tax / Equity Net worth	
Earnings per Share (EPS)	Earnings available for Equity Shareholders / Outstanding number of Equity Shares	
Control Variables:		
Firm Size (Size)	Logarithm of Total Assets	
Liquidity (LIQ)	Current Assets / Current Liabilities	
Independent Variables:		
Debt-Equity Ratio (DER)	Total Debt / Equity Net worth	
Total Debt Ratio (TDR)	Total Debt / Total Assets	

The financial data were collected from the annual reports of the identified banks, and the requisite ratios were manually calculated based on the collected data. Descriptive statistics provided a basic analysis of dependent and independent variables and the strength of these variables were measured using multiple correlation analysis. As recommended by Rahman and Sharma (2020), the impact of the study variables were empirically analyzed on the basis of multiple regression models estimating cross-sectional data with time-series, rather than adopting individual methods of cross-section or time-series. The multiple regression models adopted for this study are mentioned as under:

$$ROA_{i,n} = \beta_0 + \beta_1 DER_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n} \quad (1)$$
$$ROA_{i,n} = \beta_0 + \beta_1 TDR_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n} \quad (2)$$
$$ROE_{i,n} = \beta_0 + \beta_1 DER_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n} \quad (3)$$
$$ROE_{i,n} = \beta_0 + \beta_1 TDR_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n} \quad (4)$$
$$EPS_{i,n} = \beta_0 + \beta_1 DER_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n} \quad (5)$$
$$EPS_{i,n} = \beta_0 + \beta_1 TDR_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n} \quad (6)$$

Where, β_0 indicates the intercept, β_1 indicates the coefficient of independent variables, β_2 & β_3 indicates the coefficients of the control variables in the above equations, ε indicates the error term, and i, n indicates the observation for the i^{th} institution for the n^{th} time period. This study is based on the hypothesised relationship that ROA/ROE/EPS = *f* (DER, TDR, SIZE, LIQ).

EMPIRICAL RESULTS

The descriptive statistics have been displayed under Table 2. The results show that the mean value of the profitability factors lies between 1.00 and 19.43, which indicates that the Banking institutions in India performed moderately during the study period. In addition, the mean value of the financial leverage factors lies between 0.92 and 9.39, which indicates a higher proportion of debts in the capital structure of Indian banking institutions. The standard deviation of the dependent and independent variables lies between 0.03 and 23.45. The kurtosis of the dependent and independent variables lies between -2.70 and 4.80. The skewness of the dependent and independent

variables lies between -0.31 and 2.18. The values of Kurtosis and Skewness indicate a lack of symmetry in financial data.

Table – 2: Descriptive Statistical Results (N = 5)

Research Variables	Mean	Standard Deviation	Kurtosis	Skewness	Minimum Value	Maximum Value
ROA	1.00	0.77	-2.70	0.30	0.17	1.89
ROE	8.91	5.18	-1.81	0.36	3.32	15.73
EPS	19.43	23.45	4.80	2.18	7.70	61.18
DER	9.39	3.59	2.46	1.51	6.10	15.34
TDR	0.92	0.03	-2.27	-0.31	0.88	0.95
SIZE	5.99	0.40	1.40	0.19	5.46	6.56
LIQ	18.09	2.17	-0.13	0.65	15.90	21.29

Before performing statistical analysis, it is necessary to find out the correlation and multi-collinearity between independent variables, because multi-collinearity may mislead regression estimates for financial data. Table 3 summarizes the correlation analysis between the dependent and independent variables. The results indicate a negative correlation between DER and the profitability factors. Further, the results indicate that TDR is negatively correlated with ROA and ROE, but positively correlated with EPS. In addition, the values of bi-variate (pair wise) coefficients of correlation between the independent variables are checked to determine the issue of multi-collinearity. As recommended, none of the pair-wise coefficients of correlation was found to be 0.80 or larger, indicating the absence of multi-collinearity issue in the model.

Table – 3: Correlation Analysis

Research Variables	ROA	ROE	EPS	DER	TDR	SIZE	LIQ
ROA	1.00						
ROE	.79*	1.00					
EPS	.60	.77*	1.00				
DER	-.79*	-.73	-.26	1.00			
TDR	-.40	-.30	.22	.55	1.00		
SIZE	-.68	-.49	-.05	.78*	.41	1.00	
LIQ	.46	.21	-.40	-.71	-.57	-.79*	1.00

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

Based on the identified study variables, six models were developed. The results of the multiple regression analysis estimated under different models have been reported under the Table 4. The explanatory power of each model is represented by R^2 (coefficient of determination) and adjusted R^2.

Table – 4: Multiple Regression Analysis

Model 1: $ROA_{i,n} = \beta_0 + \beta_1 DER_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n}$				
Variable	β_0	β	*t*-statistic	Significance
(Constant)	15.95		.44	No
DER		-.55	-.40	No
SIZE		-.82	-.34	No
LIQ		-.68	-.41	No
R^2 = .67 Adj. R^2 = .31 F-statistic = 6.8 (*p*-value = .000)				
Model 2: $ROA_{i,n} = \beta_0 + \beta_1 TDR_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n}$				
Variable	β_0	β	*t*-statistic	Significance
(Constant)	46.69		1.48	No
TDR		-.52	-.87	No
SIZE		-1.97	-1.59	No
LIQ		-1.64	-1.19	No
R^2 = .78 Adj. R^2 = .13 F-statistic = 12.0 (*p*-value = .000)				
Model 3: $ROE_{i,n} = \beta_0 + \beta_1 DER_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n}$				
Variable	β_0	β	*t*-statistic	Significance
(Constant)	112.64		.52	No
DER		-.88	-.72	No
SIZE		-.63	-.29	No

LIQ		-.99	-.67	No
R^2 = .74 Adj. R^2 = .03 F-statistic = 9.7 (*p*-value = .000)				
Model 4: $ROE_{i,n} = \beta_0 + \beta_1 TDR_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n}$				
Variable	β_0	β	*t*-statistic	Significance
(Constant)	400.28		2.45	No
TDR		-.66	-1.44	No
SIZE		-2.35	-2.47	No
LIQ		-2.33	-2.21	No
R^2 = .87 Adj. R^2 = .49 F-statistic = 22.8 (*p*-value = .000)				
Model 5: $EPS_{i,n} = \beta_0 + \beta_1 DER_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n}$				
Variable	β_0	β	*t*-statistic	Significance
(Constant)	931.55		1.26	No
DER		-.44	-.48	No
SIZE		-1.39	-.85	No
LIQ		-1.99	-1.78	No
R^2 = .85 Adj. R^2 = .40 F-statistic = 19.0 (*p*-value = .000)				
Model 6: $EPS_{i,n} = \beta_0 + \beta_1 TDR_{i,n} + \beta_2 SIZE_{i,n} + \beta_3 LIQ_{i,n} + \varepsilon_{i,n}$				
Variable	β_0	β	*t*-statistic	Significance
(Constant)	1653.75		2.63	No
TDR		-.39	-.99	No
SIZE		-2.30	-2.84	No
LIQ		-2.73	-3.05	No
R^2 = .91 Adj. R^2 = .63 F-statistic = 32.8 (*p*-value = .000)				

FINDINGS & DISCUSSIONS

Model 1: Considering ROA as dependent and DER as independent variable, this model explains around 67% of the variation in profitability. The adjusted explanation of the model is about 31%. The F-statistic, testing the significance of R^2 and measuring the significance of the estimated regression, assumes the value 6.8 and is statistically significant in explaining the variation (p = .000). DER has a non-significant coefficient (-.40) on ROA in the Indian Banking sector. Hence, the null hypothesis stating no impact of DER on ROA stands rejected.

Model 2: Considering ROA as dependent and TDR as independent variable, this model explains around 78% of the variation in profitability. The adjusted explanation of the model is about 13%. The F-value = 12.0 and is statistically significant in explaining the variation (p = .000). TDR has a non-significant coefficient (-.87) on ROA in the Indian Banking sector. Hence, the null hypothesis stating no impact of TDR on ROA stands rejected.

Model 3: Considering ROE as dependent and DER as independent variable, this model explains around 74% of the variation in profitability. The adjusted explanation of the model is about 3%. The F-value = 9.7 and is statistically significant in explaining the variation (p = .000). DER has a non-significant coefficient (-.72) on ROE in the Indian Banking sector. Hence, the null hypothesis stating no impact of DER on ROE stands rejected.

Model 4: Considering ROE as dependent and TDR as independent variable, this model explains around 87% of the variation in profitability. The adjusted explanation of the model is about 49%. The F-value = 22.8 and is statistically significant in explaining the variation (p = .000). TDR has a non-significant coefficient (-1.44) on ROE in the Indian Banking sector. Hence, the null hypothesis stating no impact of TDR on ROE stands rejected.

Model 5: Considering EPS as dependent and DER as independent variable, this model explains around 85% of the variation in profitability. The adjusted explanation of the model is about 40%. The F-value = 19.0 and is statistically significant in explaining the variation (p = .000). DER has a non-significant coefficient (-.48) on EPS in the Indian Banking sector. Hence, the null hypothesis stating no impact of DER on EPS stands rejected.

Model 6: Considering EPS as dependent and TDR as independent variable, this model explains around 91% of the variation in profitability. The adjusted explanation of the model is about 63%. The F-value = 32.8 and is statistically significant in explaining the variation (p = .000). TDR has a non-significant coefficient (-.99) on EPS in the Indian Banking sector. Hence, the null hypothesis stating no impact of TDR on EPS stands rejected.

CONCLUSION & RESEARCH IMPLICATIONS

The present empirical research has analyzed the case of five listed banking institutions by adopting a "multiple regression model" to analyze the impact of financial leverage factors on profitability factors. The above findings and discussions made it clear that the profitability of listed Indian banking institutions is largely affected by the

debt-to-equity ratio, total debt ratio, its size, and liquidity. Thus, it can be concluded that the debt financing option must be considered by the Indian banks keeping in mind, its impact on profitability and the banking institutions should not just rely on the internally generated funds. Research shows that banking institutions can enhance their profitability by restructuring their financial leverage, which can consequently help in achieving sustainable growth in the future.

Although in-depth research and exploration have been conducted in the field of financial leverage, previous research has mainly focused on sectors and organizations other than listed banking institutions. As described in this study, it is difficult to generalize the results due to the many different factors that accompany these sectors. Therefore, the choice of Indian listed banking institutions provides theoretical insights into the capital structure from an extraordinary perspective. This research aims to provide managers in the Indian banking sector with insights into the field of capital structure to improve strategic decision-making. The results of this research are quite significant for bank managers and other stakeholders to explain and reflect on how to evaluate their own capital structure and how to carry out potential restructuring to improve profitability. Although the choice of rethinking the capital structure is not necessarily the top agenda of all managers, it is expected to make managers aware that financing decisions are important for improving short-term and long-term profitability. In addition, this research will be conducted in the most recent time frame, and the results produced can be safely assumed to be relevant to bank managers and listed Indian banks in recent times.

REFERENCES

[1]. Abubakar, A. (2017). Financial leverage and financial performance of quoted industrial goods firms in Nigeria. KASU Journal of Management Science, 8(2): 89-108.
[2]. Afolabi, A., Olabisi, J., Kajola, S.O. and Asaolu, T.O. (2019). Does leverage affect the financial performance of Nigerian firms? Journal of Economics & Management, 37(3): 5-22.
[3]. Akhtar, S., Jave, B., Maryam, A. and Sadia, H. (2012). Relationship between financial leverage and financial performance: Evidence from fuel & Energy Sector of Pakistan. European Journal of Business and Management, 4(11): 7-17.
[4]. Chandrakumarmangalam, S. and Govindasamy, P. (2010). Leverage - An analysis and its impact on profitability with reference to selected cement companies in India. European Journal of Economics, Finance, and Administrative Sciences, 27: 54-66.
[5]. Dalci, I. (2018). Impact of financial leverage on the profitability of listed manufacturing firms in China. Pacific Accounting Review. 30(12): 410-432.
[6]. Daryanto, W., Samidi, S. and Siregar, D. (2018). The impact of financial liquidity and leverage on financial performance: Evidence from property and real estate enterprises in Indonesia.Management Science Letters, 8(12): 1345-1352.
[7]. Kumar, D.M. (2014). An Empirical Study on Relationship between Leverage and Profitability in Bata India Limited. International Journal of Advanced Research in Computer Science and Management Studies, 2(5): 1-9.
[8]. Marfuah, S. and Nurlaela, S. (2019). Effect of Firm size, Asset Growth, Profitability, and Sales Growth on Capital Structure. Journal of Accounting and Tax, 18(1): 80-91.
[9]. Pratheepkanth, P. (2011). Capital structure and financial performance: evidence from selected business companies in Colombo stock exchange Sri Lanka. Researchers World, 2(2): 171-183.
[10]. Rahman, A. and Sharma, R.B. (2020). Cash flows and financial performance in the industrial sector of Saudi Arabia: With special reference to Insurance and Manufacturing Sectors. Investment Management and Financial Innovations, 17(4): 76-84.
[11]. Rahman, M.M., Saima, F.N. and Jahan, K. (2020). The Impact of Financial Leverage on Firm's Profitability: An Empirical Evidence from Listed Textile Firms of Bangladesh. The Journal of Business Economics and Environmental Studies, 10(2): 23–31.
[12]. Singh, A. and Bansal, P. (2016). Impact of Financial Leverage on Firms' Performance and Valuation: A Panel Data Analysis. Indian Journal of Accounting, 2: 73-80.
[13]. Zeitun, R. and Saleh, A.S. (2015). Dynamic performance, financial leverage, and financial crisis: evidence from GCC countries. EuroMed Journal of Business, 10(2): 147-162.