The Nature and Determinants of Capital Structure in Indian Service Firms

** Uday Kumar Jagannathan*
***N. Suresh*

Abstract

In the Indian context, the service sector has played an important role in the development of the economy since reforms in 1991, and is expected to continue to contribute significantly to the growth in the economy in the coming decades. With this rationale, service firms were selected for the study for the time frame from 2011 to 2015, and the nature and determinants of their capital structure are studied. Since interest expense gives tax shelter to firms, the trade-off theory suggests that firms may be incentivized to use these shelters and thus increase leverage. Therefore, this theory was put to test here. The pecking order theory which states that the firm will raise capital from internal accruals followed by debt and finally equity was supported by the research in this paper. Further conclusion derived from the study was that capital structure, as measured by debt-to-asset ratio, remained stable in the 5- year period with an industry average of about 0.31. This study also tested the hypothesis on the trade off model of capital structure, which stated that there is an optimal capital structure which firms tend to move toward, and several approaches were adopted to measure if this hypothesis was true. While firms' debt level in a year could be reasonably predicted by the debt-to-asset ratio in the prior year, the fit of the OLS regression became progressively worse as the number of lagging years was increased, suggesting that capital structure was sticky. The industry debt-to-asset ratio, while statistically significant as a predictor of firm debt level, resulted in a regression with a poor overall fit. While there is evidence to accept the pecking order hypothesis, there was not enough evidence to reject the trade-off model of capital structure for Indian service firms in the selected time period.

Key words : **debt-to-asset ratio, mean reversion, pecking order theory, static tradeoff theory**

JEL Classification : D24, G3, G32, L8

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The capital structure puzzle has been well documented and two schools of thought prevail. One contends that the pecking order theory prevails, and comprises retained earnings (funds available with firms internally) which will be deployed first, followed by external debt followed by external equity. The other theory contends that there is a rational choice managers make in order to obtain the best cost of capital for their firms, and this cost of capital helps them maximize the value of their firms. This particular study focuses on the Indian service sector and uses a sample of firms in the time period from 2011 to 2015 and attempts to find the relationship between the capital structure (dependent variable) and the impact causing variables (decision variables of the firm). The main question before the finance manager is to choose a capital structure (the proper mix of debt and equity) in order to maximize firm value. Too much use of debt can trigger financial distress (aka bankruptcy cost) and increase the agency as well as marginal borrowing cost. On the other hand, too little debt can

* *Assistant Professor,* Faculty of Management and Commerce, M. S. Ramaiah University of Applied Sciences, Bangalore - 560 054. E-mail : ujagannathan.ms.mc@msruas.ac.in
** *Professor & Dean,* Faculty of Management and Commerce, M. S. Ramaiah University of Applied Sciences, Bangalore - 560 054.

cause an opportunity cost in terms of higher cost of capital and lost tax shelter. The trade-off model then appears attractive where the firm would choose to take on debt up until a point that the cost of distress exceeds the present value of the tax shields. The service sector in India is selected for analysis of capital structure in the post crises period of 2011-2015 for analysis on the nature and determinants of capital structure. This study researches the presence of either of the models : (a) the pecking order model, where the firm chooses to raise debt only when internal accruals are insufficient, and (b) the trade-off model where the firm chooses to have some target or optimal capital structure which maximizes firm value.

Literature Review

Serrasqueiroa and Caetano (2015) researched and found an inverse relationship between profitability and debt for large firms, lending support to pecking order theory. Evidence of pecking order theory was further found in Baltic firms by Norvaišienė and Stankevičienė (2015). Further evidence of impact of profitability on capital structure was researched in Iranian firms by Alipour, Mohammadi, and Derakhshan (2015). Variables including firm age, asset size, profitability, and industry type impacted the capital structure of Kuwaiti firms according to Gharaibeh (2015). Foo, Jamal, Karim, and Ulum (2015), on the other hand, found a negative relationship between returns on equity (firm profitability) and capital structure, suggesting that increased debt suppressed firm profitability. Banerjee and De (2014) found a significant relationship between firm profitability and independent variables of business risk, size of firm, financial leverage, and debt service capacity. Degryse, de Goeij, and Kappert (2012) found evidence of the pecking order theory in Dutch SMEs and also that growing firms tended to use debt financing. Kaur and Rao (2009) studied the Indian textile industry and found that growth opportunities, profitability, and liquidity played a significant role in the determination of capital structure. Gharaibeh and Al-Najjar (2010), in a study of Jordanian firms, concluded that capital structure was influenced by independent variables of size, profitability, market to book value ratio, asset structure, liquidity, and dividends. Bhaduri (2002) analyzed that the Indian corporate sector capital structure was impacted by variables such as growth, cash flow, size, and product industry characteristics.

Adewale and Ajibola (2013) found that firms in Nigeria with more tangible assets had a higher chance of being debt financed. Nunkoo and Boateng (2010) studied Canadian firms and concluded that profitability and asset tangibility played a pivotal role in capital structure choice. Panno (2003) found that in a developed country like UK, where the financial system is well evolved, capital structure of firms tended to move toward a target or optimal capital structure ; whereas in Italy, the capital structure did not have any objective of moving toward an optimal or target debt ratio. Shyam - Sunder and Myers (1999) found that the pecking order theory explained more of the variation in time-series data of the actual debt ratios than a model given by trade-off theory. Shahzad, Shahid, Sohail, and Azeem (2015) analyzed firms listed in the Karachi Stock exchange and found that the Corporate Governance Index was negatively correlated to capital structure. Nguyen, Daiz-Rainey, and Gregoriou (2014) investigated publicly listed non-finance companies in the Vietnamese Stock Exchange and found that the capital structure of enterprises was pre-dominantly from short term sources. Morellec, Nikolov, and Schürhoff (2012) examined the importance of manager-shareholder conflicts in capital structure choice and found that agency costs of 1.5 % of equity value were sufficient to account for the characteristics of the leverage ratio. Haque, Arun, and Kirkpatrick (2011) investigated the influence of firm-level corporate governance on the capital structure of non-financial listed firms in the Bangladesh stock exchange and found that better governed firms preferred equity financing, while the firms with lower corporate governance indices preferred debt financing, indicating actual results to be in line with agency theory propositions.

Srivastava (2012) researched publicly held companies in India and divided the analysis into pre and post liberalization periods and found statistically significant results between capital structure and firm size, asset

structure, non-debt tax shield (NDTS), cash, growth opportunities, and profitability. Amsaveni and Gomathi (2012) researched Indian pharmaceutical firms in the time-frame from 2000 - 2010 and found evidence of capital structure depending on profitability, uniqueness, non-debt tax shield, growth, size, and asset tangibility. Hiran and Sojatia (2015) researched Indian firm Hindalco and found a firm risk level to be correlated with the degree of equity financing and concluded that debt financing would create additional benefits of tax shield for the firm.

Problem Statement and Problem Solving

This study aims to identify the nature and determinants of capital structure in Indian service firms.

↳ **Problem Definition and Formulation :** This study aims at studying the nature of capital structure and identify primary determinants of capital structure in the Indian service industry for the period from 2011 to 2015. The pecking order hypothesis is adapted from Shyam - Sunder and Myers (1999) as follows :

$$\Delta D_{it} = \Delta WC_{it} + \Delta I_{it} - P_{it} = NFR_{it}$$

$$\Delta WC_{it} = WC_{it} - WC_{it-1}$$

$$\Delta I_{it} = I_{it} - I_{it-1}$$

where, ΔD_{it} is the difference in total debt for firm i in time t between time period t and t -1, the ΔWC_{it} term is the change in net current assets in time t versus time t-1, P_{it} is the profit after interest and tax in time t , NFR_{it} is the net financing requirement in time t for firm i, ΔI_{it} is the change in investment between time period t versus t - 1.

If the pecking order theory is to hold, the equation containing profit ensures that the profit is consumed first, before the debt is changed across years, and a basic hypothesis of linear relationship between the change in debt and net financing required can be formulated:

$$\Delta D_{it} = \alpha_0 + \beta NFR_{it} \quad .....(1)$$

where, the hypothesis is $\alpha_0 = 0$ and $\beta = 1$.

The trade-off model being proposed here uses prior year debt-to-asset ratio and industry average debt-to-asset ratio as the target ratio for the purposes of predicting the debt in subsequent years.

$$\Delta D_{i,t} = \alpha_0 + \beta\left(\left(\frac{D_{i,t-1}}{A_{i,t-1}}\right).A_t - D_{i,t-1}\right) \quad .....(2)$$

where, $\Delta D_{i,t}$ is the change in total debt for firm between time t and time t -1, $D_{i,t}$ is the total debt at time t -1, and A_t is the asset value in time t, $D_{i,\,t-1}$ is the total debt at time t -1, and t = 2, 3, 4, 5, where the hypothesis is $\alpha_0 = 0$ and $\beta = 1$.

When multiple past years are considered for the target debt ratio, the formulation becomes :

$$\Delta D_{i,t} = \alpha_0 + \beta\left(\left(\left(\frac{1}{\Sigma^{t-1}}\right)\Sigma\left(\frac{D_{i,t-j}}{A_{i,t-j}}\right)\right).A_t - D_{i,t-1}\right) \quad .....(2a)$$

where the value of t is 3, 4, 5 and for each t, the lower limit of j is 1, 2, 3, and the upper limit is t -1. In this case, the regression is carried out for two years average when t = 3, past three years when t = 4, and past four years when t = 5. Thus, three sets of regressions are carried out for this model.

The hypothesis being tested is $\alpha_0 = 0$ and $\beta = 1$.

Finally, the industry average debt-to-asset ratio is used as a possible predictor of the debt-to-asset ratio for the firm in time t.

$$\Delta D_{i,t} = \alpha_0 + \beta\left(\left(\frac{D_I}{A_I}\right). A_t - D_{i,t-1}\right) \quad \text{.....(2b)}$$

where, $\frac{D_I}{A_I}$ is the average debt-to-asset ratio for the entire industry across the firms in question.

The value of $\frac{D_{I,t}}{A_{I,t}} = \sum \frac{D_{i,t-1}}{A_{i,t-1}}$, summed up over *i* firms.

Methodology

In all, 67 firms were randomly selected from the services sector in functions ranging from jewellery, hospital and medical services, trading, shipping and courier services. Data from annual reports related to balance sheet and profit/loss were obtained from 2011 to 2015, both years included. Where data was incomplete, the firms were left out from the analysis. All selected firms had valid data related to earnings, total assets, total debt (firms with negative net worth or negative assets have been excluded from the study). The data was cleaned and transformed as needed using R software (freeware). The derived elements include the calculated values of debt-asset ratio for each company/fiscal year combination, the net financing requirement for each company/fiscal year, change in actual debt level for each company/fiscal year, industry average debt-to-asset ratio for each fiscal year, and average debt-to-asset values for lagging years. OLS regressions were then run on to accept or reject each of the four hypothesis. The graphs plotted for the observation of the debt-to-asset ratio are done using the R programming environment. In order to study the nature of the relationship between (a) the log of sales and debt-to-asset ratio as well as for (b) profit-to-asset ratio and debt-to-asset ratio, the critical values of the Pearson coefficient was calculated with the degrees of freedom = 300.

Formulation of Hypotheses

Hypothesis 1

- **H01:** Firms' change in debt level for a year is defined by the net financing requirement in that year.
- **Ha1:** Firms' change in debt level for a year is not defined by the net financing requirement in that year.

Hypothesis 2

- **H02:** Firms' change in debt level in a year is defined by the previous one year's debt to asset ratio.
- **Ha2:** Firms' change in debt level in a year is not defined by the previous one year's debt to asset ratio.

Hypothesis 3

- **H03 :** Firms' change in debt level in a year is defined by the previous multiple years' average debt to asset ratio.
- **Ha3:** Firms' change in debt level in a year is not defined by the previous multiple years' average debt to asset ratio.

Hypothesis 4

- **H04:** Firms' change in debt level in a year is defined by the previous one year's industry average debt to asset ratio.

↳ **Ha4:** Firms' change in debt level in a year is not defined by the previous one year's industry average debt to asset ratio.

Data Analysis and Results

Firstly, the descriptive statistics of the data are listed in the Table 1. The statistics include mean, median, and standard deviation of the data, broken down by year. The debt-to-asset ratio is used as a proxy for capital structure throughout this paper. The first hypothesis uses the change in debt as the dependent variable and predicts the value of the change in debt as the net financing requirement (change in cash flow from operations, less the change in capital expenditures, less the change in net working capital). The *t* - statistics and *p* - values of the regression are tabulated and reported. Thus, the first regression is run to test the pecking order hypothesis and whether it holds for Indian service firms for the selected time period.

The second regression assumes the change in debt as the dependent variable, but this time, it uses the debt-to-asset ratio from the prior year as a "target value" using which this year's debt level will be measured. Thus, this regression is run to test the trade-off hypothesis where firms seek to adjust their debt-to-asset ratio to some target or optimal value. Since the data is for 5 full years, the prediction of 2014 would only have three years data for the debt-to-asset ratio average (2011 – 2013, both inclusive) and so on. Equation (2) above summarizes the variables in the regression. The results of the regression are tabulated and reported in the Table 2.

Since the target debt-to-asset ratio average value is from the prior years, it is possible that the average debt-to-asset ratios from prior years are representative of that optimal value which firms are seeking to achieve, therefore, this year's debt could possibly be modelled using prior year, two years, three years, or four years debt-to-asset ratio average. Thus, if we are seeking to model the debt for 2015, then the debt-to-asset ratio average from years 2011-2014 should be the independent variable, and the asset value of 2015, when multiplied by this average, should give the predicted debt level of 2015. The dependent variable is the change in debt between two consecutive years. The Equation 2(a) summarizes the variables in the regression and three outputs are generated, one each for two-year average, three-year average, and four - year average debt-to-asset ratios. The results of the regressions are tabulated and reported in the Tables 3, 4, and 5.

The final regression is run by taking the change in debt over consecutive years as the dependent variable and the industry average debt-to-asset ratio from the previous year as the independent variable. The assumption (hypothesis) is that when the industry debt-to-asset ratio average from the previous year is multiplied by the asset value of the present year and the debt value of the current year is subtracted from the result, it should yield the actual change in debt. The results of the regression are tabulated in the Table 6.

As observed in the Figure 1, a large number of firms have a debt-to-asset ratio below the average value of 0.31, indicating that in general, Indian service firms choose to have little or no debt. The Figure 1(a) shows the cumulative distribution of debt-to-asset ratio and that a significant number of observations occur at debt-to-asset ratio close to zero, and the taper or slope reaches a constant value before slowing down at ratios above 0.80 .The Figure 1(b) shows a normal Q - Q plot which shows that the distribution of debt-to-asset ratio is not normal, especially at the extremities. From the Figure 2, the relationship between debt-to-asset and log of sales is positive and across the years 2011 to 2015, the higher the log of sales, the higher the debt-to-asset ratio, implying that firms with higher level of sales (larger sized firms) tend to have higher debt-to-asset ratios. The Pearson's coefficient of 0.36 is significant at the 0.001 level if a test for the critical value of r is performed for the two variables with 300 degrees of freedom. From the box plot depicted in the Figure 3, the average debt-to-asset ratio is mostly static across the years and indicates that capital structure in Indian service firms is mostly sticky and does not change much over time.From the Figure 4, the profit-to-asset ratio versus debt-to-asset ratio shows little or no correlation and ,therefore, implies that profit alone has a little role to play in the capital structure decisions of Indian service

Figure 1. Debt-to-Asset Ratio Histogram

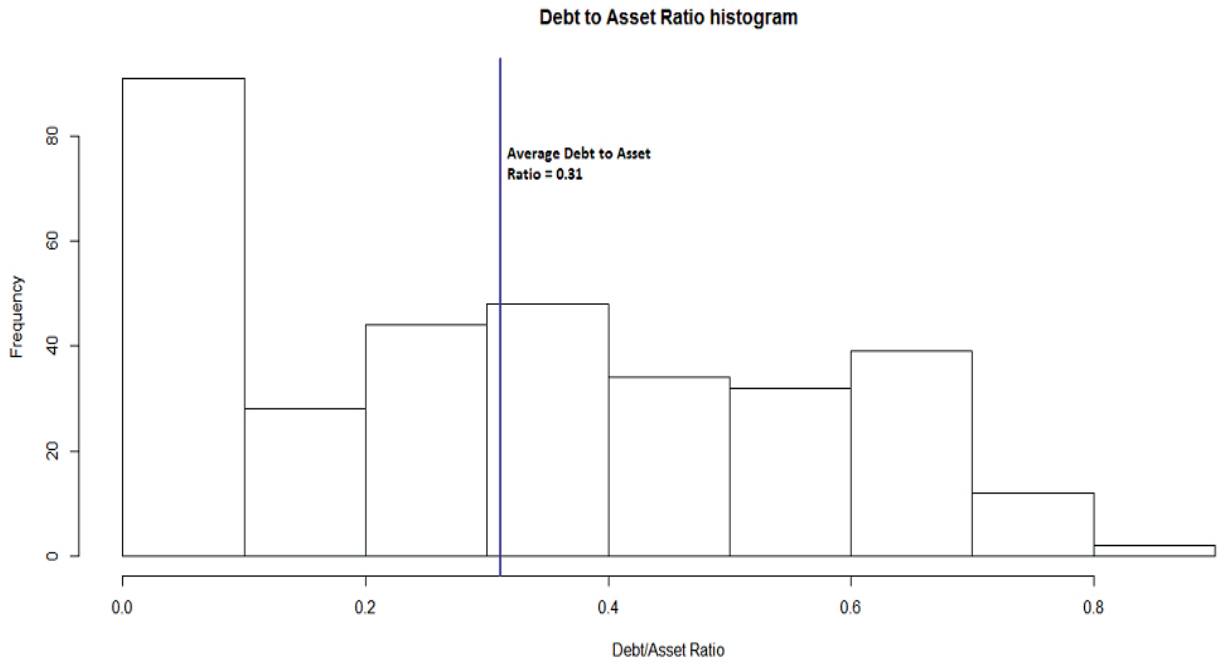

Figure 1(a). Cumulative Distribution of the Debt/Asset Ratio

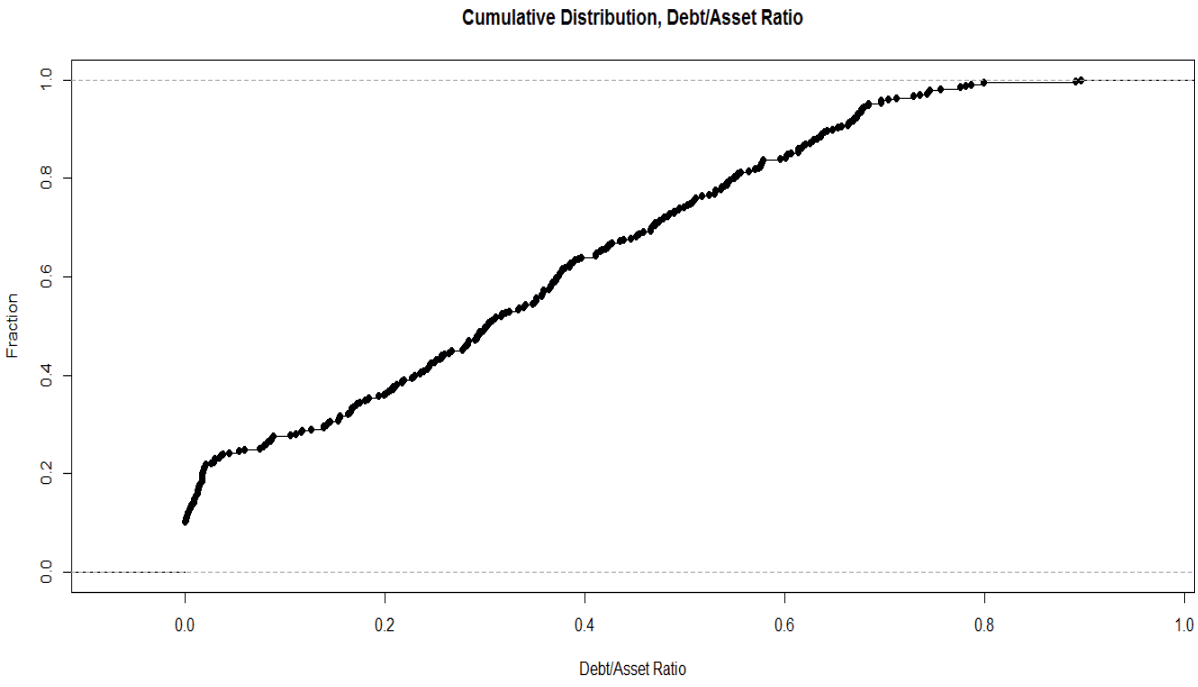

Figure 1(b). Normal Q-Q Plot for Debt-to-Asset Ratio Distribution

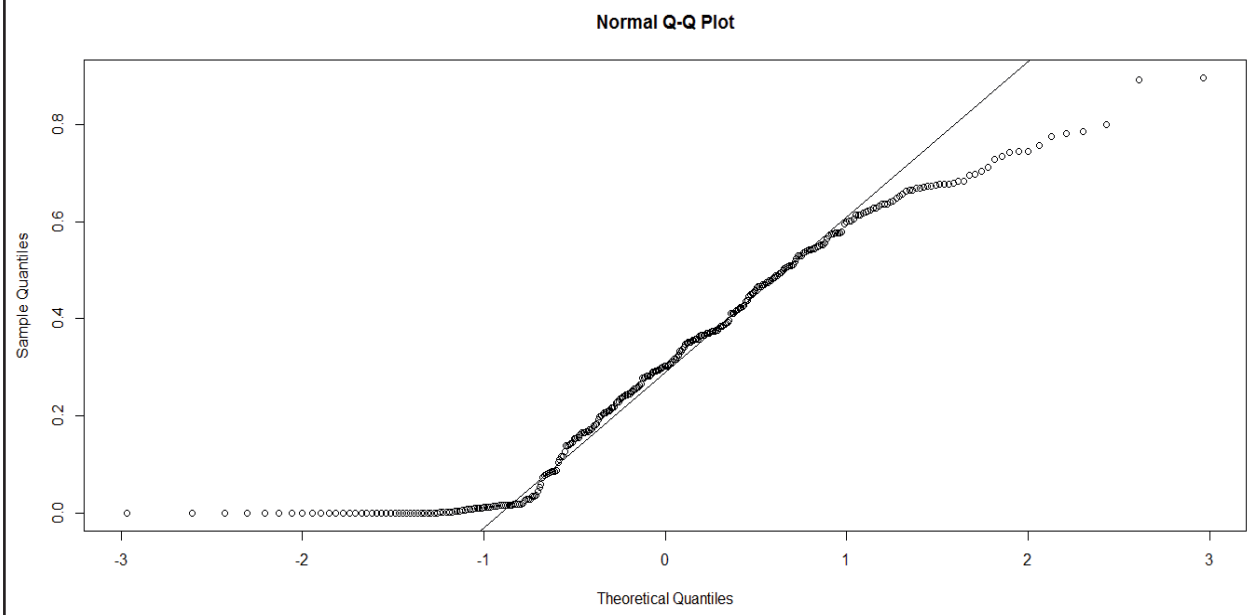

Figure 2. Debt-to-Asset Ratio versus Log of Sales in Indian Service Firms

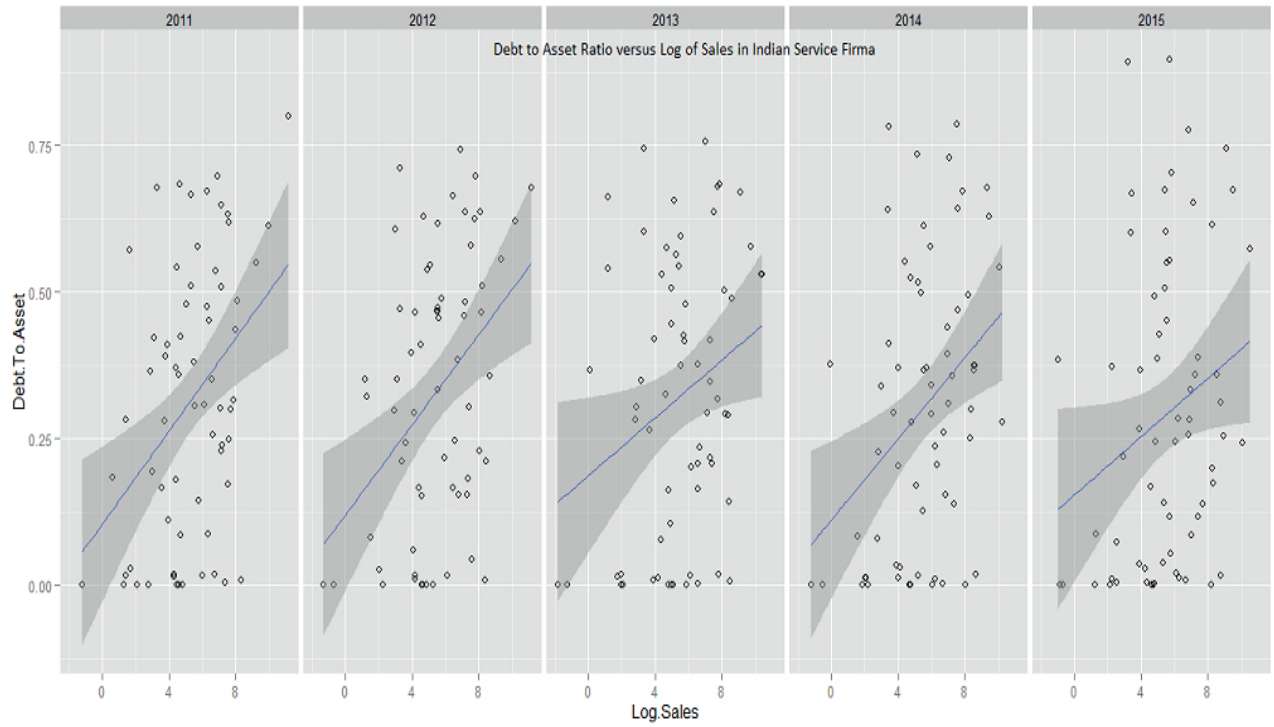

Figure 3. Average Debt-to-Asset Ratio by Year in Indian Service Firms

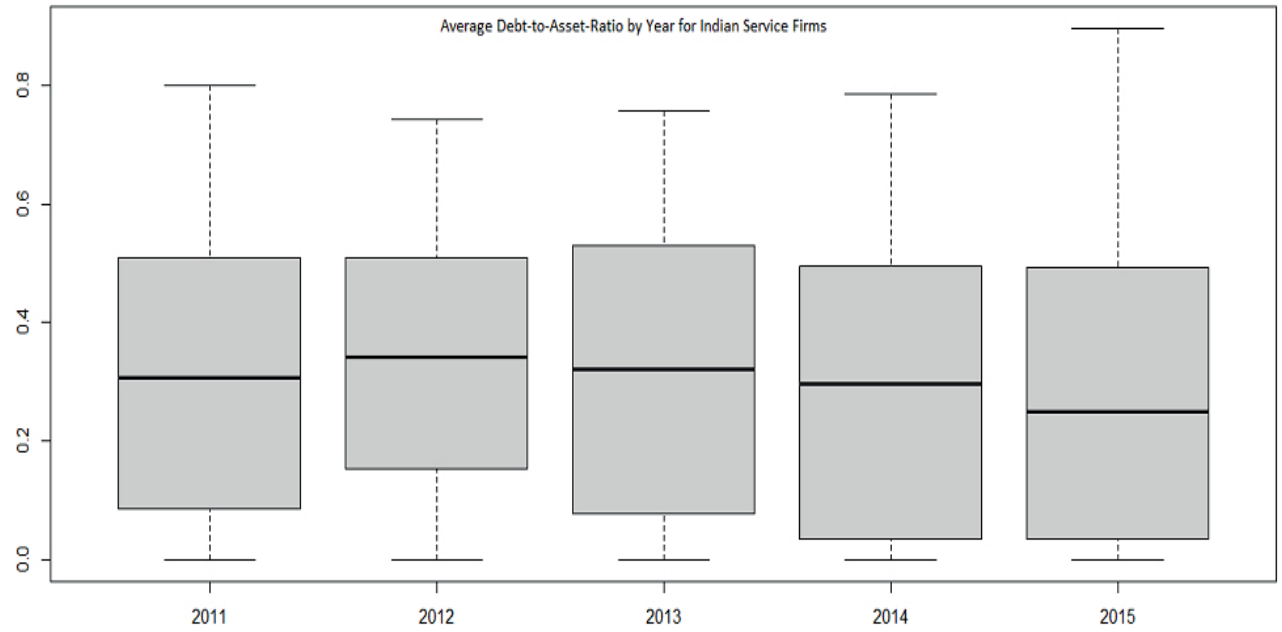

Figure 4. Profit-to-Asset versus Debt-to-Asset Ratio by Year in Indian Service Firms

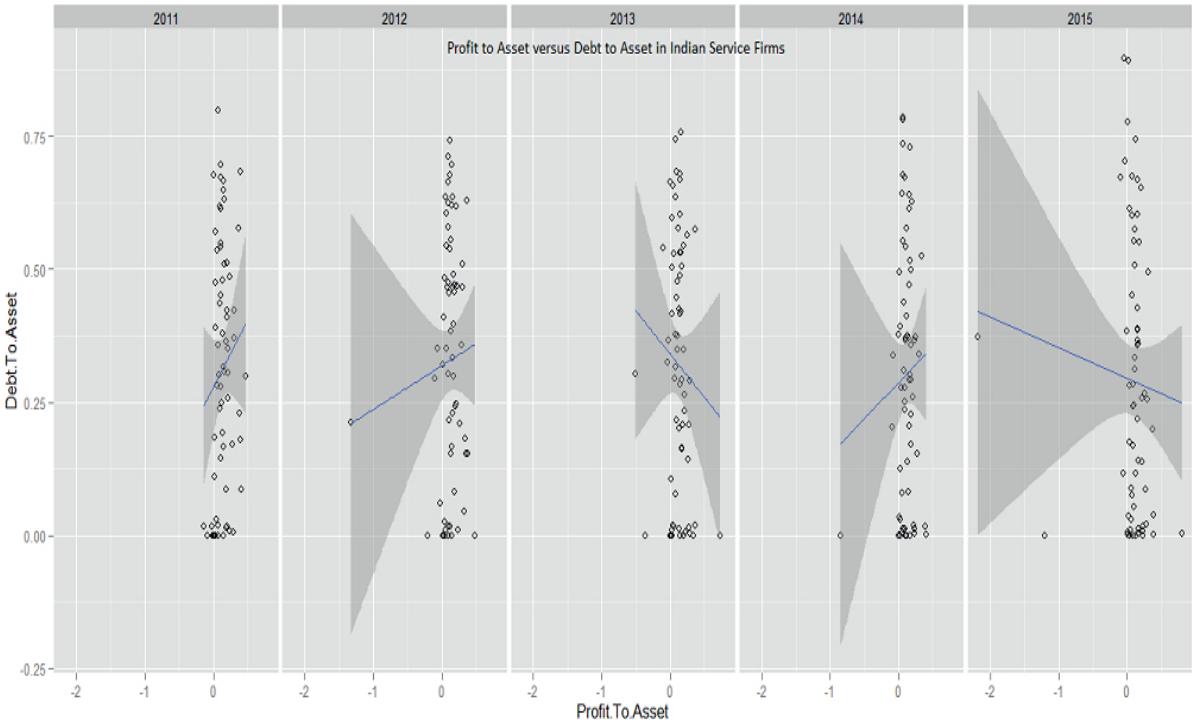

Figure 5. Debt-to-Asset Ratio by Year in Indian Service Firms

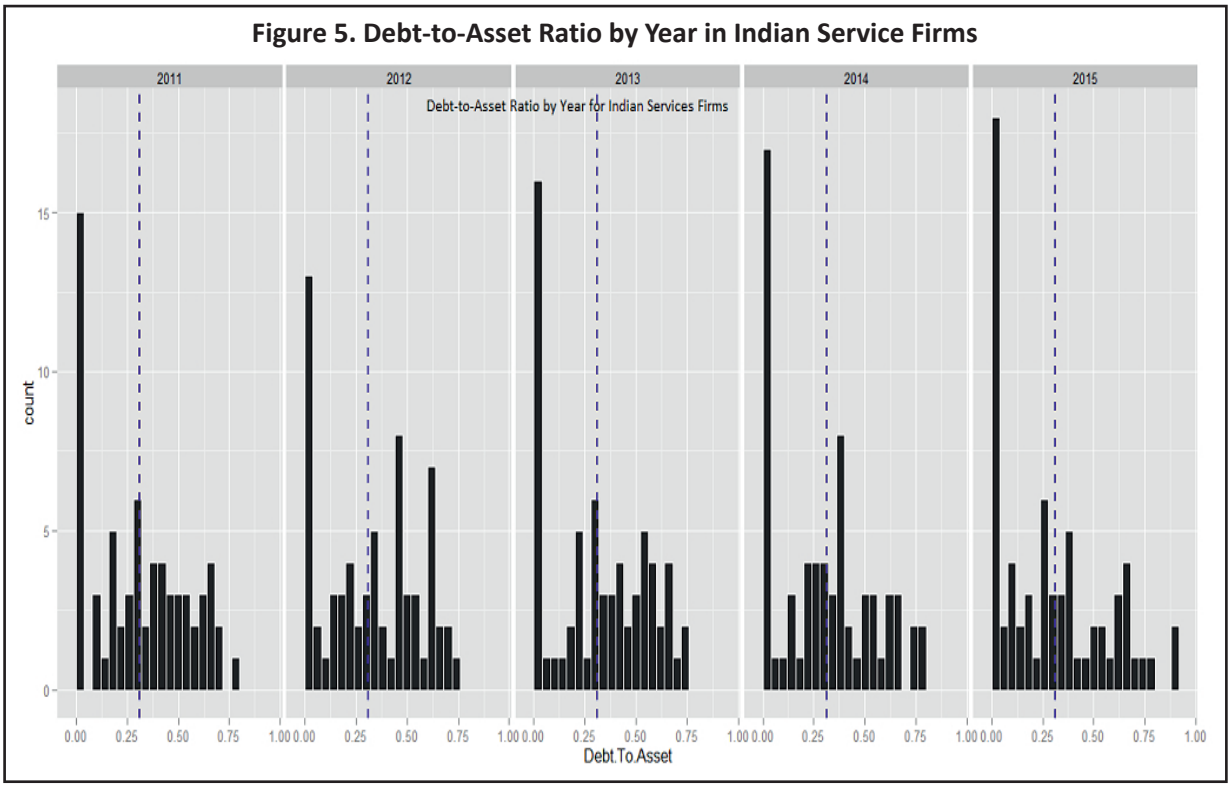

Table 1. Descriptive Statistics for Debt-to-Asset Ratio

Statistic	No. Obs	Min	1st Quartile	Median	Mean	3rd Quartile	Max	Std Dev	Skewness	Kurtosis
Value	335	0	0.075	0.3	0.31	0.5	0.9	0.24	2.69	16.96

Table 2. OLS Regression Output for Pecking Order Theory - Hypothesis 1

Statistic	Value	*t*-stat	*p*-value	Significant
Observations	268			
Adjusted R^2	0.86			
Intercept	6.12	0.42	0.67	No
X-Variable	0.85	40.23	0.0	Yes

Table 3. OLS Regression Output for One Year Target Ratio - Hypothesis 2

Statistic	Value	*t*-stat	*p*-value	Significant
Observations	268			
Adjusted R^2	0.51			
Intercept	41.87	1.56	.12	No
X-Variable	0.98	16.78	0.0	Yes

firms. When aggregate data were taken, the Pearson coefficient between profit-to-asset ratio and the debt-to-asset ratio is found to be 0.35 and is significant at the 0.001 level if a test for the critical value of *r* is performed for the two variables with 300 degrees of freedom.

From Figure 5, where the data is broken down by year, it can be observed that there is a skewed nature of the debt-to-asset ratio. The left most data points which represent zero debt-to-asset ratio show sharp spikes, indicating a larger proportion of un-levered firms (debt-to-asset ratio equal to zero) when compared to proportion of firms having a higher debt-to-asset ratio. This phenomenon is observed in all time periods.

Table 4. OLS Regression Output for Two Year Average Target Debt -to - Asset Ratio - Hypothesis 3

Statistic	Value	*t*-stat	*p*-value	Significant
Observations	198			
Adjusted R^2	0.22			
Intercept	- 31.95	- 0.96	.12	No
X-Variable	0.40	7.46	0.0	Yes

Table 5. OLS Regression Output for Three Year Target Debt - to - Asset Ratio - Hypothesis 3

Statistic	Value	*t*-stat	*p*-value	Significant
Observations	134			
Adjusted R^2	0.04			
Intercept	- 14.93	- 0.61	0.544	No
X-Variable	-0.96	- 2.58	0.01	Yes

Table 6. OLS Regression Output for Industry Average Target Debt - to - Asset Ratio - Hypothesis 4

Statistic	Value	*t*-stat	*p*-value	Significant
Observations	268			
Adjusted R^2	0.05			
Intercept	72.81	1.912	0.06	No
X-Variable	0.125	4.05	0.0	Yes

↳ **OLS Regression Results :** It can be inferred from the Table 1 that the lowest 25% of the observations carry a debt to asset ratio of 0.075 or less, 75% of the observations carry a debt to asset ratio of 0.50 or less. The skewness is 2.69, which indicates that most of the data is to the left of the mean. The median value of observations is 0.30 and the mean value is 0.31. The kurtosis value is more than 3. Therefore, the distribution is leptokurtic.

The Table 2 indicates that the independent variable, which is the net financing requirement, is a significant predictor of the change in debt level from the previous period. The Table 3 shows that the independent variable, which is the one-year lagging debt to asset ratio of the firm, is a significant predictor of the change in debt level from the previous period. The Table 4 shows that the independent variable, which is the two-year lagging debt to asset ratio average value of the firm, is a significant predictor of the change in debt level from the previous period. The prediction power of the regression is much lower than the one year lagging value of debt to asset ratio.

The Table 5 shows that the independent variable, which is the three-year lagging debt to asset ratio average value of the firm, is a significant predictor of the change in debt level from the previous period. The prediction power of the regression is much lower than the one year lagging value of debt to asset ratio or two year lagging value of debt to asset ratio. The Table 6 shows that the independent variable, which is the industry average debt to asset ratio, is a significant predictor of the change in debt level from the previous period. The prediction power of the regression is much lower than any of the lagging values of debt to asset ratio.

Discussion

Results of Hypotheses Testing

(1) The hypothesis that the change in debt for a firm between two consecutive periods is related to the net financing requirement for the year is accepted and is statistically significant. Therefore, the null hypothesis H01 is accepted.

(2) The hypothesis that the change in debt for a firm between two consecutive periods is related to the prior year debt-to-asset ratio (which tends to act as a target ratio) is statistically significant, though the fit of the regression is lower than Point (1). Therefore, the null hypothesis H02 is accepted.

(3) The hypothesis that the change in debt for a firm between two consecutive periods is related to the average of prior years' debt-to-asset ratio (which tends to act as a target ratio) is statistically significant, though the fit of the regression is highly diminished as compared to Points (1) and (2) . Therefore, the null hypothesis H03 is accepted.

(4) The hypothesis that the change in debt for a firm between two consecutive periods is related to the prior year industry debt-to-asset ratio is statistically significant, though the fit of the regression is extremely diminished as compared to all previous regressions. Therefore, the null hypothesis H04 is accepted.

Conclusion

In conclusion, service firms in India have a debt-to-asset structure which is not perfectly normally distributed. Furthermore, the firms which are likely to take on debt generally follow the pecking order theory of capital structure, which implies that debt is only taken if there is a net financing requirement (after profit is consumed) in any given year. Finally, the trade-off model cannot be rejected because the debt-to-asset ratios of previous years are statistically significant predictors of the debt level in any given year. The capital structure of Indian service firms tends to be sticky and does not change much year to year. It can, however, be said that the explanatory power of the pecking order model is superior to that of the trade-off model. The practical or real-life use of this research is the knowledge that managers in Indian service firms prefer to use profit generated from operations to finance working capital and investments. Debt is issued only if there is a paucity from operating profit. The findings of this research are similar to the findings drawn by Amsaveni and Gomathi (2012), who found partial evidence of pecking order and trade-off theory in Indian pharmaceutical firms. Similar to this research, Srivastava (2012) also found evidence of both pecking order and trade off theories in the analysis of Indian public limited companies. Evidence of pecking order theory was further found in Baltic firms by Norvaišienė and Stankevičienė (2007). Degryse, de Goeij, and Kappert (2012) found evidence of the pecking order theory in Dutch SMEs and also that growing firms tended to use debt financing. The study conducted by Shyam - Sunder and Myers (1999), upon which much of this research is based, found evidence of the pecking order theory having greater explanatory power in explaining debt ratios than did a model given by the trade-off theory.

Research Implications

The service sector in India is growing rapidly. The need for financing is crucial for firms in the sector. Therefore, the implications for this research could underline the decision making pattern of managers in service firms. The financing decision is required and is critical for the growth of firms. Whether the firm chooses to fund growth from internal reserves (pecking order theory) or chooses to raise funds from the external debt or equity market could depend on a myriad of factors, including the current rates of interest, appetite for equity, general level of valuation

in the equity market, and other factors. While this research finds evidence for pecking order theory in Indian service firms, it cannot conclude that pecking order decision is optimal, thus implying the need for further research. Evidence has also been found for convergence of debt to asset ratio toward the firm average or target capital structure, albeit a weaker relationship when compared to the pecking order. This evidence implies that the firm is trying to reach some equilibrium value of capital structure, whether this is the optimal value of capital structure needs further analysis. The managerial decision to choose either internal funds for financing or external debt or equity can have an implication on the cost of capital and ,therefore, on the firm value. The capital structure resulting from the managerial decision of financing has a theoretical implication on the tax shield of debt, and hence, on the value of the firm. Finally, according to finance theory, excessive debt levels can result in agency cost.

Limitations of the Study and Scope for Further Research

The limitations of the study include the relatively small sample size and the relatively short time period being used. Both can be increased, although the quality of public data available on service firms can lead to the sample size shrinkage, as was experienced in this study were 103 firms were first selected randomly and the sample size reduced to 67 due to bad or missing data.

Further research could analyze the implications of pecking order theory – does it actually create firm value or not ? Can debt financing be superior to financing using retained earnings? Will the market respond positively to the debt financing decision by firms? The section on Research Implications has also mentioned avenues for potential future research.

References

Adewale, M. T., & Ajibola, O. B. (2013). Does capital structure enhance firm performance? Evidence from Nigeria. *IUP Journal of Accounting Research & Audit Practices, 12*(4), 43 - 55 .

Alipour, M., Mohammadi, M. F. S., & Derakhshan, H. (2015). Determinants of capital structure: An empirical study of firms in Iran. *International Journal of Law and Management, 57*(1), 53-83. doi : https://doi.org/10.1108/IJLMA-01-2013-0004

Amsaveni, R., & Gomathi, S. (2012). Determinants of capital structure: A study of the pharmaceutical industry in India. *Indian Journal of Finance, 6* (3), 4-14.

Banerjee, A., & De, A. (2014). Determinants of corporate financial performance relating to capital structure decisions in Indian iron and steel industry: An empirical study. *Paradigm, 18*(1), 35 - 50.

Bhaduri, S. N. (2002). Determinants of capital structure choice: A study of the Indian corporate sector. *Applied Financial Economics, 12* (9), 655 - 665.

Degryse, H., de Goeij, P., & Kappert, P. (2012). The impact of firm and industry characteristics on small firms' capital structure. *Small Business Economics, 38*(4), 431- 447. DOI: 10.1007/s11187-010-9281-8

Foo, V., Jamal, A. A. A., Karim, M. R. A., & Ulum, Z. K. A. B. (2015). Capital structure and corporate performance: Panel evidence from oil and gas companies in Malaysia. *International Journal of Business Management and Economic Research, 6* (6), 371 - 379.

Gharaibeh, A. M. (2015). The determinants of capital structure: Empirical evidence from Kuwait. *European Journal of Business, Economics and Accountancy, 3* (6), 1-25.

Gharaibeh, H., & Al-Najjar, B. (2010). Determinants of capital structure: Evidence from Jordanian data. *Jordan Journal of Business Administration, 3* (2), 185 - 194.

Haque, F., Arun, T. G., & Kirkpatrick, C. (2011). Corporate governance and capital structure in developing countries: A case study of Bangladesh. *Applied Economics, 43* (6), 673- 681. doi: 10.1080/00036840802599909

Hiran, S. A., & Sojatia, M. (2015). An empirical analysis of capital structure and long term solvency position of Hindalco Industries Limited. *Indian Journal of Finance, 9*(2), 48-55. doi:10.17010/ijf/2015/v9i2/71528

Kaur, R., & Rao, N. K. (2009). Determinants of capital structure: Experience of Indian cotton textile industry. *Vilakshan: The XIMB Journal of Management, 6* (2), 97 - 112.

Morellec, E., Nikolov, B., & Schürhoff, N. (2012). Corporate governance and capital structure dynamics. *The Journal of Finance, 67*(3), 803 - 848. doi10.1111/j.1540-6261.2012.01735.x

Nguyen, D. T. T., Diaz-Rainey, I., & Gregoriou, A. (2014). Determinants of the capital structure of listed Vietnamese companies. *Journal of Southeast Asian Economies (JSEAE), 31*(3), 412- 431.

Norvaišienė, R., & Stankevičienė, J. (2007). The interaction of internal determinants and decisions on capital structure at the Baltic listed companies. *Engineering Economics, 52* (2), 7 - 17.

Nunkoo, P. K., & Boateng, A. (2010). The empirical determinants of target capital structure and adjustment to long-run target: evidence from Canadian firms. *Applied Economics Letters, 17*(10), 983 - 990.

Panno, A. (2003). An empirical investigation on the determinants of capital structure: The UK and Italian experience. *Applied Financial Economics, 13* (2), 97-112.

Serrasqueiro, Z., & Caetano, A. (2015). Trade-off theory versus pecking order theory: Capital structure decisions in a peripheral region of Portugal. *Journal of Business Economics and Management, 16* (2), 445 - 466. http://dx.doi.org/10.3846/16111699.2012.744344

Shahzad, A., Shahid, M. A., Sohail, A., & Azeem, M. (2015). Investigating the impact of corporate governance on capital structure: A Case of KSE-listed companies. *IUP Journal of Corporate Governance, 14* (2), 31- 43.

Shyam-Sunder, L., & Myers, S. C. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics, 51*(2), 219 - 244.

Srivastava, A. (2012). Determinants of capital structure in Indian Public Ltd. companies: An experience of pre and post liberalization. *Indian Journal of Finance, 6* (6), 30 - 38.

About the Authors

Mr. Uday Kumar Jagannathan is currently serving as an Assistant Professor (Finance) at Ramaiah University of Applied Sciences, Bangalore. He has an experience of 19 years in industry and 8 years in academia. He is currently pursuing Doctoral Studies in Management. His area of expertise is Corporate Finance. He has published articles in Finance in several Indian journals and has made six international conference presentations.

Dr. N. Suresh is serving as a Professor in the Faculty of Management and Commerce at Ramaiah University of Applied Sciences, Bangalore. He has 23 years of academic experience. He has completed Doctorate in Risk Management and has published over 20 papers in several national and international journals. He has also presented over 30 papers in national and international conferences.