

Effect of Capital Structure on Overall Profitability: A Study of Indian Banks

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Banking sector in India has achieved a remarkable growth. Growth of a nation largely depends upon a strong financial system where the banks as developers of financial system help to channelise the funds from surplus units to the deficient sector of the nation. This paper focusses upon how banks can design a suitable capital structure portraying optimum blend of debt and equity so as to enhance the returns available to the equity holders and overall profitability of the banks. A sample of twenty listed banks listed on NSE have been chosen equally from both public sector and private sector banks based on highest market capitalisation of the banks. The financial statements pertaining to period between 2012-2017 have been studied. A multivariate regression analysis is applied to study the effect of capital structure using debt to equity ratio(D/E) and debt to total asset ratio(DTTA) on the overall profitability comprising of return on equity(ROE), earning per share(EPS), return on total asset ratio(ROTA), return on capital employed(ROCE), net profit margin(NPM), net interest margin(NIM). The overall emphasis is to study the impact of debt in capital structure of banks while raising funds. The result showed that all variables of the capital structure is negatively correlated with overall profitability of selected banks. The debt equity ratio of selected banks is found to be 12.84 which is very high as compared with its advised ratio i.e. 2, it shows banks are very aggressive in financing its operations for growth with debt.

Introduction:

Banking sector is considered to be a backbone of Indian financial system. No economy can develop without the development of a sound banking sector. The Indian banking sector provides over 90% of commercial credit. The banks thrive to achieve growth by focussing on reducing its financing cost. The cost of raising funds can be reduced only if proper emphasis is made to mix optimally the internal finance i.e. equity and external finance i.e. debt. The board of directors' ultimate responsibility lie towards the shareholders acting as the owners. So managers responsibly acting as agent to the shareholder should always endeavour to design a suitable capital structure taking into consideration not only the shareholder and but employee, customer and the society also (Panday, 2009).

Theoretical framework: Capital Structure Theories:

Relevance theories of capital structure:

Net Income (NI) Approach: Capital structure has been defined by many scholars and authors. The Net income approach given by Durand(1959) asserted

that there is a relevance of capital structure in the valuation of firms. There lies change in overall 'cost of capital' and resulting total 'value of firm' due to change in financial leverage (Khan & Jain, 2004). If the degree of financial leverage increases, the overall cost of capital will decline, resulting in the increase of the value of firm and market prices of ordinary shares will increase. The basic assumptions underlying the NI approach are: there are no taxes, debt is a cheaper source of finance than equity and the use of debt does not enhance the risk perception in the minds of investors. On the line of such assumptions, the firm will have maximum value and minimum weighted average cost of capital only when it is 100 per cent financed by pure debt.

The Traditional View: The traditional view of capital structure asserts that the appropriate mix of equity and debt results into increasing the firm's value and the reduction in the overall cost of total capital only up to a certain amount of debt. Like Net Income approach, this view does not assume constantly falling weighted average cost of capital and constant cost of equity. The proponents of this approach believe that weighted average cost of

capital declines only within certain limit of financial leverage and afterwards it starts rising with more use of debt in the overall capital structure. Hence, the optimum capital structure position is achieved only at the point where weighted average cost of capital is minimum, hence resulting into maximising the value of firm.

Irrelevance theories of capital structure: NOI Approach and Modigliani- Miller (MM) Approach without taxes:

Net operating income (NOI) approach has also been pioneered by Durand(1950) popularly known as the theory of irrelevance of capital structure. This theory does not support the previously developed literature with regards to capital structure. According to this theory, any change in the financial leverage will not impact the market value of firm and market price of shares implying that cost of capital is always independent of degree of leverage. According to Net operating Income approach, the value of firm depends upon the net earnings and the total risk associated with its assets known as risk of doing business rather than the way in which the total assets are financed. Further it states that the market evaluates the firm as a whole; therefore the split of capitalisation between debt and equity is irrelevant (Khan &Jain,2004).As a result of increasing debt component in the overall capital structure, now the risk perception in the minds of equity holders increases. So the impact of cheaper debt is compensated by the increase in the expectation of returns by the equity shareholders which ultimately offset the benefit of reduction in overall cost of capital. So the weighted average cost of capital remains constant. So any capital structure according to NOI approach is optimum.

Modigliani- Miller (MM) Approach without taxes: proposition I :

Modigliani and Miller don't agree with the traditional view (Modigliani and Miller,1958).They

are of the belief that a firm's market value and cost of capital doesn't changes with a change in capital structure in the situation of perfect capital market, absence of taxes and transaction cost (Panday,2004). It also supports the NOI approach that important determinants of the value of the firm and market price of the share are its earnings and the risks of assets i.e. business risks rather than the way assets are financed. The key assumptions underlying the approach are perfect capital market, homogeneous risk class, no taxes, full payout i.e. firm distribute all earnings to shareholders. The MM hypothesis is based on 2 propositions described below:

Proposition I: (with No taxes) :MM stated that the value of firm is based on the net operating income and the associated operating risk. Firms with identical net operating income and operating risk(business risk),but with different capital structure, have the same total value. The values of levered and unlevered firms will always be same due to the fact that because of the concept of Arbitrage operates in the market. Value of levered firm= value of unlevered firm (under perfect capital market, no transaction cost, homogenous market)

$$\text{Value of firm} = \frac{\text{Net operating income}}{\text{Firm's opportunity cost of capital}}$$

Arbitrage process: Why should Proposition 1 work? As stated earlier, proposition I is based on the fact that two firms with similar assets in every respects, irrespective of financing, cannot command different market values. Arbitrage process as pioneered by MM is based on the assumption that two firm irrespective of the same operating income but different capital structure can't command different market values because of the tendency of the investors to engage in homemade or personal leverage opposite to corporate leverage, hence equilibrium in the market is restored. Thus in the absence of corporate taxes, the capital structure of firm doesn't have impact on its net operating income.

Relevance theories of capital structure-Modigliani Miller (MM) Approach with taxes: proposition II:

Proposition II: (With Taxes) Later, MM gave evidences asserting that the financial leverage i.e. increasing debt in the capital structure enhances the return on equity and earning per share. The EPS and ROE increases only when the interest rate on debt is less than the returns earned by firms on their assets. However corporate tax/es exist and whatever the interest paid is allowed as a deductible expense. With the taxes the debt becomes a cheaper source of finance because interest paid by firms on their debt has interest tax shield and are allowed as an expense to be deducted from the profits. MM emphasised that with the use of debt has two effects on capital structure; it increases the shareholders returns but also resulting in increasing the financial risk, so the required rate of return or cost of equity increases so as to indemnify for the increase in financial risk due to inclusion of more debt into the capital structure. This gap is known as financial risk premium. So, in case of levered firm(which employs debt) the opportunity cost of capital is equal to their weighted average cost of capital. The value of firm increases as debt becomes the cheaper source to finance the assets. Hence the value of levered firm is higher than that of unlevered firm which doesn't have benefit of treating interest paid on debt as deductible expense.

Other theories regarding the relationship between capital structure and profitability:

Trade off theory:-Costs of financial Distress and agency cost:

The trade-off theory is the further extension of MM approach to capital structure. It is a known fact that with the inclusion of debt in the capital structure enhances the earnings available. But there are certain disadvantages of using more debt in the capital structure. As the proportion of leverage increases, chances of financial distress increases as well. Financial distress refers to the inability of the firm to pay back the debt and interest obligations hence resulting into insolvency. The degree of business risk

of a firm depends upon operating leverage (i.e, the proportion of fixed costs) (Pandey, 2004).

Agency cost theory:

As per the Agency cost theory which is provided by Jensen and Meckling (1976) has discussed that there exists a conflict of personal interest between the shareholders acting as principal and the decision makers acting as agent for them. The cost of conflict between the interest of principal and agents is the agency cost. The conflict between the managers (pursuing their personal goals) and shareholders would be to not invest in risky and profitable projects is against the principle of shareholders' wealth maximisation, so such conflict also influences the capital structure decisions.

Pecking order theory- case of asymmetric information:

The Pecking order theory states that there lies a disparity of information i.e. the information is not symmetric to all parties concerned with firm. The managers being the agent of firm and the internal parties so they have more information than the outsiders. The managers tend to issue debt when they are positive about the future prospects and will issue equity when the future prospects are not secure. Myers(1984) has called it the "Pecking order theory" since there is not a well-defined debt equity target. So managers prefer to use the internal finance available in the form of retained earnings and internal equity first. When firms don't have internal finance, they shift to issuing secured debt followed by unsecured once again followed by hybrid such as convertible debentures.

Review of Literature:

Various researchers have studied on the same research work as follows:

Nasar(2016) has studied the impact of capital structure on financial firm performance of 136 industrial companies who are listed on Istanbul

Stock Engage(ISE), for a period of 8 years from 2005-2012. To measure the impact of capital structure, debt ratio(DR) was used as independent variable and firm performance indicators were measured using Return on Asset (ROA), Return on Equity (ROE) and Earning per Share (EPS). The result showed that there is a negative relationship between capital structure and firm performance. Pal (2014) has tried to explore the important factors which influence the capital structure of steel companies. The researcher has founded that tangibility, size and growth, non-debt tax shield profitability and business risk have significant effect of leverage on capital structure. Velnampy & Nireesh (2012) have done similar study where the researchers analysed the relationship between capital structure and profitability of Sri Lankans Banks over 8 years from 2002-2009. The study showed that there is negative relationship between capital structure and the profitability except between debt to equity ratio and return on equity ratio. The Sri Lankan banks are highly geared institutions as 89% of the total assets are financed through debt only. Ahmad et al(2012) research work studied the influence of capital structure on firm performance, using Return on Asset(ROA) and Return on Equity(ROE) with long term, short term and total debt. The study covered the analysis for 5 years from 2005-2010. The study found that only short term debt and total debt have significant relationship between ROA and ROE, while ROE has significant on each level of debt. Hung et al(2002) studied the interrelationship between profitability, cost of capital and capital structure among the contractors and property developers of Hong Kong. The researchers analysed that the use of debt is higher among the contractors than developers. Also, the capital use of debt is positively related with the assets but there is negative relation between assets and profit margins.

Research Methodology:

Need of the study:

In the present era of widespread competition, banks have to survive through a cut throat competition

so as to enable it to be able to survive long in the market. Survival in the market is just not only the necessity but nowadays the emphasis has been shifted from mere survival to earning some returns out of the operations of the banks. The important factor affecting the profitability of banks which has been seen over a period of time is how well the banks have judiciously used proportion of debt and equity. So, in order to finance the operations, judicious and optimum use of debt and equity is necessary so as to encapsulate more returns for the banks to meet future expenses and growth of the business.

Objectives of the study:

1. To study the relationship between the capital structure and Banks profitability.
2. To suggest a viable capital structure associating with the best performance of banks.

Hypotheses : The following hypothesis were designed based on the study:

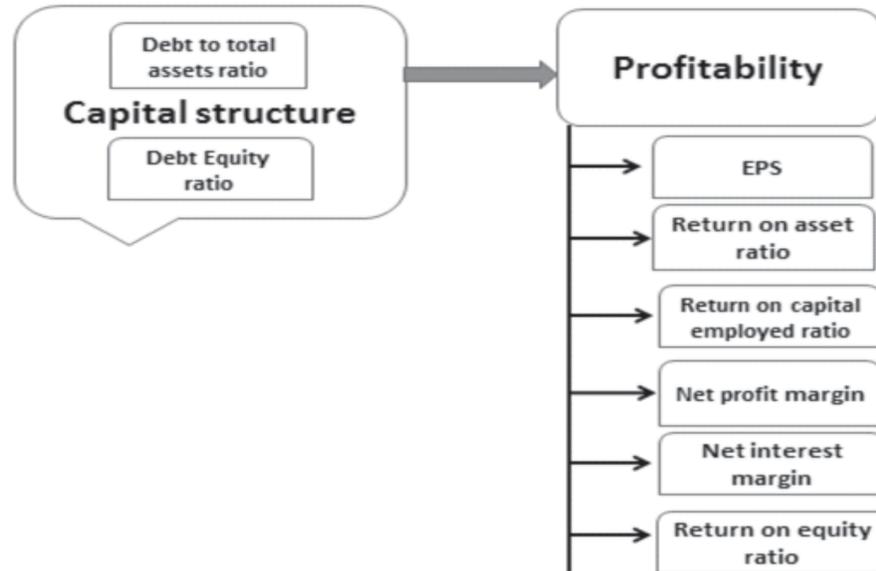
- H₁- There is a significant negative relationship between Debt to equity and earning per share.
- H₂- There is a significant negative relationship between Debt to equity and return on asset.
- H₃- There is a significant negative relationship between Debt to equity and return on capital employed.
- H₄- There is a significant negative relationship between Debt to equity and net profit.
- H₅- There is a significant negative relationship between Debt to equity and net interest margin
- H₆- There is a significant negative relationship between Debt to total asset and return on equity.
- H₇- There is a significant negative relationship between Debt to total asset and earning per share.
- H₈- There is a significant negative relationship between Debt to total asset and return on asset.
- H₉- There is a significant negative relationship between Debt to total asset and return on capital employed.
- H₁₀-There is a significant negative relationship between Debt to total asset and net profit.
- H₁₁-There is a significant negative relationship between Debt to total asset and net interest margin.

H₁₂-There is a significant negative relationship between Debt to total asset and return on equity.

Variables:

The research design of the present study consisted

of one independent variable- capital structure and one dependent variable Profitability. Further capital structure has been analysed using debt to equity and debt to total asset ratio. The Profitability variable



has been studied comprising of Earning per share (EPS), return on asset ratio (ROA), return on capital employed (ROCE), net profit ratio (NP), net interest margin (NIM) and return on equity(ROE).

Defining variables of study:

In the present study, capital structure comprises of: -

A. Total debt to total asset ratio:

= short term debt(maturing within a year)+long term debt(maturing after one year)/Overall Assets

This ratio is the good indicator of financial leverage. It explains the total proportion of assets financed by raising liabilities, external creditors and acquiring debt.The higher the ratio, the higher is the dependency on outsiders and hence the financial risk.it includes both long term and short term debt. A ratio greater than 1 shows that huge amount of debt is used to fund the assets.

B. Debt to equity ratio:

Debt Equity ratio: Total liabilities(external Equity)/ Shareholder’s equity(internal equity)

This ratio taken as financial measure to indicate how much debt banks are using to finance its assets as

compared to shareholder’s equity.The debt to equity ratio measures the relationship between the external equity and internal equity. The debt/equity ratio analysis a firm’s debt as compared to the value of its stock, hence it is always used as a barometer to see the extent to which a firm is taking debt as a way of leveraging (making efforts to enhance its value byutilising debt amount to finance various activities). A high debt to equity ratio is the indicative of being aggressive by the firms to obtain funds for sustaining activities. Aggressive leveraging practices are always attached withthe high level of risks undertaken. As a result of huge interest expense, the firm’s earnings would be volatile.

The overall profitability has been measured by following ratios:

A. EPS (Earning Per Share) = Dividend on preferred stock/ Average outstanding share

Earning per share is the indicator of a company’s profitability.Earning per share is indicative of the portion of total profits being available for outstanding stock.

B. Return on asset ratio = Net income/Total Assets

ROA indicates the efficiency of banks in their ability to how efficiently, the banks utilises its assets to encapsulate returns on the same. Also, this ratio indicates how well a firm is performing by comparing the profit generated by it to the capital invested in acquiring assets. The higher the return, the more productive and efficient management is seen in utilizing economic resources.

C. Net interest margin = Investment returns- Interest expenses/Average earning assets

NIM indicates how successful is the investment decision are as compared to its debt situations. If this ratio is negative, then it denotes that interest expenses are exceeding the amount of returns generated by investments so it has not taken the wise investment decision.

D. Return on capital Employed (ROCE) = Earnings Before interest and tax/ Capital employed

This ratio shows how efficiently the bank is generating returns (net operating profits) on every

single rupee of capital (debt+equity) invested by it. It defines how many rupees in profits each rupee of capital employed generates.

E. Return on equity = Net income (before dividend to common stock)/Shareholders equity

ROE measures how effectively the banks use the owner or shareholder equity to generate income. ROE is a better measure of efficiency. A rising ROE suggests that a firm is increasing its ability to generate returns without needing as much capital. It also determines how well a firm's management is deploying the shareholders' capital.

Sampling procedure: For the purpose of the present study, limited numbers of 20 Indian banks, which are listed on NSE have been approached. The selection of banks was done on the basis of highest market capitalisation as on 31st march 2017. The financial statements of the following sample banks were approached for the period covering the financial years 2012-2017.

PUBLIC SECTOR BANKS

1. SBI
2. Bank of Baroda
3. PNB
4. IDBI Bank
5. Canara Bank
6. Indian Bank
7. Central Bank
8. Bank of India
9. Union Bank
10. Vijaya Bank

PRIVATE SECTOR BANKS

1. HDFC Bank
2. Kotak Mahindra
3. ICICI Bank
4. Axis Bank
5. IndusInd Bank
6. Yes Bank
7. RBL Bank
8. Federal Bank
9. City union Bank
10. KarurVysya

Methods of data collection: The current study has utilised the secondary data on various listed banks. Secondary research includes reviewing of existing literature available on capital structure theories and profitability which had been emerged in the past. The various websites of banks containing the annual

statements of selected banks were approached in order to analyse the financial statements and retrieve required information. Websites of money control, Rediff, RBI statistics, ministry of corporate affairs etc. were also approached in order to have additional information.

Table 1.1: Descriptive Statistics Analysis:

D/E	DTTA	EPS	ROA	ROCE	NP				
margin	NIM	ROE							
N	Valid	20	20	20	20	20	20	20	20
	Missing	0	0	0	0	0	0	0	0
Mean	12.8435	.9070	31.3810	.8275	9.8995	9.3995	3.4825	9.0170	
Median	12.1450	.9200	30.8850	.7150	9.6050	9.0650	2.7000	9.5400	
Std. Deviation	4.12411	.04342	28.81797	.59214	1.30216	7.44338	3.12252	6.66486	
Range	14.21	.19	112.85	1.99	5.09	23.76	13.00	24.75	
Minimum	6.85	.76	-16.29	-.21	7.21	-3.36	1.67	-5.60	
Maximum	21.06	.95	96.56	1.78	12.30	20.40	14.67	19.15	

Results and Analysis:

Descriptive statistics analysis shows that the debt to total asset ratio is .90 indicating the total amount of overall debt in relation to its assets. The higher the ratio, the higher is the dependency on outsiders and hence the financial risk. A ratio greater than 1 shows that huge amount of debt is used to fund the assets. But in the present study the ratio is less than 1 so the banks have higher degree of financial flexibility. The debt equity ratio of selected banks is 12.84 since the debt equity ratio is very high as compared with its advised ratio i.e 2, it shows banks are very aggressive

in financing its operations for growth with debt. Additional interest expense may crop up. The maximum and minimum values indicate that the debt/equity composition differs among the Indian Banks. Return on asset ratio indicates how effectively, the banks utilise its assets to generate returns on the same. 1% return on assets indicates huge profits. In the present study, the average return on assets ratio of banks is 0.82%. The return on equity is 9.01%, indicating that on one rupee of equity invested, the banks are getting an average of 0.09 rupee returns on it.

Table 1.2: Correlation Analysis

Correlations								
Pearson Correlation Sig. (2-tailed)	D/E	DTTA	EPS	ROA	ROCE	NP		
Margin	NIM	ROE						
Debt equity ratio	1	.448*	-.170	-.831**	-.693**	-.773**	-.385	-.536*
Debt to total asset ratio	.448*	1	-.149	-.343	-.315	-.357	-.186	-.236
Earnings per share	-.170	-.149	1	.313	.031	.400	.160	.509*
Return on asset ratio	-.831**	-.343	.313	1	.784**	.968**	.541*	.868**
return on capital employed ratio	-.693**	-.315	.031	.784**	1	.728**	.607**	.690**
net profit margin ratio	-.773**	-.357	.400	.968**	.728**	1	.511*	.911**
Net interest margin ratio	-.385	-.186	.160	.541*	.607**	.511*	1	.496*
Return on equity ratio	-.536*	-.236	.509*	.868**	.690**	.911**	.496*	1
*. Correlation is significant at the 0.05 level (2-tailed).								
**. Correlation is significant at the 0.01 level (2-tailed).								

Correlation analysis shows the relationship between dependent and independent variables of capital structure and profitability. All the capital structure variables are negatively correlated with profitability variables. The result throws light on the fact that there exist a negative significant relation between DR and all financial performance variables.

1. The correlation between capital structure (debt equity)and EPS is negative i.e. -0.17 , so it indicates that if the dollar increases by one rupee there will be .17 rupee increase in EPS and vice versa.
2. Capital structure(debt equity) and Return and asset ratio are negatively correlated i.e. 0.831, indicates that one dollar increase in Debt equity will result in .831 decrease in EPS and vice versa.
3. Capital structure and Return on capital employed are negatively correlated and the coefficient of

determination is 0.480. that is 48% of variance in returns on capital employed is accounted by capital structure and 52% by other factors.

4. Capital structure and Return on net profit margin are negatively correlated and the coefficient of determination is .598. that is 59% of variance in returns on capital employed is accounted by capital structure and 41% by other factors.
5. Capital structure and Return on net interest margin are negatively correlated and the coefficient of determination is .149. that is 14% of variance in returns on capital employed is accounted by capital structure and 86% by other factors.
6. Capital structure and Return on return on equity are negatively correlated and the coefficient of determination is .287. that is 28% of variance in returns on capital employed is accounted by capital structure and 72% by other factors.

Table 1.3: Regression Analysis:

Model (N=20)	R	R square	Adjusted Rsquare	Std. error of estimate
Between capital structure and EPS	.189	.036	-.078	29.91862
Between capital structure & ROA	.831	.691	.655	.34788
Between capital structure & ROCE	.693	.480	.419	.99243
Between capital structure & NP margin	.773	.598	.551	4.98777
Between capital structure & NIM	.386	.149	.049	3.04584
Between capital structure & ROE	.536	.287	.203	5.95018

R square reveals how much of the variance is explained by the independent variable in the dependent variable. The coefficient of determination between capital structure and EPS is .036. i.e. 3.6% of variance in EPS is accounted by capital structure and rest of 96.4% of variance in EPS is by other factors. Also the coefficient of determination between capital structure and return on asset is 0.691 i.e. 69% of variance in return on assets is accounted by capital structure.

Hypotheses Testing:

The test of correlation shows all the variable of capital structure are negatively correlated with the variables of overall profitability with significant

value at 0.05 level, so all the hypothesis stating there exist significant negative relationship among the variables stand accepted.

Conclusion & Recommendation:

The present study has investigated the relationship between capital structure and overall profitability of 20 listed Indian Banks, 10 each from public sector and private sector limited banks. The study covered the period over 5 years from 2012-2017. The overall findings of the present research are discussed below:

The mean value of debt equity ratio of banks is 12.84 since the debt equity ratio is very high as

compared with its advised ratio i.e. 2. It means for every rupee of equity, the debt is 12.84 times greater. Implying that banks are very aggressive in financing its operations for growth with debt. The debt to total asset ratio is 0.90 and it is the indicator of financial leverage. It shows 90% of the banks assets are financed by creditors or debt and only 10% is financed by the owners. Since the percentage is higher, more risk is assumed. These findings have shown that banks are highly levered organisations. So to avoid the risk of insolvency the returns on assets and operations financed by such debt should be higher than the cost of debt.

All the correlation(R) values are found to be negative and significant between the capital structure and overall profitability, implying that the increase in debt in the capital structure has vice versa impact on profitability. So, if debt equity ratio increases by one it will have reduction in Net profit margin and net interest margin by 0.773 & 0.385 respectively. This concludes that an increase in the proportion of debt financing, leads to increase in the interest payments thus resulting into a decline in profitability. The banks should design capital structure keeping in view the interest of equity holders and financial requirements of company. The shareholders wealth maximisation should be given priority by banks while designing a capital structure in order to ensure long term growth and profitability of firms. Banks should follow competitive lending rates so that huge client base is achieved along with returns on lending operations.

Limitations And Future Scope Of Study:

This study is limited to the study on banks listed on NSE only. So generalisation to other financial sectors may not be effective. Finance & Insurance sector can also be studied to have deep understanding of how capital structure should be designed. Also research period covered only 5 years from 2012-2017 so in future the time period of study can be enhanced so as to develop more effective results. Also the study

was based on listed banks only, in future non listed banks analysis can be done.

Also apart from capital structures there are other drivers also which impact the profitability of banks such as size of assets, age, economic conditions, ownership status etc., hence there exists future scope to extend the research work to study above factors.

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