

The relationship between capital structure and profitability: an analysis of selected public and private sector bank in India

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Abstract - Financing decisions from the core of any public and private sector banks in India. An appropriate capital structure is the goal of the business in this which is one of the fattest growing sectors in India. In this research paper explores the impact of capital structure on profitability select public and private bank in India. Capital structure is the financial tool that helps to determine that how do firms choose their capital structure? Any banks of India use more debt than equity to finance assets has a high leverage ratio and an aggressive capital structure. An attempt has been made to analyse the relationship between capital structure and profitability for the period of five financial years 2013-14 to 2017-18. This study is based on secondary data collected from the various banking statistics published by Reserve Bank of India, Indian Banking Association & Banks annual report. In this research paper for analysis the data is use ANOVA. We find in this study both sector (public or private) banks net profit are affected from capital structure but more show on public sector banks.

Key Words: capital structure, profitability, banks, debt, equity

I. INTRODUCTION

Capital structure is the combination of debt and equity securities that are used in financing companies' assets. It is referred to as the amount of fixed short-term debt, preferred stock, and common equity employed to finance a firm's operations and prospects regarding future growth. Financial structure is often used as synonymous with capital structure and the two have many similarities as well. However, financial structure has a broader scope as compared to capital structure. The former is more comprehensive in the sense that it refers to, in aggregate; the amount of total current liabilities, long-term debt, preferred stock, and common equity used to finance a firm. In other words, it incorporates the entire liabilities plus equities side of balance sheet i.e., it is the entire left hand side of balance sheet. On the other hand, capital structure is only a portion of financial structure, which refers mainly to the permanent sources of the firm's financing. Short term liabilities do not become a part of capital structure.

Any firm or bank can employ either debt or equity capital to fund their assets. The best alternate is a mixture of debt and equity. The present study mainly highlights how far the capital structure impacts the Profitability of public and private banks in India. The study aims to discover the hypothesized relationship as to how the business revenue of the selected banks is affected by capital structure and how

is capital structure and profitability interrelated. This study is carried out after categorizing the selected one public and one private banks on the basis of two traits, namely, business revenue and asset size. In the aftermath of liberalization and globalization of economic policies across the world, investment opportunities have widened and financing. Options have emerged, and above all dependence on capital markets has grown.

A new business requires enormous amounts of capital to exist and expand. The requisite funds can come from many different sources and by different states. Firms can incorporate either debt or equity capital to finance their assets but the best alternative is composition of debt and equity. One of the most bewildering issues faced by financial directors is the correlation between capital structure which is the mix of debt and equity financing, and stock prices. If a firm's or bank's debt equity ratio happens to be greater than 1 it means that if ($dab > 1$) then debt will be advantageous (relative to equity), otherwise it is harmful for any firm or bank. The value of the firm is free of its debt policy and is based on the critical assumption that corporate income taxes do not exist. In reality, corporate income taxes do exist, and interest paid to debt-holders is considered a deductible expense. Thus, interest payable by firms or banks is tax saving. This accounts for debt financing advantages. The value of the firm increases with debt due to

the feature of deductibility of interest charges for tax computation purposes, and the value of the levered firm or banks will be higher than that of the un-levered firm as the latter has no debt.

II. OVERVIEW OF BANKS

Indian Banking Industry developed in the first decade of 18th century as The General Bank of India came into existence in the year 1786. And then later Bank of Hindustan emerged. A couple of decades after, in the year 1850 the foreign banks like Credit Lyonnais began their operations in Calcutta. Calcutta was considered as the most active trading port at that time which was during the British Empire, as a result of these factors the banking activity took roots there and prospered in Calcutta. The first fully Indian owned bank was established in the year 1865, in Allahabad. The Indian Banking Industry in 1960 became an essential tool to stimulate the financial development of the Indian economy. Concurrently it emerged as a large employer and debate prevailed that assured about the possibility of nationalization of the banking industry. The intention of the GOI was highlighted by then Prime Minister of India, Indira Gandhi in the annual conference of the All India Congress Meeting. This was welcomed with positive enthusiasm by the whole nation. Later, GOI issued an ordinance and nationalized the 14 largest commercial banks with effect from the midnight of July 19, 1969. Again in 1980 for the second time nationalisation of 6 more commercial banks was implemented

The main business of banking is to accept deposits from public for the purpose of lending, so it mobilizes funds by issuing claims against itself and advances this money to others in the form of loans which are assets for banks. The liabilities and assets of banks are in the form of claims unlike other forms of business. The mobilized money so collected is lent in the form of loans which constitutes as a major and main activity of banking and comprises the largest asset in the asset portfolio of the bank.

The money lent are called loans or advances which earn income for the bank in the form of interest, in addition to this banks invests a portion of money in securities (both debt and equity) and a minor portion of total funds is invested in real assets like land, building for carrying the operations of banking

Banks are key financial intermediaries or institutions that serve as “middle man” that facilitate the transfer of fund from savers to those who intend to invest in real assets as house, equipment and factories. In discharging this function financial intermediaries boost the wellbeing of both saver and investor. The living standard of the society is enhanced by improving economic efficiency. The banking sector is considered a significant source of financing for most businesses. They play vital role in the effort to attain stable prices, high level of employment and sound economic

growth and development. They make the required funds available to meet the needs of individuals, businesses and the government.

III. REVIEW OF LITERATURE

Aarti Garg (2015) conducted a study on *Profitability of FMCG Sector*. The study was based on comparative analysis of selected companies and concluded that companies need to improve productivity & optimal utilisation of available resources. Profitability in long run contributes to sustained growth of the company.

Ranjit Kumar Paswan (2013) conducted a study on *Analysis of Solvency of Selected FMCG*

Companies in India to analyze the liquidity position of selected FMCG companies and to understand the company's capacity to repay the short-term debt as well as long-term debt. The study reveals that among the companies under study, the Debtors Turnover Ratio of Nestle and Colgate show the efficiency of debt management.

Gurmeet Singh (2014) conducted a study on *Interrelation Between Capital Structure And Profitability Of FMCG Companies of India*. The study reveals that the profitability of the firm and its financial leverage has an insignificant impact on the capital structure of the studied firms during the examined period. The study is unable to establish any significant relation between profitability and financial leverage effect on the capital structure of a firm.

Dr. Amit Kumar Singh, Preeti Bansal (2016) conducted a study on *Impact of Financial Leverage on Firm's Performance and Valuation: a Panel Data Analysis*. To assess empirically (from 2007 to 2016) the impact of financial leverage on the performance and valuation of firms in the selected 58 BSE FMCG firms that constitute the S&P BSE FMCG Index. The results showed that financial leverage has significant and negative impact on performance and valuation when firm's financial performance indicators are ROA and EVA and valuation indicator is Tobin's Q. Out of the control variables, R&D spending, size, growth in sales and WACC significantly impact the firm's performance and valuation. Remaining control variables like tangibility and profitability are found to have insignificant impact on firm's financial performance and valuation.

Sudesh Kumar, Dr .Bimal Anjum, Dr. Suman Nayyar (2012) conducted a study on *Financing Decisions: A Study Of Pharmaceutical Companies Of India*, the study reveals the various patterns of capital structure of the selected pharmaceutical companies. The study also throws light on the relationship of change in capital structure with the company's investment policy

Objective of Study:

1. To analysis the Relationship between capital structure and profitability of public and private sector bank in India.
2. To identify the nature of relationship between capital structure and probability of public and private sector bank in India.

Hypothesis:

H₀: There is no Relationship of capital structure and profitability between public and private sector bank in India.

H₁: There is Relationship of capital structure and profitability between public and private sector bank in India.

IV. RESEARCH METHODOLOGY

Population

Banking industry is taken for the study, where aggregate data related to for Public sector Banks, Private Sector Bank in India. The Statistical Techniques used for analysis are Pearson's Coefficient of Correlation (to analyze the relationship between cs and Profitability), Regression Analysis (ols Model to analyze the unique impact of cs on Profitability) in addition to descriptive statistics such as Mean, Standard Deviation, and Ratio. Two dependent variables, Return on net worth (ronw) are considered as profitability variables (business revenue) for the study. The independent variables of Interest coverage ratio (icr) and Debt-Equity Ratio (der) have been used as proxy for cs. Independent and Dependent variables of the selected sample firms for the period of study:

Independent and Dependent variables of the selected sample firms for the period of study:

1. Dependent Variables (Profitability Variable)

- Return on Capital Employed / return on net wortg (ronw)

2. Independent Variables (Capital Structure Variables)

- Debt-Equity Ratio (der)
- Interest coverage ratio (icr)

Correlation analysis is carried out to find out the existence of multi-co linearity among independent variables in order to decide what variables can be used in regression model, or how the regression model with all independent variables can be used.

Sample size:

At present scheduled public & private sector banks are 20 (19+1) & 23 respectively. In this study we choose the following sample of banks to analysis the capital structure effect on profitability of Indian public & private sector bank.

Public sector banks- Punjab National Bank, Bank of Baroda, Bank of India

Private sector banks- ICICI, HDFC, Axis Bank

Period of study:

The present study is carried out for a period of five financial year from 2013-14 to 2017-18.

Data collection:

This study is based on secondary data collected from the various banking statistics published by Reserve Bank of India, Indian Banking Association & Banks annual report.

6. Limitations of Study:

1. For the purpose of the study only data of 5 financial years (2013-14 to 2017-18) has been taken.
2. The data would be collected only 6 banks that is 3 public sectors (Punjab National Bank, Bank of Baroda, and Bank of India) and 3 private sector banks (ICICI, HDFC, Axis Bank).
3. The data which is used for this study is based on annual report of the banks and secondary data collected from RBI and IBA bulletin published from time to time.

V. DATA ANALYSIS

This paper test the linearity and normality of time series data used in study regression models present below was used to test on the relationship between the variables of study

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Y = Average Profitability (Dependent)

β_0 = Intercept (constant)
Independent variable

β_1 = effect of

X_1 = Average Capital structure (Independent)
Error term

ε =

The confidence level for the present study has been taken as 95%.

R shows the correlation between independent and dependent variable. R square show the variation and we can predict the variation in profit. Adjusted R square to closely reflect the goodness of fit of the model. The higher R square is better for the model. T test used to test the individual sig. of the predictor variables use to the study.

PUBLIC SECTOR BANK:

RETURN ON NET WORTH				
YEAR	BOB	PNB	BOI	AVERAGE
2013-14	12.61	9.69	9.12	10.47333
2014-15	8.53	8.12	5.43	7.36
2015-16	-13.42	-11.2	-19.63	-14.75
2016-17	3.43	3.47	-5.06	0.613333
2017-18	-5.6	-32.85	-20.15	-19.5333

Source: Annual reports of Banks 2013-14 to 2017-18

INTERST COVERAGE			
BOB	PNB	BOI	AVERAGE
1.36	1.43	1.32	1.37
1.34	1.41	1.24	1.33
1.3	1.39	1.21	1.3
1.4	1.46	1.35	1.403333
1.46	1.33	1.28	1.356667

PUBLIC SECTOR BANK:

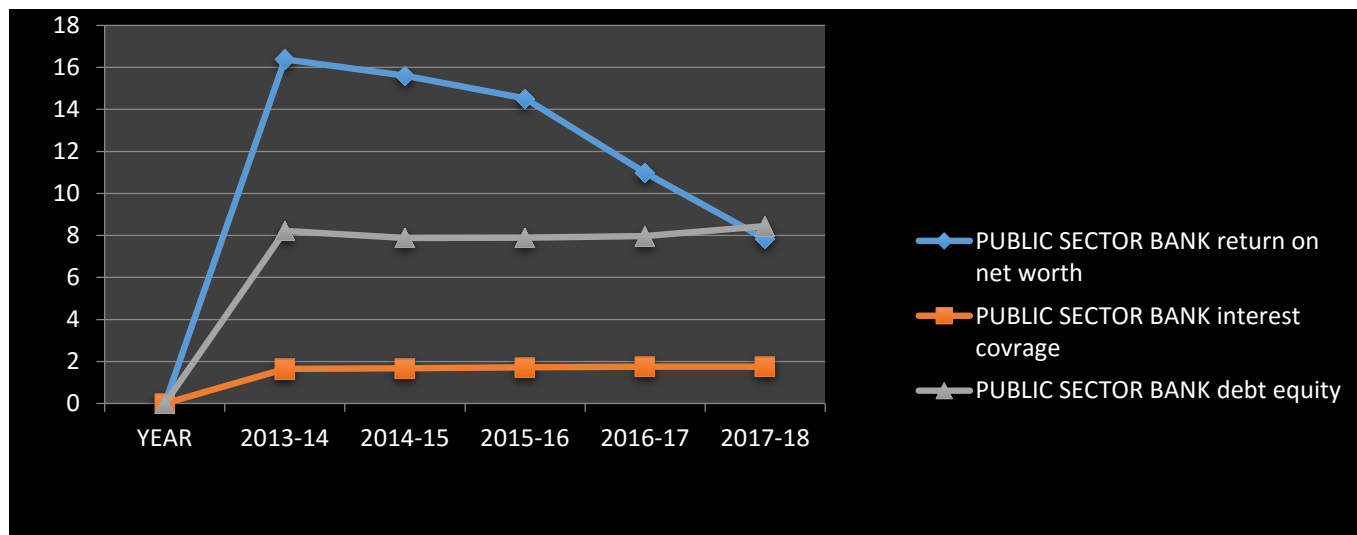
Source: Annual reports of Banks 2013-14 to 2017-18

PUBLIC SECTOR BANK:

DEBT EQUETY RATIO			
ICICI	HDFC	AXIS	AVERAGE
6.65	9.36	8.67	8.226667
6.64	8	9	7.88
6.86	8.25	8.6	7.903333
6.58	8.02	9.31	7.97
7.28	8.58	9.48	8.446667

Source: Annual reports of Banks 2013-14 to 2017-18

PUBLIC SECTOR BANK TREND



HYPOTHESIS TESTING:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975 ^a	.951	.901	4.19686

a. Predictors: (Constant), DEBT EQUITY RATIO OF PUBLIC BANK, INTEREST ON COVERAGE RATIO OF PUBLIC BANK

This table R shows the high correlation between Independent and Dependent variable but this relation is negative (-0.975). R square show the Dept Equity Ratio predicts 95.10% variation in return on net worth in public sector banks.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	677.963	2	338.981	19.245	.049 ^b
	Residual	35.227	2	17.614		
	Total	713.190	4			

a. Dependent Variable: RETURN ON NET WORTH OF PUBLIC BANK

b. Predictors: (Constant), DEBT EQUITY RATIO OF PUBLIC BANK, INTEREST ON COVERAGE RATIO OF PUBLIC BANK

The regression result shows the significant level (p value) of F statistics. Show that Influence of capital structure on return on net worth in public sector banks. The result of ANOVA is 19.245 at 1/3 degree of freedom and 5% Level of significant revealing that capital structure Influence return on net worth in public sector Banks. The table indicates the regression models predict dependent variable significantly because P value 0.049 is less than 0.05. So our Null Hypothesis rejected and alternate Hypothesis accepted.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	86.237	84.204		1.024	.413
	INTEREST ON COVERAGE RATIO OF PUBLIC BANK	217.261	56.065	.639	3.875	.061
	DEBT EQUITY RATIO OF PUBLIC BANK	-22.703	3.921	-.955	-5.791	.029

a. Dependent Variable: RETURN ON NET WORTH OF PUBLIC BANK

The coefficient table provides the necessary information to predict return on net worth from capital structure, as well as determine whether return on net worth contribute statistically significantly to the model.

$$\text{Average capital structure} = 86.237 + 217.261 (\text{INTEREST ON COVERAGE}) - 22.703 (\text{Average return on net worth}) + \epsilon$$

The beta coefficients in the regression show that debt equity ratio has negative relationship with return on net worth in these banks provided by coefficient value of in -.955 and interest coverage ratio has positive relationship with return on net worth in these banks provided by coefficient value of in .639. The findings show Independent variable is statistically significant with p-value less than 0.05.

PRIVATE SECTOR BANK:

RETURN ON NET WORTH					
YEAR	BOB	PNB	BOI	AVERAGE	
2013-14	12.61	9.69	9.12	10.4733333	
2014-15	8.53	8.12	5.43	7.36	
2015-16	-13.42	-11.2	-19.63	-14.75	
2016-17	3.43	3.47	-5.06	0.61333333	
2017-18	-5.6	-32.85	-20.15	-19.533333	

Source: Annual reports of Banks 2013-14 to 2017-18

PRIVATE SECTOR BANK:

INTERST COVERAGE				
BOB	PNB	BOI	AVERAGE	
1.36	1.43	1.32	1.37	
1.34	1.41	1.24	1.33	
1.3	1.39	1.21	1.3	
1.4	1.46	1.35	1.403333	
1.46	1.33	1.28	1.356667	

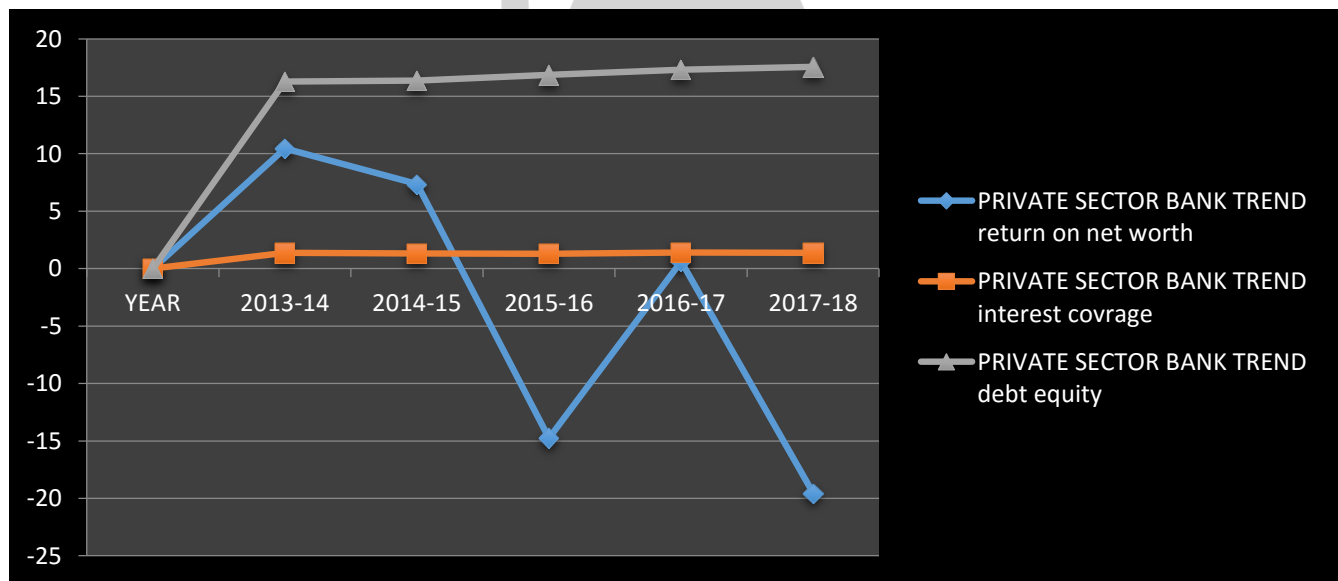
Source: Annual reports of Banks 2013-14 to 2017-18

PRIVATE SECTOR BANK:

DEBT EQUETY RATIO				
BOB	PNB	BOI	AVERAGE	
16.83	14.48	17.56	16.29	
16.39	14.51	18.19	16.36333	
15.11	17.28	18.19	16.86	
15.69	17.39	18.83	17.30333	
15.07	18.8	18.82	17.56333	

Source: Annual reports of Banks 2013-14 to 2017-18

PRIVATE SECTOR BANK TREND



HYPOTHESIS TESTING:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.985 ^a	.970	.940	.87375

a. Predictors: (Constant), DEBT EQUETY RATIO OF PRIVATE BANK, INTEREST COVREGE RATIO OF PRIVATE BANK

This table R shows the high correlation between Independent and Dependent variable but this relation is negative (-0.985). R square show the Dept Equity Ratio predicts 97 % variation in return on net worth in public sector banks.

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	49.612	2	24.806	32.492	.030 ^b
Residual	1.527	2	.763		
Total	51.139	4			

a. Dependent Variable: NET WORTH OF PRIVATE BANK

b. Predictors: (Constant), DEBT EQUITY RATIO OF PRIVATE BANK, INTEREST COVREGE RATIO OF PRIVATE BANK

The regression result shows the significant level (p value) of F statistics. Show that Influence of capital structure on return on net worth in public sector banks. The result of ANOVA is 32.492 at 1/3 degree of freedom and 5% Level of significant revealing that capital structure Influence return on net worth in public sector Banks. The table indicates the regression models predict dependent variable significantly because P value 0.030 is less than 0.05. So our Null Hypothesis rejected and alternate Hypothesis accepted.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	171.574	20.055		8.555	.013
	INTEREST COVREGE RATIO OF PRIVATE BANK	-59.404	8.974	-.813	-6.620	.022
	DEBT EQUETY RATIO OF PRIVATE BANK	-7.080	1.795	-.484	-3.944	.059

a. Dependent Variable: NET WORTH OF PRIVATE BANK

The coefficient table provides the necessary information to predict return on net worth from capital structure, as well as determine whether return on net worth contribute statistically significantly to the model.

Average capital structure = 171.574-59.404 (INTEREST ON COVERAGE) – 7.080 (Average return on net worth) + ε

The beta coefficients in the regression show that debt equity ratio has negative relationship with return on net worth in these banks provided by coefficient value of in -.484 and interest coverage ratio has positive relationship with return on net worth in these banks provided by coefficient value of -.813. The findings show Independent variable is statistically significant with p-value less than 0.05.

VI. FINDING

1. The results of regression for **ronw** with selected explanatory variables for public sector bank (-22.703) and private sector bank (-7.080) are negatively significant. Hence Debt equity ratio is negatively relationship to return on net worth in both public and private sector bank. But there is highly negative signification of debt equity ratio are public sector bank (-22.703). It is inferred that **cs** has a significant impact on profitability.

2. The results of regression for interest coverage ratio with selected explanatory variables for public sector bank (-217.261) and private sector bank (171.574) are positive significant. Interest coverage ratio is positively related with return on net worth in public sector bank. But private sector

bank is highly negative relationship with return on net worth.

3. We saw in this study that capital structure is affected both public and private sector bank’s profitability.

4. The average return on net worth in the public sector banks and the average return on net worth of private sector bank decreased in 2015-16 and 2017-18

Suggestions and Recommendations: The following suggestions are recommended to increase the bank’s financial performance based on capital structure.

1. The study results can be well generalized if the study is also focused to other sectors not only banking sector in India.
2. The study can be more accurate and generalizable if the study takes under consideration multiple banking sectors in India.
3. The public sector banks are use of more debt fund in cs are less profitable during the study period.

VII. CONCLUSION

Capital structure creates an impact on profitability. Debt equity ratio is negative relationship to return on net worth in both public and private sector bank. But there is highly negative impact on public sector bank. For empirical evaluation of the effect of cs on Profitability, the statistical techniques, viz., Pearson’s coefficient of correlation and

regression analysis in addition to descriptive statistics such as mean, standard deviation have been used. Interest coverage ratio is positively related with return on net worth in public sector bank. But private sector bank is highly negative relationship with return on net worth. Correlation analysis explains, there is a highly positive relationship between debt equity ratio and return on net worth (.639). At the same time, there is a negative relationship between on net worth and capital structure (-.955.), it reflects the high financial cost among the firms. Interest coverage ratio and debt equity ratio also has negative relationship with capital structure at -0.813, -0.484 respectively.

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