CHAPTER IV

ANALYSIS OF DEBT-EQUITY RATIOS OF SELECTED SERVICES SECTOR INDUSTRIES IN INDIA

Introduction

This chapter attempts to analyse the debt-equity ratios of the selected service sector industries in India. The debt-equity ratio shows the dependence of the companies on borrowed funds. Several ratios may be used to determine the proportion of debt in total financing and to analyse the solvency position of a firm. The firm may be interested in knowing the proportion of the interest-bearing debt (also called funded debt) in the capital structure. Total debt will include short and long-term borrowings from financial institutions, debentures/bonds, deferred payment arrangements for buying capital equipments, bank borrowings, public deposits and any other interest-bearing loan. Debt-equity ratio is directly computed by dividing total debt by net worth (I.M.Pandey, 1999)[124].

In a comprehensive study of Indian corporate sector made by Chakraborty (1997)[125], total debt to equity was considered to represent the debt-equity ratio. Shanmugasundaram (2008)[126] in his research work used both short- term and long-term borrowings in the debt equity ratio to represent the capital structure. In a research work of Raghvir Kaur and N Krishna Rao (2009)[127] total debt has been considered to calculate the debt-equity ratio and the reason quoted for using total debt in their study is that the so called short term debt usually taken for financing current assets, gets renewed or renegotiated every year. As a result, the short term debt also becomes permanent and repaid in installments. Similarly, in this study also total debt to equity has been considered to represent the debt-equity ratio.

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124 Pandey, I M. (1999), *"Financial Management"*, 8th Edition, Vikas Publications, New Delhi.
125 Chakraborty, S.K. (1977), "Corporate Capital Structure and Cost of Capital", *ICWAI'*, Calcutta.
126 Shanmugasundaram.G (2008), 'Intra-Industry Variations of Capital Structure in Pharmaceutical Industry in India', *International Research Journal of Finance and Economics*, Issue 16, 2008.
127 Raghvir Kaur and N Krishna Rao (2009), 'Determinants of Capital Structure: Experience of Indian Cotton Textile Industry', *Vilakshan, XIMB Journal of Management*, September, 2009. Pp.97-112.

A. Analysis of Debt to Equity Ratios of Selected Service Sector Industries in India

In the debt equity ratio, the equity part includes, paid up equity shares, paid up preference shares and reserves and surplus and the total debt includes, all the secured and non secured long term as well as short term borrowings of the firm. The industry-wise average debt-equity ratios of selected service sectors industries in India were analysed for the period 1995-96 to 2009-10. By using the descriptive statistics, the industry wise mean, standard deviation, and co efficient of variation for the average debt-equity ratio have been calculated. To understand the growth rate of debt equity ratio Compounded Annual Growth Rates (CAGR) were calculated and depicted in the table 9.

Table - 9

Analysis of Debt to Equity Ratios of Selected Service Sector Industries in India

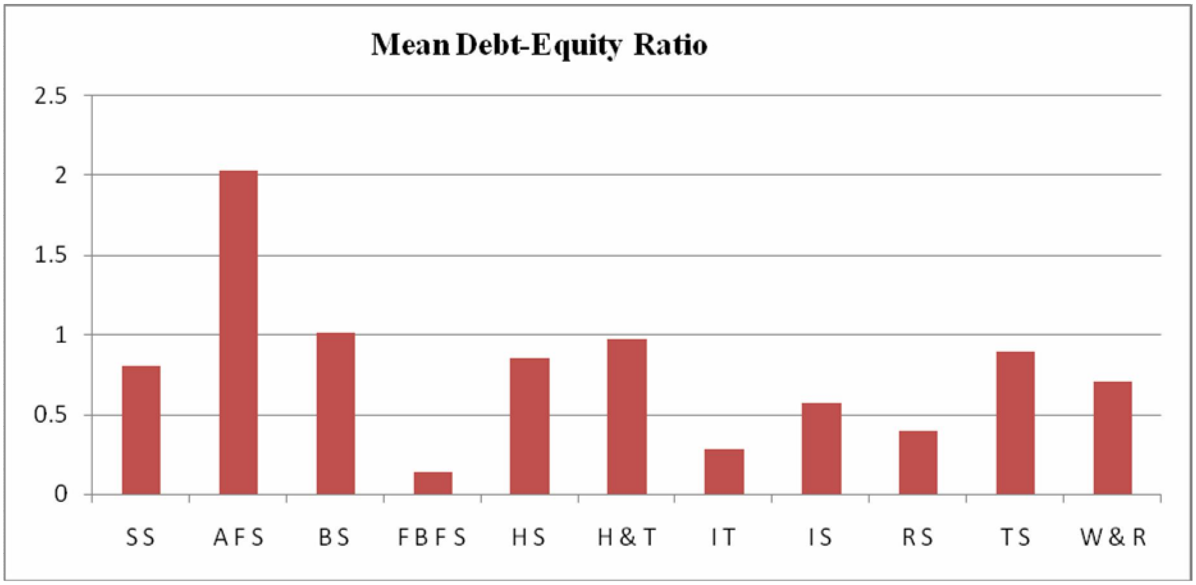
Industry	No. of Companies	Mean Debt-Equity Ratio	S.D	C.V%	CAGR (%)
Services Sector	260	0.80	0.10	12.04	1.47
Asset Financing services	34	2.03	0.28	13.99	2.9
Banking services	13	1.01	0.26	25.7	-2.89
Fee Based Financial services	17	0.14	0.06	41.32	-2.61
Health services	09	0.85	1.15	134.92	8.07
Hotels & Tourism	23	0.97	0.26	27.06	0.25
Information Technology	45	0.28	0.16	58.08	-5.08
Investment services	31	0.57	0.27	47.15	0.82
Recreational services	08	0.39	0.33	84.46	-10.88
Transport services	14	0.89	0.2	22.63	4.66
Wholesale & Retail Trading	66	0.71	0.15	21.54	2.31

Source: Computed, Period: 1995-96 -2009-10.

The mean debt-equity ratio of services sector has been calculated by finding the average debt-equity ratio of all the selected 260 companies of services sector industries for the period 1995-96 to 2009-10 and has been recorded as 0.80, which is a low ratio. The average debt-equity ratios of various industries have been varying widely during the period of study from a low ratio of 0.14 in fee based financial services industry, followed by information technology with 0.28 to a high ratio of 2.03 in the asset financing services industry. From the analysis, it is found that majority of the service sector industries in India have very low debt-equity ratio of below 1:1.

Chart - 3

Mean Debt-Equity Ratios of Selected Services Sector Industries in India



Source: Computed, Period: 1995-96 -2009-10.
SS – Services Sector, AFS - Asset Financing Services, BS – Banking Services, FBFS – Fee Based Financial Services, HS – Health Services, H & T – Hotels & Tourism, IT – Information Technology, IS – Investment Services, RS – Recreational Services, TS – Transport Services, W & R – Whole sale & Retail Trading.

The variation in the debt-equity ratios of industries is measured by coefficient of variation (CV). It is observed from the table 9 that the highest CV (134.92) is in the health services industry followed by recreational services industry (84.46). The industry with a low CV (13.99) is asset financing services industry. The CV of services sector is only 12.04. It suggests that the services sector in India is following a stable financial policy of not changing the proportion of debt-equity ratio frequently during the period of study.

The growth rate of debt-equity ratio of selected service sector industries in India have been calculated by using Compound Annual Growth Rate (CAGR). The CAGR of services sector is only 1.47. The analysis of CAGR of the selected service sector industries reveals that there are 6 industries with positive CAGR and 4 industries with negative CAGR. A highest CAGR of 8.07 is found in health services and a lowest CAGR of -10.88 is recorded in recreational services industry. It shows that the services sector industries in India had not increased their debt-equity ratio during the study period.

From the analysis of debt-equity ratios of selected service sector industries in India, it is understood that the asset financing industry has the highest debt-equity ratio of 2:1, in the banking services it is of 1:1 and in rest of the other 8 service sector industries it is well below 1:1. The analysis of the growth rate of debt-equity ratio reveals that nearly 40% of the service sector industries in India have negative growth in their debt-equity ratio. Therefore, it can be inferred that the service sector industries in India did not rely on debt and to some extent reduced their debt from the capital structure during the period of study.

B. Analysis of Asset Growth of Selected Services Sector Industries in India

According to the pecking order theory, there should be a positive relationship between growth and debt, since a higher growth implies a higher demand for funds and greater reliance on external financing through the preferred source of debt. Therefore, the debt-equity ratios of companies are analysed based on the growth rate of the companies. Shanmugasundaram (2008)[128], Sarma and Hanumanta Rao (2001)[129], Malabika Deo and Jackline (2009)[130], and Michael J. Cooper et al, (2008)[131] in their research work have used asset growth to measure the growth of the companies. Likewise, in this study also asset growth has been used to measure the company growth.

The growth rate has been calculated by measuring the annual changes in the total assets. The mean asset growth of each industry has been obtained by calculating the each company's changes in the assets for all years of study period and the average of all the years' asset growth is then converted into percentages. The asset growth percentage of all the services sector industries in India are shown in the table 10.

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[128] Shanmugasundaram.G (2008), 'Intra-Industry Variations of Capital Structure in Pharmaceutical Industry in India', *International Research Journal of Finance and Economics*, Issue 16, 2008.

[129] Sarma L.V.L.N and Hanumanta Rao K.S. (2001), 'Leverage and the Value of the Firm", file://J:\asset grow arti_files\show ArticleImage.gif

[130] Malabika Deo and Jackline.S. (2009), 'The Determinants of Debt Ownership Structure- Some Empirical Evidence ', *Indian Journal of Finance*, January, 2009. Pp.22-27.

[131] Michael J. Cooper, Huseyin Gulen, and Michael J. Schill (2008) "Asset Growth and the Cross-Section of Stock Returns", *The Journal of Finance*, Vol. LXIII, No.4, August 2008, Pp 1609-1651.

Table -10

Percentage of Asset Growth in Each Industry of Services Sector

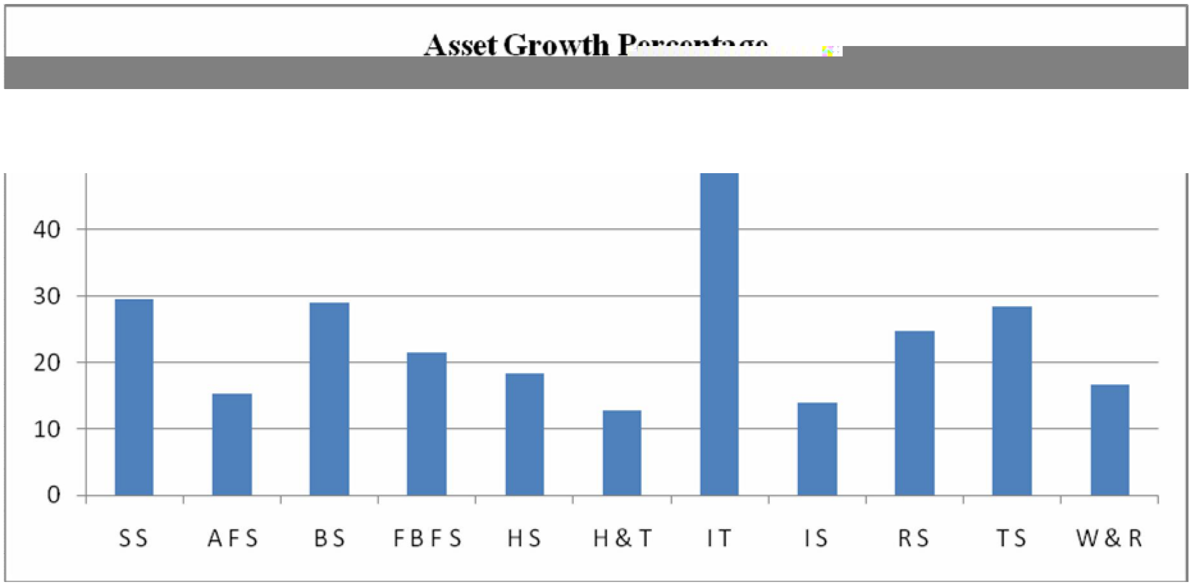
Industry	Asset Growth Percentage
Services Sector	29.55
Asset Financing Services	15.18
Banking Services	28.99
Fee Based Financial Services	21.51
Health Services	18.25
Hotels & Tourism	12.78
Information Technology	49.39
Investment Services	13.97
Recreational Services	24.67
Transport Services	28.36
Wholesale & Retail Trading	16.61

Source: Computed, Period: 1995-96 -2009-10.

The analysis of asset growth rate reveals that there are high variations in the growth percentage among the service sector industries in India. All the 260 companies selected for the study which represents the services sector in India has shown 29.55 percentage of growth during the period of study. Among the ten industries selected the Information Technology sector has got the highest growth during the period of study with 49.39 percentages, followed by banking sector with 28.99 percentages. The lowest growth has been observed in hotels and tourism sector with 12.78 percentages. It is also revealed from the analysis that all the selected services sector industries in India have positive growth in their assets during the period of study.

Chart - 4

Asset Growth (Percentage) of Selected Services Sector Industries in India



Source: Computed, Period: 1995-96 -2009-10.

SS – Services Sector, AFS - Asset Financing Services, BS – Banking Services, FBFS – Fee Based Financial Services, HS – Health Services, H & T – Hotels & Tourism, IT – Information Technology, IS – Investment Services, RS – Recreational Services, TS – Transport Services, W & R – Whole sale & Retail Trading.

C. Grouping of companies based on the growth rate

The companies were grouped into 3 categories based on their growth of assets during the study period for all the selected services sector industries. The mean of growth rates of all the selected companies of each industry was considered as the proxy for a particular industry's growth rate. The corresponding standard deviation was also found out. For most of the industries, it was found that the standard deviations were much higher than the mean values, which indicates that the mean values were affected by the extreme values.

Hence, the companies were grouped based on 30th and 70th percentile values. The companies were grouped under 'low growth' companies if their asset growth rates fall below the industry's 30th percentile value and 'high growth' companies were grouped if the asset growth rates fall above the industry's 70th percentile value. The companies whose asset growth rates are falling between industry's 30th and 70th percentile value were considered as 'moderate growth' companies. This variation in the growth rate of assets of various services sector companies in India selected for the study also encouraged doing an analysis of debt-equity ratio of these industries based on their growth rate.

D. Repeated Measures ANOVA for the Debt-Equity Ratios of Selected Service Sector Industries in India

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified companies, and the influence of growth over years. Like any ANOVA procedure, Repeated Measures ANOVA tests the equality of means. However, a Repeated Measures ANOVA is used when all the subjects of a random sample are measured at different times, i.e., the measurement of the dependent variable is repeated. Since the regular ANOVA will not address the correlations between the repeated measures, it may not be appropriate in this case. Therefore, the Repeated Measures ANOVA has been used and the results of Repeated Measures ANOVA are outlined in the following pages.

This approach is used for various reasons. Primarily, Debt equity ratio of a particular company is observed for several years. The years would be a repeated factor for this study. Therefore, the hypothesis related to years in this study requires repeated measures. Secondly, there is a great deal of variations between sample companies; so, the error variance estimates from standard ANOVAs are large. Repeated measures of each sampled company provide a way of accounting for this variance, thus reducing error variance. Thirdly, when sample companies are selected based on certain criterion repeated measures designs are economical because each company's performance is measured under all years.

With any inferential statistical procedure, it is important to state the hypotheses of interest clearly *before* undertaking any statistical analyses of the data. Considering the research goals in the study, it is essential to find answers to the following research questions.

1. Does companies with different growth rates influence debt equity ratio? That is, whether low asset growth rated companies have different mean debt equity ratios than moderate asset growth rated companies or high asset growth rated companies. (This is the test for a *between-subjects main effect of companies with high, moderate and low growth rates).*
2. Does the period of study (years) influence Debt equity ratio? i.e., does mean debt equity ratios change across the years for the study period?

   (This is the test for a *within-subjects main effect).*
3. Does the influence of type of company on debt equity ratio depends upon the period of study (years)? i.e., does the pattern of differences between mean debt equity ratios for different growth based groups of companies change at each year?

   (This is the test for *within-subjects by between-subjects interaction effects*)

Generally, in Repeated Measures ANOVA the sample units are called 'subjects'. As far as this study is concerned 'subjects' are companies. Repeated Measures ANOVA was conducted in this study to find out whether the difference in the debt-equity ratio which represents the capital structure can be attributed towards period of study or based on asset growth rates of the companies, or with the interaction of both.

Repeated Measures ANOVA was conducted for the services sector as a whole, which includes all the selected companies in each selected industry. Moreover, it is found from the Table 10 that each selected industry of services sector has different asset growth rates; therefore, it is meaningful to do the same analysis for each of the selected industry of services sector in India.

(1) Analysis of Debt-Equity Ratios of Services Sector in India Based on their Growth Rate

The selected companies of all the selected services sector industries in India have been grouped into three categories based on their growth rate such as low growth, moderate growth, and high growth. The average debt-equity ratios of each category of companies were calculated year wise and displayed in the table 11.

Table – 11

Debt-Equity Ratios of Services Sector in India Based on their Growth Rate

Years	Low growth (<=6.5%), N= 78	Moderate growth (6.5% - 23%), N= 104	High growth (>23%), N= 78
1995-96	0.735	0.750	1.212
1996-97	0.671	0.696	0.859
1997-98	0.627	0.612	0.821
1998-99	0.684	0.576	0.853
1999-00	0.766	0.590	0.889
2000-01	0.711	0.573	0.963
2001-02	0.692	0.538	1.129
2002-03	0.636	0.559	1.267
2003-04	0.605	0.569	1.263
2004-05	0.704	0.613	1.319
2005-06	0.550	0.633	1.236
2006-07	0.406	0.619	1.313
2007-08	0.434	0.599	1.466
2008-09	0.450	0.652	1.519
2009-10	0.803	0.658	1.894
AVERAGE	**0.6316**	**0.6158**	**1.2002**

Source: Computed

There were 78 low growth companies with a mean growth rate of less than or equal to 6.5 %, 104 moderate growth companies with a mean growth rate between 6.5 % and 23 %, and 78 high growth companies with a mean growth rate of more than 23% have been identified in the services sector in India.

Table 11 explains about the year wise mean debt-equity ratios of companies in services sector in India based on their rate of growth of assets. The companies under the low and moderate growth rate have low debt-equity ratios compared to high growth rate companies. A low debt-equity ratio of 0.406 to a high ratio of 0.803 is observed in the low growth companies category during the study period. The overall average debt-equity ratio of low growth category is 0.631.

The companies under moderate growth category have shown the year wise debt-equity ratios of as low as 0.538 to a high ratio of 0.750. In this category, the overall average debt-equity ratio of moderate growth firms is 0.615, which is less than the high growth category firms. The high growth companies in services sector have got the highest debt-equity ratios in all the years, during the period of study, when compared to the other growth categories of companies. A low debt-equity ratio of 0.821 to a high ratio of 1.894 has been identified in this category of companies. The overall average debt-equity ratio in this category is 1.20, which is higher than the other growth category of firms.

From the above analysis, it is inferred that the average debt-equity ratios of firms in the services industry are differing according to its growth rate. Higher the growth, higher the debt-equity ratio has been identified in the services sector.

Since, there is variation among high, moderate and low growth companies as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth companies in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth companies based on changes in years.

Repeated Measures ANOVA was conducted to find out whether mean debt equity ratios vary across years, among the three growth-classified companies, and the influence of growth over years.

Table –12

Repeated Measures ANOVA for the Debt-Equity Ratios of Services Sector in India

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Asset Growth Rates	294.420	2	147.210	5.266	**
Error	7071.966	253	27.952		
Between Years	39.275	14	2.805	2.229	**
Years * Growth Rate	85.090	28	3.039	2.415	**
Error (Years)	4457.301	3542	1.25		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant

Source: Computed

It is seen from the table 12 that the calculated F-ratio for between asset growth rates is given as 5.266 which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be significant at 1% level. This indicates that the debt equity ratio varies significantly among companies with different growth rates. Hence Ho1 is rejected.

The F-ratio comparing the mean debt equity ratios among different years is given as 2.229 which is found to be significant at 1% level. That is, the mean debt equity ratios significantly vary across the years during the study period. Hence Ho2 is rejected.

Next, the interaction effect, that is the influence of type of company (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 2.415, which is also found to be significant at 1% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies change significantly in each year. Hence Ho3 is rejected.

(2) Analysis of Debt-Equity Ratios of Asset Financing Services Industry in India Based on their Growth Rate

The companies of asset financing services industry in India have been grouped into three categories based on their growth rate such as low growth, moderate growth, and high growth.

Table – 13

Debt-Equity Ratios of Asset Financing Services Industry in India Based on their Growth Rate

Years	Low growth (<=5.3%), N=10	Moderate growth (5.3% - 23%), N=14	High growth (> 23%), N=10
1995-96	0.675	1.697	2.632
1996-97	0.738	1.267	3.236
1997-98	0.867	1.289	3.791
1998-99	0.624	1.345	3.693
1999-00	0.494	1.625	3.327
2000-01	0.607	1.584	3.496
2001-02	0.592	1.591	3.356
2002-03	0.511	1.523	3.633
2003-04	0.464	1.716	3.715
2004-05	0.442	1.712	4.451
2005-06	0.596	2.126	4.365
2006-07	0.572	2.205	4.491
2007-08	0.564	1.831	5.200
2008-09	0.563	1.941	4.669
2009-10	0.577	1.947	4.867
AVERAGE	**0.592**	**1.693**	**3.928**

Source: Computed

The average debt-equity ratios of each category of companies were calculated year wise and displayed in the table 13. There were 10 low growth companies with a mean growth rate of less than or equal to 5.3 %, 14 moderate growth companies with a mean growth rate between 5.3 % and 23 %, and 10 high growth companies with a mean growth rate of more than 23 %.

Table 13 explains about the year wise mean debt-equity ratios of companies in asset financing services industry based on their rate of growth of assets. The companies under the low growth rate have the low debt-equity ratios comparatively. A low debt-equity ratio of 0.442 to a high ratio of 0.867 is recognized in the low growth companies category during the study period. The overall average debt-equity ratio of low growth category is 0.592, which is less than the average debt-equity ratios of other two growth category firms.

The companies under moderate growth category have shown the year wise debt-equity ratios of as low as 1.267 to a high ratio of 2.205. In this category, the debt-equity ratio is showing an increasing trend almost in all the years. The overall average debt-equity ratio of moderate growth firms is 1.693, which is higher than the low growth and less than the high growth category firms.

The high growth companies in asset financing services industry have got the highest debt-equity ratios in all the years, during the period of study, when compared to the other growth categories of companies. A low debt-equity ratio of 2.632 to a high ratio of 5.20 has been identified in this category of companies. The debt-equity ratios observed in this category are as high as above 2:1 in each year during the period of study. The overall average debt-equity ratio in this category is 3.928, which is higher than the other growth category of firms.

From the above analysis, it is inferred that the average debt-equity ratios of firms in the asset financing services industry are differing according to its growth rate. Higher the growth, higher the debt-equity ratio has been identified in this sector.

Since, there is variation among high, moderate and low growth companies as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth companies in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth companies based on changes in years.

Table –14
Repeated Measures ANOVA for the Debt-Equity Ratios of Asset Financing Services Industry in India

Source	Sum of Squares	df	Mean	F	Sig.
Between Asset Growth Rates	874.216	2	437.108	4.870	*
Error	2782.169	31	89.747		
Between Years	39.627	14	2.831	2.697	**
Years * Growth Rate	49.654	28	1.773	1.689	*
Error (Years)	455.560	434	1.050		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant
Source: Computed

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified companies, and the influence of growth over years.

It is seen from the table 14 that the calculated F-ratio for between asset growth rates is given as 4.870, which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be significant at 5% level. This indicates that the debt equity ratio varies significantly among companies with different growth rates. Hence Ho1 is rejected.

The F-ratio comparing the mean debt equity ratios among different years is given as 2.697 which is found to be significant at 1% level. That is, the mean debt equity ratios significantly vary across the years during the study period. Hence Ho2 is rejected.

Next, the interaction effect, that is the influence of type of company (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 1.689, which is also found to be significant at 5% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies change significantly in each year. Hence Ho3 is rejected.

(3) Analysis of Debt-Equity Ratios of Banking Services Industry in India Based on their Growth Rate

The various private sector banks in India have been grouped into three categories based on their growth rate such as low growth, moderate growth, and high growth. The average debt-equity ratios of each category of banks were calculated year wise and displayed in the table 15. There were 3 low growth banks with a mean growth rate of less than or equal to 19.2 %, 6 moderate growth banks with a mean growth rate between 19.2 % and 29.7 %, and 4 high growth banks with a mean growth rate of more than 29.7 %.

The mean debt-equity ratios of various banks based on their growth rate have been grouped and displayed in the table 15, year wise. From the table, it is observed that the average debt-equity ratios of banks in the low growth category are falling between

0.250 and 1.089, which is low in general. It is also observed that the debt-equity ratio in the low growth category is fluctuating more in each year. The overall average debt-equity ratio of low growth category banks is 0.619, which is generally low.

In the moderate growth category banks, the average debt-equity ratio has been falling between 0.182 and 1.876. It is observed that the debt-equity ratio has been declining each year from a high of 1.876 in 1997 to a low of 0.182 in 2010. The overall average debt-equity ratio of moderate growth banks is 0.674, which is generally low and at par with the low growth category banks.

Table –15

Debt-Equity Ratios of Banking Services industry in India Based on their Growth Rate

Years	Low growth (<=19.2%), N=3	Moderate growth (19.2% - 29.7%), N=6	High growth (29.7%), N=4
1995-96	0.535	1.685	1.259
1996-97	0.684	1.876	1.474
1997-98	0.298	0.842	1.344
1998-99	0.434	0.522	1.134
1999-00	0.774	0.876	1.789
2000-01	0.678	0.806	1.506
2001-02	0.365	0.588	1.87
2002-03	0.25	0.539	3.572
2003-04	0.719	0.455	2.621
2004-05	0.848	0.391	1.929
2005-06	1.089	0.355	1.693
2006-07	0.883	0.366	1.676
2007-08	0.733	0.385	2.454
2008-09	0.562	0.245	1.3
2009-10	0.447	0.182	1.439
AVERAGE	**0.619**	**0.674**	**1.804**

Source: Computed

The debt-equity ratios of high growth banks are fluctuating during the period of study. A high mean debt-equity ratio of 3.572 has been recorded in the year 2002-2003 and a low mean debt-equity ratio of 1.134 has recorded during the year 1998-1999. It can be inferred from the table that the average debt-equity ratio of high growth category banks are higher than the other two growth category banks with an overall average of 1.804. It is also inferred that the low and moderate growth category banks have the low average debt-equity ratio of less than 1 almost in every year, whereas, the high growth category banks have high average debt-equity ratio of more than 1.

Since, there is variation among high, moderate and low growth banks as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth banks in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth banks based on changes in years.

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified banks, and the influence of growth over years.

Table –16

Repeated Measures ANOVA for the Debt-Equity Ratios of Banking Services Industry in India

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Asset Growth Rates	54.812	2	27.406	12.018	**
Error	22.804	10	2.280		
Between Years	9.330	14	0.666	0.743	Ns
Years * Growth Rate	34.023	28	1.215	1.355	Ns
Error (Years)	125.501	140	0.896		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant

Source: Computed

It is seen from the table 16 that the calculated F-ratio for between asset growth rates is given as 12.018, which tests for the equality of mean debt equity ratios among the three types of banks with low, moderate and high asset growth. The F-ratio is found to be significant at 1% level. This indicates that the debt equity ratio varies significantly among banks with different growth rates. Hence Ho1 is rejected.

The F-ratio comparing the mean debt equity ratios among different years is given as 0.743 which is found to be not significant. That is, the mean debt equity ratios do not significantly vary across the years during the study period. Hence Ho2 is accepted.

The interaction effect, that is the influence of type of bank (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 1.355, which is also found to be not significant at 5% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of banks does not change significantly in each year. Hence, Ho3 is accepted.

(4) Analysis of Debt-Equity Ratios of Fee Based Financial Services Industry in India Based on their Growth Rate

The category wise mean debt-equity ratios of fee based financial services industry in India have been calculated year wise based on their growth rates such as low growth, moderate growth, and high growth and the same has been furnished in the table 17. There were 5 low growth companies with a mean growth of less than or equal to 11.9 %, 7 moderate growth companies with a mean growth rate between 11.9 % and 29.2 %, and 5 high growth companies with a mean growth rate of more than 29.2 % identified during the period of study.

From the table 17, it is observed that the mean debt-equity ratios of all the growth category companies of all years are very low. In the low growth companies category, a low mean debt-equity ratio of 0.038 is found in the year 1995-1996 and a high of 0.491 is found in the year 2001-2002. It is also found that the average debt-equity ratios of low growth companies are fluctuating in the each year of the study period. The overall average debt-equity ratio of low growth category firms is 0.217.

The average debt-equity ratios of moderate growth companies have registered a low ratio of 0.004 in the year 2004-2005 and a high ratio of 0.349 in the year 1999-2000. There are fluctuations observed in the debt-equity ratio during the period of study in the moderate growth category companies. A very low average debt-equity ratio has been there in each year of moderate growth category companies during the period of study. The overall average debt-equity ratio of moderate growth category firms is 0.139.

Table – 17

Debt-Equity Ratios of Fee Based Financial Services Industry in India Based on their Growth Rate

Years	**Low growth (<=11.9%), N=5**	**Moderate growth (11.9% - 29.2%), N=7**	**High growth (>29.2%), N=5**
1995-96	0.038	0.184	0.137
1996-97	0.127	0.207	0.009
1997-98	0.255	0.344	0.03
1998-99	0.192	0.29	0.01
1999-00	0.19	0.349	0.032
2000-01	0.361	0.213	0.03
2001-02	0.491	0.142	0.004
2002-03	0.209	0.033	0.013
2003-04	0.144	0.011	0.009
2004-05	0.173	0.004	0.012
2005-06	0.191	0.033	0.038
2006-07	0.184	0.013	0.269
2007-08	0.216	0.065	0.05
2008-09	0.263	0.09	0.293
2009-10	0.233	0.119	0.165
AVERAGE	**0.217**	**0.139**	**0.073**

Source: Computed

In the high growth category companies also a very low average debt-equity ratios have been observed throughout the period of study, ranging from a low of 0.004 in the year 2001-2002 to a high of 0.293 in the year 2008-2009. The overall average debt – equity ratio of high growth category firms is 0.073. From the above analysis, it can be inferred that the debt-equity ratios of fee based financial services industry in India is very low irrespective of their growth rate. Moreover, it is decreasing as the growth rate increases. The following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth companies in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (In the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth companies based on changes in years.

Table –18

Repeated Measures ANOVA for the Debt-Equity Ratios of Fee Based Financial Services Industry in India

Source	Sum of Squares	Df	Mean Square	F	Sig.
Between Asset Growth Rates	0.783	2	0.391	1.520	Ns
Error	3.605	14	0.258		
Between Years	0.742	14	0.053	1.623	Ns
Years * Growth Rate	1.969	28	0.070	2.153	**
Error (Years)	6.403	196	0.033		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant

Source: Computed

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified fee based financial companies, and the influence of growth over years.

It is seen from the table 18 that the calculated F-ratio for between asset growth rates is given as 1.520, which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be not significant at 5% level. This indicates that the debt equity ratio do not vary significantly among companies with different growth rates. Hence Ho1 is accepted. The F-ratio comparing the mean debt equity ratios among different years is given as 1.623 which is found to be insignificant. That is, the mean debt equity ratios do not significantly vary across the years during the study period. Hence Ho2 is also accepted. The interaction effect, that is the influence of type of company (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 2.153, which is found to be significant at 1% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies change significantly in each year. Hence Ho3 is rejected.

(5) Analysis of Debt-Equity Ratios of Health Services Industry in India Based on their Growth Rate

The average debt-equity ratios of health services industry have been prepared for the different growth rate firms, year wise and displayed on table 19. There were 2 companies in the low growth category with a mean growth rate of less than or equal to 10.5 % and 4 companies in the moderate growth category with a mean growth rate between 10.5 % and 27.5 %, and 3 companies in the high growth category with a mean growth rate of more than 27.5 %. Generally, in the health services industry the average debt-equity ratios of different growth category firms are low throughout the period of study.

Table –19

Debt-Equity Ratios of Health Services Industry in India Based on their Growth Rate

Years	Low growth (<=10.5%), N=2	Moderate growth (10.5% - 27.5%), N=4	High growth (>27.5%), N=3
1995-96	0.462	0.805	0.41
1996-97	0.453	0.745	0.364
1997-98	0.476	0.683	0.513
1998-99	0.616	0.529	0.406
1999-00	0.518	0.43	0.357
2000-01	0.475	0.419	0.214
2001-02	0.484	0.289	0.25
2002-03	0.639	0.399	0.322
2003-04	0.922	0.519	0.278
2004-05	1.334	0.505	0.211
2005-06	1.578	0.718	0.155
2006-07	0.837	0.588	0.058
2007-08	0.702	0.824	0.136
2008-09	1.764	1.604	0.113
2009-10	17.604	2.12	0.241
AVERAGE	**1.924**	**0.745**	**0.268**

Source: Computed

In the low growth category, a low debt-equity of 0.453 is recorded in the year 1996-1997 and a high debt-equity ratio of 17.604 is recorded in the year 2009-2010. In the first part of the period of study, the average debt-equity ratios of low growth firms are stable. At the same time, in the second part of the study period the average debt-equity ratios are highly fluctuating. The overall debt-equity ratio of low growth category firms is 1.924

In the moderate growth category firms, a low average debt-equity ratio of 0.289 has been recorded in the year 2001-2002 and a high ratio of 2.12 has been recorded in the year 2009-2010. Here, at the first half of the study period, the average debt-equity ratios are decreasing each year i.e. from 1995-1996 to 2001-2002. During the second part of the study period, the debt-equity ratios are showing an increasing trend year after year i.e. from 2002-2003 to 2009-2010. The overall debt-equity ratio of this category is 0.745.

The average debt-equity ratios of high growth firms are comparatively low during the period of study. There is minor fluctuation observed in this category year after year. A low average debt-equity ratio of 0.058 has been observed in the year 2006-2007 and a high ratio of 0.513 has been observed in the year 1997-1998. The overall debt-equity ratio of high growth category firms is 0.268. It is inferred that the debt-equity ratios of health services industry is decreasing as the growth rate of firms increase.

Since, there is variation among high, moderate and low growth firms as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth firms in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (In the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth firms based on changes in years.

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified firms and the influence of growth over years.

It is observed from the table 20 that the calculated F-ratio for between asset growth rates is given as 2.243, which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be not significant at 5% level. This indicates that the debt equity ratio does not vary significantly among companies with different growth rates. Hence Ho1 is accepted. The F-ratio comparing the mean debt equity ratios among different years is given as 3.319 which is found to be significant at 1% level. That is, the mean debt equity ratios significantly vary across the years during the study period. Hence Ho2 is rejected.

Table –20

Repeated Measures ANOVA for the Debt-Equity Ratios Health Services Industry in India

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Asset Growth Rates	50.491	2	25.246	2.243	Ns
Error	67.543	6	11.257		
Between Years	291.373	14	20.812	3.319	**
Years * Growth Rate	380.335	28	13.583	2.166	**
Error (Years)	526.728	84	6.271		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant
Source: Computed

The interaction effect, that is the influence of type of company (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 2.166, which is found to be significant at 1% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies change significantly in each year. Hence Ho3 is rejected.

(6) Analysis of Debt-Equity Ratios of Hotels & Tourism Industry in India Based on their Growth Rate

The year wise average debt-equity ratios of hotel and tourism industry have been calculated and displayed in table 21, based on the low, moderate and high growth category of firms. In the low growth category, 9 firms with a mean growth rate of less than or equal to 5.4 %, 7 moderate growth firms with a mean growth rate between 5.4 % and 12.6 %, and 7 high growth firms with a mean growth rate of more than 12.6 % were identified.

Table –21

Debt-Equity Ratios of Hotels & Tourism Industry in India Based on their Growth Rate

Years	Low growth (<=5.4%), N=9	Moderate growth (5.4% - 12.6%), N=7	High growth (>12.6%), N=7
1995-96	0.816	0.761	0.96
1996-97	1.01	0.233	0.543
1997-98	1.155	0.2	0.62
1998-99	1.402	0.282	0.957
1999-00	2.115	0.211	0.994
2000-01	1.986	0.236	1.131
2001-02	1.178	0.282	1.069
2002-03	1.463	0.305	1.35
2003-04	1.926	0.345	1.45
2004-05	2.235	0.353	1.788
2005-06	1.213	0.36	1.855
2006-07	0.826	0.253	1.437
2007-08	0.875	0.32	1.165
2008-09	0.738	0.322	1.139
2009-10	0.661	0.391	1.087
AVERAGE	**1.306**	**0.323**	**1.169**

Source: Computed

The average debt-equity ratios of low growth firms have been fluctuating more during the period of study. A low mean debt-equity ratio of 0.661 is observed in the year 2009-2010 and a high mean debt-equity ratio of 2.235 is recorded in the year 2004-2005 with high fluctuations during the period of study. The overall average debt-equity ratio of low growth firms is 1.306.

In the moderate growth category, in all years of study period the mean debt-equity ratios are low. A lowest ratio of 0.200 has been there in the year 1997-1998 and the maximum debt-equity in this category is 0.761 found in 1995-1996. Overall, in this category the year wise mean debt-equity ratios are low when compared to the other growth category of firms. The overall average debt-equity ratio of moderate growth firms is 0.323.

In the high growth category firms, a low debt-equity ratio of 0.543 is found in the year 1996-1997 and high ratio of 1.855 is found in the year 2005-2006. In this category, the mean debt-equity ratios are almost stable in all the years during the period of study when compared to other growth category firms. The overall average debt-equity of high growth category firms is 1.169.

From the above analysis, it can be inferred that the overall average debt-equity ratios of different growth companies differ and fluctuate more.

Since, there is variation among high, moderate and low growth firms as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth firms in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (In the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth firms based on changes in years.

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified firms, and the influence of growth over years.

Table –22

Repeated Measures ANOVA for the Debt-Equity Ratios of Hotels & Tourism Industry in India

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Asset Growth Rates	67.058	2	33.529	3.481	Ns
Error	183.027	19	9.633		
Between Years	18.744	14	1.339	1.086	Ns
Years * Growth Rate	28.914	28	1.033	0.838	Ns
Error (Years)	327.813	266	1.232		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant

Source: Computed

It is seen from the table 22 that the calculated F-ratio for between asset growth rates is given as 3.481, which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be not significant at 5% level. This indicates that the debt equity ratio does not vary significantly among companies with different growth rates. Hence Ho1 is accepted.

The F-ratio comparing the mean debt equity ratios among different years is given as 1.086, which is found to be not significant at 5% level. That is, the mean debt equity ratios do not significantly vary across the years during the study period. Hence Ho2 is accepted.

The interaction effect, that is the influence of type of company (Low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 0.838, which is found to be not significant at 5% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies does not change significantly in each year. Hence Ho3 is accepted.

(7) Analysis of Debt-Equity Ratios of Information Technology Industry in India Based on their Growth Rate

The year wise average debt-equity ratios of information technology services industry have been calculated and displayed in table 23, based on the low, moderate and high growth category of firms.

Table –23

Debt-Equity Ratios of Information Technology Industry in India Based on their Growth Rate

Years	Low growth (<=13.2%), N=13	Moderate growth (13.2% - 45.7%), N=19	High growth (>45.7%), N=13
1995-96	0.439	1.133	0.512
1996-97	0.766	0.386	0.192
1997-98	0.652	0.326	0.179
1998-99	0.801	0.268	0.168
1999-00	0.427	0.194	0.111
2000-01	0.157	0.174	0.018
2001-02	0.169	0.158	0.041
2002-03	0.201	0.152	0.14
2003-04	0.168	0.177	0.197
2004-05	0.193	0.177	0.32
2005-06	0.22	0.161	0.258
2006-07	0.138	0.142	0.379
2007-08	0.234	0.105	0.48
2008-09	0.353	0.178	0.379
2009-10	0.188	0.131	0.389
AVERAGE	**0.340**	**0.257**	**0.250**

Source: Computed

In the low growth category, 13 firms with a mean growth rate of less than or equal to 13.2 %, 19 moderate growth firms with a mean growth rate between 13.2 % and 45.7 %, and 13 high growth firms with a mean growth rate of more than 45.7 % were identified. In general, the year wise, mean debt-equity ratios of information technology sector are low irrespective of their growth rate.

In the low growth category, a low debt-equity ratio of 0.138 is found in the year 2006-2007 and a high ratio of 0.801 is found in the year 1998-1999. The companies in this category are reducing their debt part as the time progress. The overall average debt-equity ratio of low growth category of firms is 0.340.

The year wise mean debt-equity ratios of moderate growth category companies are also very low throughout the period of study. A high ratio of 1.133 is registered in the year 1995-1996 and a low ratio of 0.105 is registered in the year 2007-2008. There are no much fluctuations in the later part of the study period. The overall average debt-equity ratio of moderate growth category firms is 0.257.

In the high growth category, the mean debt-equity ratios are low. A low debt-equity ratio of 0.018 is found in the year 2000-2001. A high ratio of 0.512 is recorded in the year 1995-1996. The overall average debt-equity ratio of high growth firms is 0.250.

From the above analysis, it is found that in all the growth categories, the firms are maintaining very low debt-equity ratio.

Since, there is variation among high, moderate and low growth firms as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth firms in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (In the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth firms based on changes in years.

Table –24

Repeated Measures ANOVA for the Debt-Equity Ratios of Information Technology Industry in India

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Asset Growth Rates	0.777	2	0.389	0.310	Ns
Error	48.868	39	1.253		
Between Years	12.590	14	0.899	3.166	**
Years * Growth Rate	14.163	28	0.506	1.781	**
Error (Years)	155.096	546	0.284		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant

Source: Computed

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified firms, and the influence of growth over years. It is seen from the table 24 that the calculated F-ratio for between asset growth rates is given as 0.310, which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be not significant at 5% level. This indicates that the debt equity ratio do not vary significantly among companies with different growth rates. Hence Ho1 is accepted.

The F-ratio comparing the mean debt equity ratios among different years is given as 3.166, which is found to be significant at 1% level. That is, the mean debt equity ratios significantly vary across the years during the study period. Hence Ho2 is rejected. The interaction effect, that is the influence of type of company (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 1.781, which is found to be significant at 1% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies change significantly in each year. Hence Ho3 is rejected.

(8) Analysis of Debt-Equity Ratios of Investment Services Industry in India Based on their Growth Rate

The year wise average debt-equity ratios of investment services industry have been calculated and displayed in table 25, based on the low, moderate and high growth category of firms. In the low growth category, 9 firms with a mean growth rate of less than or equal to 1.1 %, 13 moderate growth firms with a mean growth rate between 1.1 % and 18.6 %, and 9 high growth firms with a mean growth rate of more than 18.6 % were identified.

Table –25
Debt-Equity Ratios of Investment Services Industry in India Based on their Growth Rate

Years	Low growth (<=1.1%), N=9	Moderate growth (1.1% - 18.6%), N=13	High growth (>18.6%), N=9
1995-96	0.781	0.326	0.783
1996-97	0.569	0.268	0.264
1997-98	0.52	0.259	0.22
1998-99	0.485	0.234	0.509
1999-00	0.479	0.198	0.8
2000-01	0.578	0.374	1.973
2001-02	1.143	0.513	2.181
2002-03	0.401	0.339	1.646
2003-04	0.105	0.261	1.754
2004-05	0.126	0.394	1.154
2005-06	0.072	0.335	0.508
2006-07	0.041	0.284	0.458
2007-08	0.138	0.255	0.548
2008-09	0.107	0.176	2.014
2009-10	0.006	0.269	2.587
AVERAGE	**0.370**	**0.299**	**1.159**

Source: Computed

In the low growth category of firms, the year wise debt-equity ratios have been fluctuating from a low of 0.006 in the year 2009-2010 to a high of 1.143 in the year 2001-2002. There is a decreasing trend in the mean debt-equity ratios of low growth firms from the period 2003 onwards, compared to its early period of the study. The overall average debt-equity ratio of low growth category firms is 0.370.

The year wise mean debt-equity ratios of moderate growth firms are not fluctuating as much as in the low growth category of firms. A low ratio of 0.176 is found in 2008-2009 and a high ratio of 0.513 is found in the year 2001-2002. The overall average debt-equity ratio of moderate growth firms is 0.299. The average debt-equity ratios of firms in the high growth category are also found fluctuating heavily during the period of the study. A high ratio of 2.587 is recorded in the year 2009-2010 and a low ratio of 0.22 has been found in the year 1997-1998. The overall average debt-equity ratio of high growth firms is 1.159.

From the above analysis, it is inferred that the average debt-equity ratio of low and moderate growth firms are low compared to the high growth category firms.

Since, there is variation among high, moderate and low growth firms as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth firms in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (In the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth firms based on changes in years.

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified firms, and the influence of growth over years.

Table –26

Repeated Measures ANOVA for the Debt-Equity Ratios of Investment Services Industry in India

Source	Sum of Squares	Df	Mean Square	F	Sig.
Between Asset Growth Rates	66.696	2	33.348	1.281	Ns
Error	728.905	28	26.032		
Between Years	38.013	14	2.715	1.726	*
Years * Growth Rate	62.158	28	2.220	1.411	Ns
Error (Years)	616.740	392	1.573		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant

Source: Computed

It is seen from the table 26 that the calculated F-ratio for between asset growth rates is given as 1.281, which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be not significant at 5% level. This indicates that the debt equity ratio do not vary significantly among companies with different growth rates. Hence Ho1 is accepted.

The F-ratio comparing the mean debt equity ratios among different years is given as 1.726, which is found to be significant at 5% level. That is, the mean debt equity ratios significantly vary across the years during the study period. Hence Ho2 is rejected.

The interaction effect, that is the influence of type of company (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 1.411, which is found to be not significant at 5% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies does not change significantly in each year. Hence Ho3 is accepted.

(9) Analysis of Debt-Equity Ratios of Recreational Services Industry in India Based on their Growth Rate

The year wise average debt-equity ratios of recreational services industry have been calculated and displayed in table 27, based on the low, moderate and high growth category of firms.

Table –27

Debt-Equity Ratios of Recreational Services Industry in India Based on their Growth Rate

Years	Low growth (<=-2.0%), N=2	Moderate growth (-2.0% - 42.4%), N=4	High growth (>42.4%), N=2
1995-96	1.01	0.951	2.301
1996-97	0.712	0.863	0.073
1997-98	0.708	0.849	0.121
1998-99	0.659	0.904	0.175
1999-00	0.301	1.042	0.165
2000-01	0.224	0.305	0.029
2001-02	0.196	0.112	0.061
2002-03	0.21	0.216	0.058
2003-04	0.201	0.233	0.057
2004-05	0.197	0.231	0.068
2005-06	0.154	0.187	0.126
2006-07	0.306	0.165	0.163
2007-08	0.308	0.183	0.119
2008-09	0.38	0.153	0.219
2009-10	0.378	0.258	0.113
AVERAGE	**0.396**	**0.443**	**0.256**

Source: Computed

In the low growth category, 2 firms with a mean growth rate of less than or equal to -2.0 %, 4 moderate growth firms with a mean growth rate between -2.0 % and 42.4 % and 2 high growth firms with a mean growth rate of more than 42.4 % were identified. In general, the year wise, mean debt-equity ratios of recreational services sector are low irrespective of their growth rate.

The year wise debt-equity ratios of low growth category companies are showing variations during the period of the study. A low ratio of 0.154 has been found in the year 2005-2006. A high ratio of 1.01 has been found in the year 1995-1996. The overall average debt-equity ratio of low growth firms is 0.396. The mean debt-equity ratios of moderate growth companies were high during the first part of the study period compared to the second part of the study period. A high ratio of 1.042 is identified in the year 1999-2000. The overall average debt-equity ratio of moderate growth firms is 0.443.

In the high growth category also the year wise debt-equity ratios of the companies are fluctuating with a low ratio of 0.029 in the year 2000-2001 to a high of 2.301 in the year 1995-1996. The overall average debt-equity ratio of high growth category firms is 0.256

Since, there is variation among high, moderate and low growth firms as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth firms in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (In the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth firms based on changes in years.

Table –28

Repeated Measures ANOVA for the Debt-Equity Ratios of Recreational Services Industry in India

Source	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Asset Growth Rates	0.705	2	0.352	0.431	Ns
Error	4.086	5	0.817		
Between Years	11.399	14	0.814	3.539	**
Years * Growth Rate	6.011	28	0.215	0.933	Ns
Error (Years)	16.106	70	0.230		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant

Source: Computed

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified firms, and the influence of growth over years. It is seen from the table 28 that the calculated F-ratio for between asset growth rates is given as 0.431, which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be not significant at 5% level. This indicates that the debt equity ratio do not vary significantly among companies with different growth rates. Hence Ho1 is accepted.

The F-ratio comparing the mean debt equity ratios among different years is given as 3.539, which is found to be significant at 1% level. That is, the mean debt equity ratios significantly vary across the years during the study period. Hence Ho2 is rejected. The interaction effect, that is the influence of type of company (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 0.933, which is found to be not significant at 5% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies does not change significantly in each year. Hence Ho3 is accepted.

(10) Analysis of Debt-Equity Ratios of Transport Services Industry in India Based on their Growth Rate

The year wise average debt-equity ratios of transport services industry have been calculated and displayed in table 29, based on the low, moderate and high growth category of firms. In the low growth category, 4 firms with a mean growth rate of less than or equal to 9.1 %, 6 moderate growth firms with a mean growth rate between 9.1 % and 24.0 % and 4 high growth firms with a mean growth rate of more than 24.0 % were identified.

There are some fluctuations observed in the low growth category firms with a low, year wise debt-equity ratio of 0.369 in the year 1995-1996 to high ratio of 0.917 in the year 1999-2000. Comparatively, the mean debt-equity ratios in this category are low than the other growth category firms. The overall average debt-equity ratio of low growth category firms is 0.619.

In the moderate growth category firms, the average debt-equity ratios are showing an increasing trend during the period of study. The low debt-equity ratio of 0.712 is found in the year 1996-1997 and a high ratio of 1.395 is found in the year 2007-2008 in the moderate growth category firms. The overall average debt-equity ratio of moderate growth category firms is 0.892.

The average debt-equity ratios of high growth category firms of transport services industry are showing an increasing trend throughout the period of study. A low ratio of 0.433 is recognized in the year 1997-1998 and a high ratio of 1.798 is recognized in the year 2007-2008. The overall average debt-equity ratio of high growth category firms is 1.168. From the analysis, it is found that there is an increase in the debt-equity ratios of this particular industry as the time and assets of this industry progress. In general, in the transport service sector firms, the debt-equity ratios are high in the higher growth firms.

Table –29

Debt-Equity Ratios of Transport Services Industry in India Based on their Growth Rate

Years	Low growth (<=9.1%), N=4	Moderate growth (9.1% - 24%), N=6	High growth (>24%), N=4
1995-96	0.369	0.758	0.656
1996-97	0.389	0.712	0.482
1997-98	0.481	0.771	0.433
1998-99	0.813	0.778	0.628
1999-00	0.917	0.876	0.841
2000-01	0.857	0.922	0.923
2001-02	0.832	0.721	1.137
2002-03	0.756	0.891	1.395
2003-04	0.493	0.862	1.738
2004-05	0.485	0.848	1.769
2005-06	0.442	0.849	1.541
2006-07	0.414	0.947	1.393
2007-08	0.725	1.395	1.798
2008-09	0.743	1.016	1.123
2009-10	0.57	1.039	1.669
AVERAGE	**0.619**	**0.892**	**1.168**

Source: Computed

Since, there is variation among high, moderate and low growth firms as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth firms in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (In the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth firms based on changes in years.

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified firms, and the influence of growth over years.

Table –30

Repeated Measures ANOVA for the Debt-Equity Ratios of Transport Services Industry in India

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Asset Growth Rates	9.049	2	4.524	0.749	Ns
Error	66.484	11	6.044		
Between Years	8.484	14	0.606	1.959	*
Years * Growth Rate	9.809	28	0.350	1.132	Ns
Error (Years)	47.650	154	0.309		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant

Source: Computed

It is seen from the table 30 that the calculated F-ratio for between asset growth rates is given as 0.749, which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be not significant at 5% level. This indicates that the debt equity ratio do not vary significantly among companies with different growth rates. Hence Ho1 is accepted.

The F-ratio comparing the mean debt equity ratios among different years is given as 1.959, which is found to be significant at 5% level. That is, the mean debt equity ratios significantly vary across the years during the study period. Hence Ho2 is rejected.

The interaction effect, that is the influence of type of company (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 1.132, which is found to be not significant at 5% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies does not change significantly in each year. Hence Ho3 is accepted.

(11) Analysis of Debt-Equity Ratios of Wholesale and Retail Trading Industry in India Based on their Growth Rate

The year wise average debt-equity ratios of wholesale and retail trading industry have been calculated and displayed in table 31, based on the low, moderate and high growth category of firms. In the low growth category, 20 firms with a mean growth rate of less than or equal to 3.2 %, 26 moderate growth firms with a mean growth rate between 3.2 % and 12.1 % and 20 high growth firms with a mean growth rate of more than 12.1 % were identified.

The average debt-equity ratios of the firms in the wholesale and retail sector in India are varying based on the rate of growth. The year wise mean debt-equity ratios are having a positive relation with the growth rate. From the table 31; it is observed that the debt-equity ratios are increasing as there is increase in the growth rate of companies. In the low growth rate category the debt-equity ratios are decreasing as the time progress. At the beginning of the period of the study i.e. in 1995-1996 a high ratio of 1.025 has been recorded. A low ratio of 0.175 has been identified in the year 2007. The overall average debt-equity ratio of low growth firms is 0.504.

The average year wise debt-equity ratios of the firms in the moderate category are being stable during the period of the study. A low debt-equity ratio of 0.407 is found in the year 1995-1996 and a high ratio of 0.760 is found in the year 2004-2005. The overall average debt-equity ratio of moderate growth firms is 0.536. In general, the mean debt-equity ratios of high growth firms in the wholesale and retail sector are higher than the other growth category firms. Though, there are fluctuations in the debt-equity ratios of high growth category firms, it shows an increasing trend at the later part of the study period. A high ratio of 2.666 is found in the year 2009-2010 and a low ratio of 0.442 is found in the year 2000-2001. The overall average debt-equity ratio of high growth category firms is 1.133.

Table –31

Debt-Equity Ratios of Wholesale and Retail Trading Industry in India Based on their Growth Rate

Years	Low growth (<=3.2%), N=20	Moderate growth (3.2% - 12.1%), N=26	High growth (>12.1%), N=20
1995-96	1.025	0.407	1.287
1996-97	0.948	0.418	1.002
1997-98	0.568	0.463	0.582
1998-99	0.654	0.451	0.492
1999-00	0.741	0.457	0.554
2000-01	0.53	0.488	0.442
2001-02	0.419	0.518	1.016
2002-03	0.511	0.605	1.205
2003-04	0.379	0.63	1.021
2004-05	0.573	0.76	1.064
2005-06	0.431	0.57	1.133
2006-07	0.175	0.565	1.464
2007-08	0.215	0.519	1.456
2008-09	0.214	0.643	1.617
2009-10	0.191	0.547	2.666
AVERAGE	**0.504**	**0.536**	**1.133**

Source: Computed

Since, there is variation among high, moderate and low growth firms as well as among years, the following hypotheses were framed and tested.

Ho1: There is no significant difference among the high, moderate and low growth firms in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (In the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth firms based on changes in years.

Table –32

Repeated Measures ANOVA for the Debt-Equity Ratios of Wholesale and Retail Trading Industry in India

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Asset Growth Rates	78.209	2	39.105	2.165	Ns
Error	1137.964	63	18.063		
Between Years	24.675	14	1.763	1.201	Ns
Years * Growth Rate	89.233	28	3.187	2.171	**
Error (Years)	1294.481	882	1.468		

* - Significant at 5% level, ** - Significant at 1% level, NS – Not Significant
Source: Computed

Repeated Measures ANOVA was conducted to find whether mean debt equity ratios vary across years, among the three growth-classified firms, and the influence of growth over years. It is seen from the table 32 that the calculated F-ratio for between asset growth rates is given as 2.165, which tests for the equality of mean debt equity ratios among the three types of companies with low, moderate and high asset growth. The F-ratio is found to be not significant at 5% level. This indicates that the debt equity ratio do not vary significantly among companies with different growth rates. Hence Ho1 is accepted.

The F-ratio comparing the mean debt equity ratios among different years is given as 1.201, which is found to be not significant at 5% level. That is, the mean debt equity ratios not significantly vary across the years during the study period. Hence Ho2 is accepted. The interaction effect, that is the influence of type of company (low, moderate and high growth) on debt equity ratio depend upon the period of study (years) is tested and the corresponding F-ratio is given as 2.171, which is found to be significant at 1% level. That is, the pattern of differences between mean debt equity ratios for different growth based groups of companies change significantly in each year. Hence Ho3 is rejected.

Conclusion

The outcome of the analysis of this chapter suggests the fact that there is no uniform borrowing policy of companies in the services sector in India. The debt-equity ratios of services sector in India have been analysed by considering all the selected companies of all the selected services sector industries in India. The selected companies have been classified based on their growth rate as low, moderate and high growth rate companies. The high growth companies in services sector have got the highest debt-equity ratios in all the years during the period of study, when compared to the other growth categories of companies. From the analysis, it is inferred that the average debt-equity ratios of firms in the services industry are differing according to its growth rate. Higher the growth, higher will be the debt-equity ratio in the services sector industries in India. It reveals the fact that the high growth firms in the services sector industry in India have been using more borrowed funds than owner's funds in their capital structure.

From the analysis of debt-equity ratios based on the growth rates of companies in each industry, it is observed that in 2 industries, namely, asset financing services and transport services, the debt-equity ratios of firms are increasing as the growth rate of these industries goes up. In other three industries, namely, banking services, investment services and wholesale &retail trading services, the debt-equity ratios are increasing as the growth rate of firms goes up, but, it happened only when the growth rate is very high in these industries. This outcome suggests that the high growth firms of these industries use more borrowings in their capital structure than the low growth firms.

The debt-equity ratios of two industries, namely, fee based financial services and health services are decreasing as their growth rates goes up. In two of the industries, namely, information technology and recreational services, the debt-equity ratios are stable irrespective of their growth rate. In hotels & tourism industry the debt-equity ratios are high in low and high growth rate firms, but, low in the moderate growth firms. It suggests the fact that the borrowing policies of these industries are irrelevant of their growth rate.

The consolidated results of debt equity ratios (average) of low, moderate and high growth rate companies of selected services sector industries in India are given in the table 33 and the chart 5 following the table will also give a clear picture of the same.

Table-33

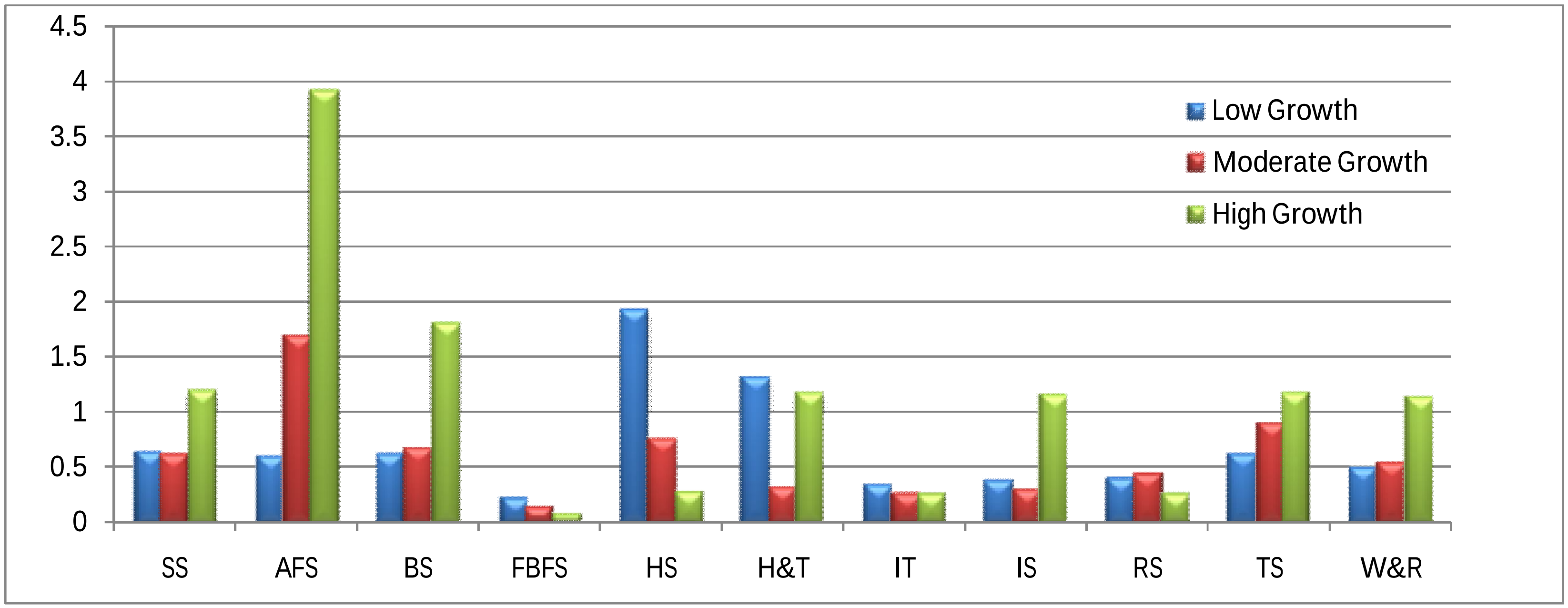
Consolidated Results of Debt Equity Ratios (Average) of Low, Moderate and High Growth Rate Companies of Selected Services Sector Industries in India

Nature of the Industry	Low growth	No of Co's	Moderate growth	No of Co's	High growth	No of Co's	Total No of Co's
Services Sector	0.6316	78	0.6158	104	1.2002	78	260
Asset Financing Services	0.592	10	1.693	14	3.928	10	34
Banking Services	0.619	3	0.674	6	1.804	4	13
Fee Based Financial Services	0.217	5	0.139	7	0.073	5	17
Health Services	1.924	2	0.745	4	0.268	3	09
Hotels & Tourism	1.306	9	0.323	7	1.169	7	23
Information Technology	0.340	13	0.257	19	0.250	13	45
Investment Services	0.370	9	0.299	13	1.159	9	31
Recreational Services	0.396	2	0.443	4	0.256	2	08
Transport Services	0.619	4	0.892	6	1.168	4	14
Wholesale & Retail Trading	0.504	20	0.536	26	1.133	20	66

Source: Computed, Period: 1995-96 – 2009-10.

Chart - 5

Debt Equity Ratios (Average) of Low, Moderate and High Growth Rate Companies of Selected Services Sector Industries in India



Source: Computed, Period: 1995-96 – 2009-10.

SS – Services Sector, AFS - Asset Financing Services, BS – Banking Services, FBFS – Fee Based Financial Services, HS – Health Services, H & T – Hotels & Tourism, IT – Information Technology, IS – Investment Services, RS – Recreational Services, TS – Transport Services, W & R – Whole sale & Retail Trading.

The average debt-equity ratios of low growth firms in the information technology and wholesale & retail trading industries are decreasing as the time progress. Similarly, in the moderate growth firms of banking services and recreational services also the average debt-equity ratios are decreasing as the time progress. It can be inferred that some of the firms in services sector are minimizing their debt portion from its total funds during the period of the study.

Since, there is variation among high, moderate and low growth companies as well as among years, the following hypotheses were framed and tested by using Repeated Measures ANOVA.

Ho1: There is no significant difference among the high, moderate and low growth companies in their debt-equity ratios

Ho2: There is no significant variation in the debt-equity ratios among the years (In the study period)

Ho3: The mean debt-equity ratios do not vary across high, moderate and low growth companies based on changes in years.

From the Repeated Measures ANOVA of debt-equity ratios of services sector in India, it is observed that there is significant difference among the high, moderate and low growth companies. It is also identified that there is significant variation in the debt-equity ratios among the years. Further, it is found that the mean debt-equity ratios vary across high, moderate and low growth companies based on changes in years. Therefore, all the null hypotheses of the services sector in India set for this analysis have been rejected.

The Repeated Measures ANOVA has also been administered for all the selected service sector industries. From the analysis, it is found that the difference among the debt-equity ratios based on the growth rate is found only in two industries, namely, asset financing services and banking services industries. Therefore, the null hypothesis 1 has been accepted in the remaining 8 industries considered for the study.

Table - 34

Consolidated Results of Repeated Measures ANOVA

Nature of Industry	Between Asset Growth Rates	Between Years	Years & Growth Rate
Services sector	✓	✓	✓
Asset Financing Services	✓	✓	✓
Banking Services	✓		
Fee Based Financial Services			✓
Health Services		✓	✓
Hotels & Tourism			
Information and Technology		✓	✓
Investment Services		✓	
Recreational Services		✓	
Transport Services		✓	
Wholesale & Retail Trading			✓

Source: Computed, Period: 1995-96 – 2009-10.

A significant variation in the debt-equity ratios among the years are found in 6 industries, namely, asset financing services, health services, information technology, investment services, recreational services and transport services. Therefore, the null hypothesis 2 has been rejected in all the above said 6 industries.

From the ANOVA test it is understood that the mean debt-equity ratios vary across high, moderate and low growth companies based on the changes in years in 5 industries, namely, asset financing services, fee based financial services, health services, information technology, and wholesale & retail trading services industries. Hence the null hypothesis 3 has been rejected in all the above said 5 industries.