



## **Patterns of Capital Structure in Indian banks**

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### **Abstract**

The paper presents an analysis of patterns of capital structure of Indian private corporate sector with reference to banks and steel industry. The patterns in Indian private corporate sector has been analysed by taking 309 BSE 500 listed companies under twenty six industries for the period of 2003-04 to 2007-08. The panel data for sources and uses of fund of steel and banking industries have been used to develop an empirical result for patterns followed by Indian private corporate sector. The findings of the study suggest that Pecking orders theory is not applicable to Indian private corporate sector. It also analyses the impact of financial recession of 2007 on financing pattern by applying chow test for panel data.

**Key Words:** Capital Structure, Pecking order theory, sources & uses of funds, recession.

### **I. Introduction**

To choose the right financing mix is one of the significant decisions for the firms. The mix of debt, preference shares and equity in a company is likely to have an impact on the value of the company. So the companies prefer to choose that financing mix which can enhance or maximize their value. Alternative theories have been developed on optimal capital structure although none of the theories has been conclusively established by empirical analysis. It is, therefore, preferable to know whether the relative proportion of debt, preference share and

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equity have changed over the years or are relatively stable in order to assess stability, if not optimality, of capital structure.

Damodaran (2004) analysed the patterns of financing for G7 countries, Rajan and Zingales (1995), Boyle and Eckhold (1997) worked on capital structure of international companies. But all this work has been done in developed countries and various results have been given. The researchers for developing countries have mostly found the results contrasting to the developed ones.

In the Indian context, a number of reforms in the financial sector took place after liberalisation. Privatisation followed liberalisation and foreign investment is also made less restrictive. The present decade has witnessed the financial meltdown in late 2007.

Here we have analysed the patterns followed by various Indian private sector. The steel and banking industries for detailed analysis has been taken because one represents manufacturing and other represents service sector and the two had maximum number of companies under it among all the industries. The other reason is that India is the fifth largest producer of steel and a major exporter. So recession has affected its production or export can be known. Banking sector has been chosen as it was the financial sector that was affected badly due to this financial meltdown. The period has been divided into two parts 2003-04 to 2005-06 and 2006-07 to 2007-2008. This has been done to see the impact of the recession on companies' capital structure. The stock market also started declining. So conceptually and virtually there was an affect of recession on the Indian companies. Here authors have tried to check empirically its impact.

## **II. Literature Review**

Franco Modigliani and Merton Miller gave the theory of capital structure in 1958. It is considered to be the first and the classical theory of capital structure. It is based on a few assumptions. Some of them are like the companies can be categorised according to business

risk classes, perfect capital market exists, no transaction cost, no corporate or personal tax, investors are rational, all the investors have identical subjective probability distribution of net operating income of companies and companies issuing debenture and individuals borrowing funds will bear the same cost.

Based on these assumptions three propositions have been given by Modigliani and Miller. The first one says that market value of a company is independent of its capital structure. It is also called '*capital structure irrelevance*' theory due to this proposition. The second proposition is that the expected rate of return on equity is equal to expected rate of return on unlevered company belonging to same risk class and a premium for financial risk.

The third and the last proposition is that irrespective of means of financing actually adopted, the cut off rate should be weighted average cost of capital. This is because the expected return on equity increases linearly with the debt-equity ratio so long as debt is riskless. But if leverage increases the risk of the debt, debt holders demand higher return on debt this in turn slows down the increase in return on equity. But some of these assumptions were found to be unrealistic so later a few of them have been relaxed.

The next heavily discussed theory is trade-off theory. This theory says that the companies choose that capital structure which enhances their company's value and reduces financial distress cost. In other words, there is a trade-off between interest tax shields and financial distress cost. This trade-off gives a target debt ratio for each firm.

**Stewart C. Myers and Nicolas Majluf** (1984) have given *pecking order theory*. It is mainly based on the information asymmetry. It says that the managers i.e. insiders have more information than investors (outsiders) about their company's future prospects and value. The companies use this information as an indicator to the outsiders. For e.g. company increases its dividend from last year. It indicates that company has good future prospects. It has an impact on the selection of sources of financing the business. On the basis of preference for sources of

financing this theory suggests an order followed by companies, which is **retained earnings, debt financing, hybrid securities and new issue of equity shares.**

This theory says that there is no optimal debt equity ratio (in the conventional sense of the term) because the first and the last positions occupied by equity only- one internal and the other external.

Jensen and Meckling in 1976 gave the *agency theory*. It says that there exists a principal (owner) – agent (manager) relationship in the corporate. The former gives some decision making rights to the latter. When conflict of interest arises between the two, the managers' work in self interest, due to which managers will accept projects that require less effort and are less risk. It says that companies should not have large free cash flows, otherwise managers may accept the projects with negative NPV or reject the positive NPV projects or indulge in empire building. This in turn will decrease the value of the firm and the company fails to meet its obligations to creditors and shareholders. This event calls for an increase in debt in capital structure to such an extent that the cash flow will be just adequate to pay dividends, meet capital expenditure and servicing debts.

The studies on Indian firms done by Singh and Hamid (1992) says that the Indian firms rely heavily on external financing than internal financing because the capital markets in India are not yet fully developed so they fail to raise equity. These results are just opposite to the results of the developed countries. Singh (1995) after comparing the pattern and structure of corporate finance of developing countries with those of developed countries says that the cost of debt as well as equity financing is very high for developing countries.

**Bhole and Mahakud (2004)** have done a study on trends and determinants of Corporate Capital Structure in India: A Panel Data analysis by studying the trends in respect to Public Limited Companies and Private Limited companies by using the panel data. To see the trends in the capital structure of the corporate they have taken four ratios i.e. long term debt to equity, total borrowings to equity, total borrowings to total liabilities and long term

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borrowings to short term borrowings. The data have been taken from various issues of RBI bulletin. The trend analysis gave the result that there is a significant increase in the dependency on borrowed capital (equity capital) by all types of companies. Debt to equity and total borrowings to equity ratios have also increased. Total borrowings to total liabilities have increased but in comparison to other ratios, there is less change. The study has used five year annual averages of thirteen industries for a period of 1971 to 1999 for private ltd. and private ltd companies. It reveals that the leverage ratios (debt to equity ratio) generally have increased during 1966-2000 and public limited companies depend more on debt than the private limited companies. The huge difference can be seen in long term borrowing to short term borrowing over the period of 1971-1999 in public and private limited companies. They have also given the main determinants of capital structure as cost of borrowing, cost of equity, size of the firm, profitability, growth rate, collateral value of assets, liquidity, non debt tax shield. They have given the model by taking capital structure ratio as dependent and the determinants as independent variable for the periods 1984-99, 1984-1991, 1992-99. The results obtained from the regression are: coefficient of cost of borrowing is negative in all the three periods and it is significant for whole period but not for pre (1984-91) and post (1992-99) liberalization period. Similarly cost of equity is not significant after liberalisation, firm size has positive and significant coefficient for all the periods, profitability has negative and growth rate has positive but both have no significant coefficients. The positive significant coefficient of firm size suggests that the large firms can better support higher debt ratio than the smaller firms. It may be due to easy accessibility of large firms to the financial markets for long term debt. Similarly the negative coefficient of liquidity suggests that there might be potential conflict between debt holders and shareholders of the firm. This shows that cost of borrowing, the cost of equity, the size of the firm, the liquidity, non debt tax shield and the collateral value of assets are of the major determinants of corporate capital structure. These variables play an important role in financing decision of any company.

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Omkarnath and Sahoo (2005) have done a study on the capital structure of Indian private corporate sector by taking the data of sources and uses of funds from year 1980-81 to 2000-01 and came up with the results which are in line with the study of Singh and Hamid (1992). The study shows all the different factors that determine the debt equity choice of Indian private corporate sector. This paper has following drawbacks like they have removed the variable, capital market as external source of financing. From the given data it can be seen that capital market is not a source to be avoided as it contributes approximately 21% in total external financing. Similarly they have given ranking to various sources of financing on the basis of proportionate percentage to total funds. They say that it follows pecking order theory after giving ranks. But this is not the correct approach as per the order mentioned under Pecking order. The better approach may be to develop a questionnaire containing all the sources of finances and having the views of the companies upon it which may help in getting the true picture regarding financing pattern. The notation for PBDIT as profit before dividend, interest and tax is wrong unless it is a typographical mistake. It should be profit before depreciation, interest and tax. It has used tax rate as 50% in formula for the entire period. It cannot be taken as a constant as corporate tax rate changes. However the findings of this paper show entirely different results as compared to findings of the literatures in the developed countries on capital structure.

Boyle and Eckhold (1997) have done a research on capital structure of firms of New Zealand. It specifically focuses on debt choices of New Zealand firms during pre-reform period (1982-85) and post reform period (1986-89). Due to unavailability of data and some other restrictions, the total number of observations is 548 for the period of 1982-89. The analysis shows that the long term debt ratio has increased from 0.113 in pre reform to 0.156 in post reform period whereas the short term debt ratio has fallen from 0.341 in pre reform to 0.304 in post reform period. The reason given is that fewer restrictions on capital market provides

more firms with access to long term debt market and a consequent lowering of reliance on short term bank financing.

Dasgupta and Ying (2001) have argued that the two theories are complimentary rather than alternative theories. They say that when companies need to take a decision on financing either by debt or equity, they consider information cost on issuing equity, bankruptcy cost etc. They have also said that firms with high growth potential should have more debt as a part of total assets.

### **III. Objectives**

In the light of above mentioned literature, this project has following two fold objectives:

- To test the impact of recession on capital structure of Indian banking and steel industry
- To analyse the patterns in the capital structure in Indian private corporate sector and test the applicability of Pecking order theory.

### **IV. Methodology**

The period of study is from 2003-04 to 2007-08. The total period has been divided into two parts 2003-04 to 2005-06 and 2006-07 to 2007-08. The data for patterns analysis is drawn from Prowess, CMIE (Centre for Monitoring Indian Economy). The study covers the BSE 500 listed companies.

**Data Analysis:** To see the patterns of capital structure the five years data on sources and uses of funds is analysed on the basis of each sources used over a period of time. Chow test has been used to see if any structural change has occurred in two periods. T-test has also been applied to see the year which started witnessing the changes in financing pattern.

**Table I**  
**Chow test for short term debt (Steel)**

|      |         | F CAL <sup>1</sup> | DEGREE OF FREEDOM |
|------|---------|--------------------|-------------------|
| RSS  | 364.397 |                    |                   |
| RSS1 | 286.180 | 0.4110             | 58                |
| RSS2 | 21.521  |                    | 26                |

Where RSS = residual sum of squares for whole period, RSS1= residual sum of squares for period 2004 to 2006, RSS2 = residual sum of squares for period 2007 to 2008.

**1. F-cal is calculated by using F test=  $\frac{RSS-(RSS1+RSS2)}{(RSS1+RSS2)} * \frac{T-2K}{K}$**

**Formula has been taken from the book “Econometrics for Finance” by Brooks.**

F table value at 58 and 26 degrees of freedom in numerator and denominator is 1.5019. Our calculated value is less than table value so we can say there has been no structural change due to recession. Now we can do simple regression analysis.

**Table II**  
**Regression for Short term debt and Time (steel)**

| Coefficients <sup>a</sup>  |            |                             |            |                           |       |      |
|--|------------|-----------------------------|------------|---------------------------|-------|------|
| Model  |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|  |            | B                           | Std. Error | Beta                      |       |      |
| 1  | (Constant) | .728                        | .405       |                           | 1.796 | .075 |
|  | X          | -.005                       | .006       | -.069                     | -.715 | .476 |
| <ul style="list-style-type: none"> <li>• Dependent Variable: steelY</li> <li>• Values at 0.05 level of significance</li> </ul> |            |                             |            |                           |       |      |

The formula given for short term debt is used to calculate long term debt also. F table value at 58 and 26 degrees of freedom in numerator and denominator is 1.5019. So F calculated is 0.5513 which is less than F-table which means there is no change in short term debt borrowing of steel industry. Here again chow test shows no change in short term debt so we can run simple OLS to estimate the  $\beta$  coefficient of regressor.



Here also no significant values are found but at the same time  $R^2$  is also very less. This may be due to only one explanatory variable has been included in the model i.e. time. We need to add more variables in order to get a better model.

**Table III**  
**Chow test for short term debt (Bank)**

| variable | RSS     | F cal. |
|----------|---------|--------|
| RSS      | 916.749 |        |
| RSS1     | 747.925 | 0.4845 |
| RSS2     | 14.516  |        |

The formula given for short term debt for steel is used to calculate short term debt for bank also. F critical at 79 and 33 degrees of freedom is 1.5834 which is greater than calculated value. It means no change in two periods as the calculated value is insignificant

**Table IV**  
**Regression for Short term debt and Time (Banks)**  
**Coefficients<sup>a</sup>**

| Model  |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|--|------------|-----------------------------|------------|---------------------------|-------|------|
|  |            | B                           | Std. Error | Beta                      |       |      |
| 1  | (Constant) | .747                        | .479       |                           | 1.560 | .121 |
|  | X          | -.004                       | .006       | -.053                     | -.634 | .527 |
| <ul style="list-style-type: none"> <li>• Dependent Variable: STDY</li> <li>• Values at 0.05 level of significance</li> </ul> |            |                             |            |                           |       |      |

Applying same formula we have calculated F value. F- Critical at 79 and 33 degrees of freedom is 1.5834 which is greater than calculated value i.e. 1.4365. So it means no change in long term debt borrowing for two periods can be seen. Now again we will run simple regression to obtain  $\beta$  coefficients. After running the regression we found the  $\beta$  values to be insignificant.

**Table VI: Ratios<sup>2</sup> of Internal funds to total funds****(Annual Averages of each year for 26 industries)**

| <b>Industries</b>                     | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Steel</b>                          | 1.2219      | 1.1283      | 0.5924      | 0.4852      | 0.3229      |
| <b>Metal</b>                          | 0.5047      | 0.445       | 0.3150      | 0.3819      | 0.5178      |
| <b>Shipping</b>                       | 0.4641      | 0.630       | 0.5283      | 0.6906      | 0.4959      |
| <b>Electronics</b>                    | 0.3337      | 1.079       | 0.5165      | 0.4080      | 0.3985      |
| <b>Software</b>                       | 0.3245      | 0.4728      | 0.5475      | 0.5329      | 0.4583      |
| <b>Pharma</b>                         | 0.4514      | 0.3448      | 0.2694      | 0.47518     | 0.1337      |
| <b>Electricity</b>                    | 0.5940      | 0.497       | 0.5219      | 0.3722      | 0.2485      |
| <b>NBFC</b>                           | 0.0735      | 0.0480      | 0.0430      | 0.0400      | 0.0784      |
| <b>Industrial Machinery</b>           | -0.4218     | 0.2432      | 0.245       | 0.1998      | 0.1991      |
| <b>Infrastructural construction</b>   | 0.3780      | 0.1882      | 0.1853      | 0.1270      | 0.1393      |
| <b>Diversified</b>                    | 0.4929      | 0.6771      | 0.4707      | 0.2585      | 0.4083      |
| <b>Telecom</b>                        | 0.2342      | 0.1778      | 0.6455      | 0.4310      | 0.5262      |
| <b>Securities &amp; stock traders</b> | 0.5151      | 1.0368      | 0.3686      | 0.2924      | -0.1708     |
| <b>Refinery</b>                       | 0.8201      | 0.5994      | 0.4708      | 0.5138      | 0.4372      |
| <b>Transport logistic services</b>    | 0.8919      | 0.7654      | 0.4932      | 0.7086      | 0.5324      |
| <b>Other chemicals</b>                | 0.5417      | 0.1973      | 0.9227      | 0.3960      | 0.2800      |
| <b>Other fin. Services</b>            | 0.2154      | 0.0653      | 0.0277      | 0.2388      | 0.0139      |
| <b>Fertilizers</b>                    | 0.9707      | 0.5827      | 0.7225      | 0.597       | 0.4193      |
| <b>Banks</b>                          | 0.3939      | 0.3883      | 0.2362      | 0.2128      | 0.1213      |
| <b>Cement</b>                         | 0.9066      | 0.8264      | 0.796       | 0.5963      | 0.5841      |
| <b>Commercial complexes</b>           | 0.1929      | 0.12887     | 0.2359      | 0.1173      | 2.8551      |
| <b>Sugar</b>                          | 0.3739      | 0.3343      | 0.1285      | 0.1249      | 0.1520      |
| <b>Media</b>                          | 0.0368      | 0.2253      | 1.3194      | 1.4868      | 0.2647      |
| <b>Steel tubes &amp; pipes</b>        | 0.3010      | 0.2485      | 0.1901      | 0.538       | 0.2241      |
| <b>Trading</b>                        | 0.0250      | 0.0471      | 0.1960      | 0.1260      | 0.0522      |
| <b>Automobile ancillary</b>           | 0.5389      | 0.3123      | 0.2544      | 0.6342      | 0.4321      |

**2. Ratios calculated by taking the average of each year for all the companies in that industry.**

**Table VII: External to total sources of funds**

| <b>Industries</b>                     | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Steel</b>                          | -0.2219     | -0.1283     | 0.4075      | 0.5147      | 0.6770      |
| <b>Metal</b>                          | 0.4952      | 0.5543      | 0.6849      | 0.6180      | 0.4821      |
| <b>Shipping</b>                       | 0.5358      | 0.3698      | 0.4716      | 0.3093      | 0.5040      |
| <b>Electronics</b>                    | 0.6662      | -0.0797     | 0.4834      | 0.5919      | 0.6014      |
| <b>Software</b>                       | 0.6754      | 0.5271      | 0.4539      | 0.4670      | 0.5416      |
| <b>Pharma</b>                         | 0.5485      | 0.6551      | 0.7305      | 0.5248      | 0.8662      |
| <b>Electricity</b>                    | 0.4059      | 0.4873      | 0.4780      | 0.6277      | 0.5579      |
| <b>NBFC</b>                           | 0.9264      | 0.9519      | 0.9569      | 0.9590      | 0.9215      |
| <b>Industrial Machinery</b>           | -0.5781     | 0.7569      | 0.7545      | 0.8001      | 0.8009      |
| <b>Infrastructural construction</b>   | 0.6219      | 0.8117      | 0.8146      | 0.8729      | 0.8606      |
| <b>Diversified</b>                    | 0.5070      | 0.3228      | 0.5292      | 0.7414      | 0.5916      |
| <b>Telecom</b>                        | 0.7657      | 0.8221      | 0.3544      | 0.5689      | 0.4737      |
| <b>Securities &amp; stock traders</b> | 0.4848      | -0.0368     | 0.6313      | 0.7075      | 0.8291      |
| <b>Refinery</b>                       | 0.1798      | 0.3986      | 0.5291      | 0.4861      | 0.5627      |
| <b>Transport logistic services</b>    | 0.1080      | 0.2345      | 0.5067      | 0.2913      | 0.4675      |
| <b>Other chemicals</b>                | 0.4582      | 0.8026      | 0.0772      | 0.6039      | 0.7199      |
| <b>Other fin. Services</b>            | 0.7845      | 0.9346      | 0.9722      | 0.7611      | 0.9860      |
| <b>Fertilizers</b>                    | -0.0292     | 0.4173      | 0.2774      | 0.4027      | 0.5806      |
| <b>Banks</b>                          | 0.6060      | 0.6116      | 0.7637      | 0.7871      | 0.8786      |
| <b>Cement</b>                         | 0.09337     | 0.1735      | 0.2063      | 0.4036      | 0.4158      |
| <b>Commercial complexes</b>           | 0.8070      | 0.8711      | 0.7640      | 0.8826      | 9.5750      |
| <b>Sugar</b>                          | -1.3739     | 0.6955      | 0.8714      | 0.8750      | 0.8479      |
| <b>Media</b>                          | -1.0446     | 3.4380      | -2.3194     | -0.4868     | 0.7352      |
| <b>Steel tubes &amp; pipes</b>        | 0.6989      | 3.0235      | 0.8098      | 0.4617      | 0.7758      |
| <b>Trading</b>                        | 0.9749      | 20.1937     | -1.1960     | 0.8739      | 0.9477      |
| <b>Automobile ancillary</b>           | 0.4610      | 2.2018      | 0.7455      | 0.3657      | 0.5678      |

**Table VIII New equity issue to total funds**

| <b>Industries</b>                     | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|
|                                       |             |             |             |             |             |
| <b>Steel</b>                          | 0.0067      | -0.0639     | 0.0548      | 0.0652      | 0.2510      |
| <b>Metal</b>                          | 0.0132      | 0.0135      | 0.0660      | 0.1772      | 0.0305      |
| <b>Shipping</b>                       | 0.0040      | 0.0175      | 0.0435      | 0.0597      | 0.0513      |
| <b>Electronics</b>                    | -0.0011     | -0.0106     | 0.0014      | 0.1221      | 0.0154      |
| <b>Software</b>                       | -0.0294     | 0.4086      | 0.1530      | 0.2145      | 0.0656      |
| <b>Pharma</b>                         | 0.1356      | 0.0967      | 0.0725      | 0.0566      | 0.2946      |
| <b>Electricity</b>                    | 0.0805      | 0.1662      | 0.1283      | 0.0406      | 0.3465      |
| <b>NBFC</b>                           | 0.0118      | 0.0775      | 0.1402      | 0.06045     | 0.1561      |
| <b>industrial Machinery</b>           | -0.1991     | 0.0911      | 0.3698      | 0.0142      | 0.2413      |
| <b>Infrastructural construction</b>   | 0.0763      | 0.1402      | 0.3006      | 0.2464      | 0.1599      |
| <b>Diversified</b>                    | -0.0288     | 0.0815      | 0.0199      | 0.1787      | 0.1884      |
| <b>Telecom</b>                        | -0.170      | 0.0233      | 0.0922      | 0.1278      | 0.0305      |
| <b>Securities &amp; stock traders</b> | 0.007       | 0.0198      | 0.6174      | 0.3364      | 0.33236     |
| <b>Refinery</b>                       | -0.0065     | -0.011      | 0.0012      | 0.1050      | -0.00017    |
| <b>Transport logistic services</b>    | 0           | 0.1197      | 0.4570      | 0.0777      | 0.3258      |
| <b>Other chemicals</b>                | 0.0665      | 0.2198      | -0.0726     | 0.0803      | 0.3079      |
| <b>Other fin. Services</b>            | 0.0949      | 0.3518      | 0.5913      | 1.0151      | 0.1370      |
| <b>Fertilizers</b>                    | 0.1661      | -0.0452     | -0.00113    | 0.0184      | 0.0834      |
| <b>Banks</b>                          | 0.0287      | 0.1760      | 0.1214      | 0.0228      | 0.2971      |
| <b>Cement</b>                         | 0.2410      | -0.0074     | 0.1318      | 0.0239      | 0.0548      |
| <b>Commercial complexes</b>           | 0.0870      | 0.0289      | 0.0751      | 0.4887      | 4.7364      |
| <b>Sugar</b>                          | -1.030      | 0.3848      | 0.2534      | 0.0317      | 0.1177      |
| <b>Media</b>                          | -1.0288     | 1.3385      | -7.4479     | 1.7362      | 0.1270      |
| <b>Steel tubes &amp; pipes</b>        | 0.0042      | 0.427       | 0.1751      | 0.0561      | 0.2119      |
| <b>Trading</b>                        | 0.0159      | 0.1261      | 0.0012      | 0.0347      | 0.2168      |
| <b>Automobile ancillary</b>           | 0.0002      | 0.5236      | 0.2025      | 0.2504      | 0.1535      |

**Table XI. Long term debt to total debt**

| <b>Industries</b>                     | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|
|                                       |             |             |             |             |             |
| <b>Steel</b>                          | 2.5949      | 5.7700      | 1.1012      | 1.5935      | 1.3833      |
| <b>Metal</b>                          | 0.81538     | 1.0477      | 1.4645      | 1.4696      | 0.9197      |
| <b>Shipping</b>                       | 1.6906      | 1.5545      | 2.1838      | 1.8644      | 1.1596      |
| <b>Electronics</b>                    | -0.04019    | 0.0840      | 0.3969      | 0.4041      | 0.26512     |
| <b>Software</b>                       | 0.3373      | 1.4495      | 0.6778      | 1.4627      | 1.0933      |
| <b>Pharma</b>                         | 1.06695     | 1.5188      | 1.5634      | 1.1292      | 1.0980      |
| <b>Electricity</b>                    | 1.21277     | 1.7632      | 1.4737      | 1.3199      | 1.6254      |
| <b>NBFC</b>                           | 1.8287      | 1.8789      | 1.7815      | 1.7010      | 1.7118      |
| <b>Industrial Machinery</b>           | 2.7418      | 0.6671      | 0.7104      | 0.7289      | 0.9651      |
| <b>Infrastructural construction</b>   | 1.44673     | 1.2359      | 1.5603      | 1.1413      | 1.2644      |
| <b>Diversified</b>                    | 0.74419     | 1.5760      | 1.4461      | 1.5179      | 1.5020      |
| <b>Telecom</b>                        | 1.08588     | 0.9626      | 0.7847      | 0.8731      | 1.1598      |
| <b>Securities &amp; stock traders</b> | -0.42496    | 7.1770      | 1.2598      | 1.52019     | 2.1457      |
| <b>Refinery</b>                       | -0.33370    | 0.4080      | 1.6108      | 1.2217      | 1.1624      |
| <b>Transport logistic services</b>    | -0.64738    | 2.0618      | 1.7088      | 1.5279      | 1.5047      |
| <b>Other chemicals</b>                | 2.51309     | 1.8222      | -0.1189     | 1.7136      | 1.6886      |
| <b>Other fin. Services</b>            | -0.84373    | 2.0009      | 2.1285      | -1.1464     | 1.9153      |
| <b>Fertilizers</b>                    | 26.7450     | -0.0277     | 0.0663      | 1.5873      | 1.1547      |
| <b>Banks</b>                          | 0.40383     | 2.1095      | 2.3865      | 0.1516      | 1.7184      |
| <b>Cement</b>                         | 0.34628     | -0.5197     | -0.2965     | 0.9956      | 0.9553      |
| <b>Commercial complexes</b>           | 0.85510     | 0.9102      | 1.0126      | 1.7490      | 1.8032      |
| <b>Sugar</b>                          | 1.0997      | 1.5522      | 1.7254      | 1.5446      | 2.1666      |
| <b>Media</b>                          | 2.0981      | 1.6164      | 3.0106      | -9.5931     | 0.9784      |
| <b>Steel tubes &amp; pipes</b>        | 0.5838      | 1.2248      | 1.2043      | 1.5260      | 1.1759      |
| <b>Trading</b>                        | 0.1272      | 0.1739      | -0.3939     | 2.4505      | 0.7374      |
| <b>Automobile ancillary</b>           | 0.6226      | 1.4095      | 1.7678      | 1.3758      | 1.6106      |

## V. Results

The study finds that there is a downward trend in internal sources of financing and a bit increase in external source of financing in all the industries (table VI and VII). By analysing the table VI we can see that use of internal sources as means of financing has decreased or changed slightly from the previous years. The major fluctuation we can see in the steel industry and commercial complexes. In steel it has decreased from 1.22 in 2004 to 0.322 in 2008 while in commercial complexes it has increased from 0.1929 in 2004 to 2.855 in year 2008. In other industries light fluctuations can be observed

Here in table VII we have taken the annual ratio of all the external sources to total sources for 26 industries. Here we can see that mostly the external debt ratio has increased or remain unchanged over years for all the industries. This confirms the result of previous studies that Indian companies rely heavily on external debt. It may be due to availability of finances from banks and financial institutions.

Table VIII shows that the issue of fresh capital has increased in all the industries except Cement where it has decreased. Here also we see the violation of Pecking order theory which says that external equity occupies the position after hybrid securities. No company in any of the industry has used hybrid securities like convertible bonds and debentures as the means of financing. Now by our analysis we can say that Indian companies prefer debt financing over internal financing and equity issuance over issuance of hybrid securities.

The above analysis clearly tells the pattern of financing used by Indian private corporate sector. To see the pattern followed particularly for long term debt, we can see the ratio of long term debt to the total debt (table IX). Here we can see that the long term debt ratio has increased for all the industries which again confirm the finding that Indian private corporate sector relies heavily on debt.

The analysis found the F calculated is less than F-table which means there is no change in short term debt borrowing of steel industry. To see if any change has occurred year wise we have used t –test to check the equality of means. The values under this test are also insignificant which means there is no change in patterns of financing during this period. In other words the long term debt financing is time independent for the period.(Table in appendices).

As chow test showed no change in short term debt so we ran simple OLS to estimate the  $\beta$  coefficient of regressor. The results found the value of  $\beta$  to be insignificant.

## **VI. Summary and Conclusion**

Choosing the optimal capital structure is always a matter of concern for the companies. On seeing the results of the empirical analysis we can say that the companies which have their internal sources of finances more than the external sources are more profitable. This is evident from the data of profit after tax of various companies in all the industries. So the results of the study are not confirming the Pecking order theory but data shows that practically the companies which follow Pecking order theory are earning more profits. The first preferred source of finance is external debt, second is internal equity (Retained earnings and Depreciation) followed by the new equity issues as last resort.

The results of the study also confirm the findings of previous studies that Indian companies use more of the debt financing than the internal financing. The reason can be availability of finances from banks and financial institutions. Though the results vary from industry to industry but the generalized result is that the use of internal source of financing has decreased and the external source of financing has increased over a period of years. The issue of fresh equity which is considered as the least preferred one has also attained a significant position as a means of financing.

The study also suggests that though conceptually there has been an impact of recession on the firms but if we test empirically there has been no change in the capital structure or the fund raising pattern of Indian steel and banking industry.

## VI. Limitations

The main limitation of the study is that the detailed analysis of only two industries has been taken. To get a better picture we should include more industries.

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