

Impact of Capital Structure on Financial Performance of DPSUs (GRSE & HAL)in India.

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1.0 Introduction

The capacity of a firm to operate its activities is based on the availability of funds. Normally, these funds in finance literature are termed as long term funds, which are contributed by owners (shareholders) and outsiders. The owners' funds are represented by equity contributions and internally generated financial resources. A unique characteristic of procuring funds is that a firm may tap any of these sources and hence the blend of these different sources of long term funds is termed as capital structure in finance literature.

An attempt has been made to ascertain the association between the capital structure and corporate financial performance through correlation and regression analysis. The Capital Structure ratios namely (i) Debt Equity Ratio has been considered as independent variables .The financial performance measures such as PAT, ROCE, Net worth, Sales, EBIT, and EBIT/sales ratio are considered as dependent variables .

Separate statistical simple Regression has been carried out with each of the dependent variables (Financial performances) individually with the capital structure (Independent variable) and the statistical results have been shown in the tables for analysis and interpretations.

1.1 Financial performance measures considered

(i) **Profit After Tax (PAT)**-This is the net profit earned by the Company after deducting its expenses like interest, depreciation and Tax.

(ii) **Return on Capital Employed (ROCE)**-This ratio indicates the efficiency and profitability of the Company based on the capital investment.

(iii) **Net Worth (NW)**: The net worth is the book value of shares of the company as measured by its total assets minus total liabilities. This indicates how much the company would have left over in assets if it went for dissolution immediately.

(iv) **Sales**: It is the Revenue earned by the companies both from sale of goods and services. The sales reflect the growth in size of a company. The more the sales, there will be inflow of more funds which will affect the financial structure of the company

(v) **EBIT**: This is the earning made before payment of interest and Tax.

(vi) **EBIT/Sales**: This is the ratio between the EBIT and Sales

1.1.1 Impact of Capital Structure on Financial performance of GRSE

The data for the years from 2002-03 to 2011-12 have been taken into consideration and the relevant ratios of Capital Structure (Debt Equity) and Financial Performances (PAT, ROCE, Net worth, EBIT, and EBIT/sales) have been worked out as given in the following table.

Table-1.1

Capital structure and financial performance ratios of GRSE (Ratio in percent, Rs in lakhs)								
year	D/E	D-TA	NW-TA	PAT	ROCE	Net worth	EBIT	EBIT/Sales
2002-03	9.28	0.90	0.10	2110	7.38	26608	4764	31.66
2003-04	8.27	0.89	0.11	2421	9.83	28389	4802	12.41
2004-05	7.24	0.88	0.12	2757	8.54	29903	4861	5.55
2005-06	5.19	0.84	0.16	6818	17.71	35016	10433	10.64
2006-07	4.80	0.83	0.17	12015	27.15	44246	17505	24.77
2007-08	4.49	0.82	0.18	7730	15.43	48809	11328	20.58
2008-09	1.2	0.82	0.18	4720	10.88	51076	8471	11.51
2009-10	4.52	0.82	0.18	11346	24.02	59639	11347	27.03
2010-11	4.55	0.82	0.18	11634	20.68	68331	16489	30.70
2011-12	5.59	0.84	0.15	10943	14.17	76255	17094	13.22

Source: Annual Reports of the company

Based on the above ratios, the relationship between the Capital structure and various financial performances are brought out through regression analysis as given below:

Table - 1.2

Regression statistics – Impact of Capita Structure on financial performance of GRSE

Financial Performance (Dependent variable)	Multiple R	R Square	F	Sig F	Co-efficient		t-Stat		p-Value	
					Intercept	Capital Structure	Intercept	Capital Structure	Intercept	Capital Structure
PAT	0.76	0.57	10.69	0.01	8.23	0	9.91	-3.27	0	0.01
ROCE	0.7	0.49	7.73	0.02	8.71	-0.18	7.78	-2.78	0	0.02
NW	0.68	0.46	6.84	0.03	9.1	0	6.87	-2.62	0	0.03
EBIT	0.71	0.5	7.99	0.02	8.49	0	8.23	-2.83	0	0.02
EBIT/Sales	0.05	0	0.02	0.89	6.01	-0.01	4.29	0.14	0	0.89

Source: Regression based on SPSS programme

PAT: The table 1.2 presents the regression analysis between the two variables like Capital Structure (independent variable) and PAT (dependent variable) considering the significant level at 5 percent. The regression statistics shows that the Correlation (Multiple R) is 0.76 indicating positive relationship between the two variables. The Coefficient of Determination (R Square) is 0.57 which indicates that there is 57 percent of variance in the PAT is accounted by Capital structure and hence 43 percent of variance with PAT is attributed to other factors. Further, the reliability of individual coefficient provides that the value of significance F as well as P value is 0.02 which is lower to 0.01 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is reliable because it has less dispersion or variance. The Regression equation $y = 8.23 + 0.00x$ indicates the impact of capital structure on financial performance .If capital structure is $x = 0$, the financial performance (PAT) is to be 8.23. If capital structure is increased by 1, the financial performance (PAT) will neither increase nor decrease. Therefore, it can be asserted that there is no impact of capital structure on financial performance (PAT).

ROCE: The table 1.2 presents the regression analysis between the two variables like Capital Structure (independent variable) and ROCE (dependent variable)

considering the significant level at 5 percent. The regression statistics shows that the Correlation (Multiple R) is 0.70 indicating strong relationship between the two variables. The Coefficient of Determination (R Square) is 0.49 which indicates that there is only 49 percent of variance in the ROCE is accounted by Capital structure and the balance 51 percent of variance is attributed to other factors. Further, the reliability of individual coefficient as per the ANOVA provides that the value of significance F as well as P value is 0.02 which is much lower than 0.05 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is reliable because it has very low dispersion or variance. The Regression equation $y = 8.71 + (-)0.18x$ indicates the impact of capital structure on financial performance. If capital structure is $x = 0$, the financial performance (ROCE) is to be 8.71. If capital structure is increased by 1, the financial performance (ROCE) will be decreased by -0.18. **Therefore it can be asserted that there is impact of capital structure on financial performance (ROCE).**

Net worth: The table 1.2 presents the regression analysis between the two variables like Capital Structure (independent variable) and Net worth (dependent variable) considering the significant level at 5 percent. The regression statistics shows that the Correlation (Multiple R) is 0.68 indicating the positive relationship between the two variables. The Coefficient of Determination (R Square) is 0.46 which indicate that there is 46 percent of variance in the NW is accounted by Capital structure and the balance 54 percent of variance is attributed to other factors. Further, the reliability of individual coefficient as per the ANOVA provides that the value of significance F as well as P value is 0.03 which is lower to 0.05 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is reliable because it has lower dispersion or variance. The Regression equation $y = 9.10 + 0.00x$ indicates the impact of capital structure on financial performance. If capital structure is $x = 0$, the financial performance Net worth is to be 9.10. If capital structure is increased by 1, the financial performance (Net worth) will neither increase nor decrease. **Therefore it can be asserted that there is no impact of capital structure on financial performance (Net worth).**

EBIT: The table 1.2 presents the regression analysis between the two variables like Capital Structure (independent variable) and EBIT (dependent variable) considering the significant level at 5percent. The regression statistics shows that the Correlation (Multiple R) is 0.71 indicating positive relationship between the two variables. The Coefficient of Determination (R Square) is 0.50 which indicate that there is only 50percent of variance in the EBIT is accounted by Capital structure and the balance 50percent of variance is attributed to other factors. Further, the reliability of individual coefficient as per the ANOVA provides that the value of significance F as well as P value is 0.02 which is lower to 0.05 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is reliable because it has limited dispersion or variance. The Regression equation $y = 8.49 + 0.00x$ indicates the impact of capital structure on financial performance .If capital structure is $x = 0$, the financial performance (EBIT) is to be 8.49. If capital structures increased by 1, the financial performance (EBIT) will neither increase nor decrease. **Therefore it can be asserted that there is no impact of capital structure on financial performance (EBIT).**

EBIT/Sales: The table 1.2 presents the regression analysis between the two variables like Capital Structure (independent variable) and EBIT/Sales (dependent variable) considering the significant level at 5percent. The regression statistics shows that the Correlation (Multiple R) is 0.05 indicating no relationship between the two variables. The Coefficient of Determination (R Square) is 0.00which indicates that there is 0 percent of variance in the EBIT/Sales is accounted by Capital structure and the balance 100 percent of variance is attributed to other factors. Further, the reliability of individual coefficient as per the ANOVA provides that the value of significance F as well as P value is 0.89 which is much higher than 0.05 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is not reliable because it has more dispersion or variance. The Regression equation $y = 6.01 + (-)0.01x$ indicates the impact of capital structure on financial performance .If capital structure is $x = 0$, the financial performance EBIT/sales is to be 6.01. If capital structures increased by 1, the financial performance (EBIT/sales) will be decreased by $(-)0.01$. **Therefore, it can**

be asserted that there is negative impact of capital structure on financial performance (EBIT/sales).

Test of Hypothesis

Hypothesis - There is no impact of the Capital Structure on Financial Performance of DPSUs.

Test result - On the basis of above analysis, it is noted that the null hypothesis is rejected in cases of ROCE and EBIT/Sales and accepted in case of PAT,NW and EBIT indicating that there is impact of the Capital Structure on Financial performance(ROCE) and no impact on Financial performance (PAT,NW , EBIT & EBIT/sales) of the DPSU(GRSE).

1.1.2 Impact of Capital Structure on Financial performance of HAL

The relevant ratios of Capital Structure (Debt Equity) and Financial Performances (PAT,ROCE,NW, EBIT and EBIT/sales) have been worked out as given in the following table.

Table – 1.3

Capital Structure and Financial Performance Ratios of HAL(Ratio in percent, Rs in lakhs)

HAL ltd	D/E	D-TA	NW-TA	PAT	ROCE	Net worth	EBIT	EBIT/Sales
2002-03	4.46	0.90	0.10	38996	27.89	193081	49024	15.71
2003-04	5.00	0.93	0.07	40979	30.02	224142	64296	16.92
2004-05	6.30	0.95	0.05	50107	33.56	262856	80042	17.65
2005-06	7.23	0.94	0.06	77114	35.19	317108	117430	21.98
2006-07	7.68	0.94	0.06	114876	38.54	403442	175954	22.61
2007-08	6.61	0.91	0.09	163188	36.71	528372	217747	25.25
2008-09	5.72	0.89	0.11	173986	29.48	661647	233516	22.52
2009-10	4.68	0.86	0.14	196741	27.25	812352	268846	23.47
2010-11	4.37	0.84	0.16	211426	23.97	974522	283953	21.65
2011-12	3.87	0.79	0.21	253943	22.39	1133860	332852	23.42

Source: Annual Reports of the company.

Based on the above ratios, the relationship between the Capital structure and various financial performances are brought out through regression analysis as given below:

Table 1.4

Regression statistics – Impact of Capita Structure on financial performance of HAL

Financial Performance (Dependent variable)	Multiple R	R Square	F	Sig F	Co-efficient		t-Stat		p-Value	
					Intercept	Capital Structure	Intercept	Capital Structure	Intercept	Capital Structure
PAT	0.38	0.15	1.37	0.27	6.44	0.00	7.76	-1.17	0.00	0.27
ROCE	0.96	0.92	87.51	0.00	-1.51	0.23	-1.96	9.35	0.09	0.00
NW	0.53	0.28	3.06	0.12	6.74	0.00	8.94	-1.75	0.00	0.12
EBIT	0.33	0.11	0.98	0.35	6.38	0.00	7.11	-0.99	0.00	0.35
EBIT/Sales	0.22	0.05	0.41	0.54	3.69	0.09	1.22	0.64	0.26	0.54

Source: Regression based on SPSS programme

PAT: The table 1.4 presents the regression analysis between the two variables like Capital Structure (independent variable) and PAT (dependent variable) considering the significant level at 5percent. The regression statistics shows that the Correlation (Multiple R) is 0.38 indicating weak positive relationship between the two variables. The Coefficient of Determination (R Square) is 0.15 which indicate that there is only 15 percent of variance in the PAT is accounted by Capital structure and hence 85 percent of variance is attributed to other factors. Further, the reliability of individual coefficient provides that the value of significance F as well as P value is 0.27 which is much higher to 0.05 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is not reliable because it has higher dispersion or variance. The Regression equation $y = 6.44 + 0.00x$ indicates the impact of capital structure on financial performance .If capital structure is $x = 0$, the financial performance (PAT) is to be 6.44. If capital structure is increased by 1, the financial performance (PAT) will neither increase nor decrease. **Therefore it can be asserted that there is no impact of capital structure on financial performance (PAT).**

ROCE: The table 1.4 presents the regression analysis between the two variables like Capital Structure (independent variable) and ROCE (dependent variable) considering the significant level at 5percent. The regression statistics shows that the

Correlation (Multiple R) is 0.96 indicating weak positive relationship between the two variables. The Coefficient of Determination (R Square) is 0.92 which indicate that only 92 percent of the variance in the ROCE is accounted by Capital structure and the balance 8 percent of variance is attributed to other factors. Further, the reliability of individual coefficient as per the ANOVA provides that the value of significance F as well as P value is 0.00 which is much greater than 0.05 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is reliable because it has too less dispersion or variance. The Regression equation $y = (-)1.51 + 0.23x$ indicates the impact of capital structure on financial performance .If capital structure is $x = 0$, the financial performance (ROCE) is to be (-)1.51 If capital structure is increased by 1, the financial performance (ROCE) will increase by 0.23. **Therefore it can be asserted that there is impact of capital structure on financial performance (ROCE).**

Net worth: The table 1.4 presents the regression analysis between the two variables like Capital Structure (independent variable) and Net worth (dependent variable) considering the significant level at 5percent. The regression statistics shows that the Correlation (Multiple R) is 0.53 indicating strong relationship between the two variables. The Coefficient of Determination (R Square) is 0.28 which indicates that there is only 28 percent of variance in the NW is accounted by Capital structure and the balance 72 percent of variance is attributed to other factors. Further, the reliability of individual coefficient as per the ANOVA provides that the value of significance F as well as P value is 0.01 which is lower to 0.12 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is reliable because it has lower dispersion or variance. The Regression equation $y = 6.74 + 0.00x$ indicates the impact of capital structure on financial performance .If capital structure is $x = 0$, the financial performance (Net worth) is to be 6.74. If capital structure is increased by 1, the financial performance (Net worth) will neither increase nor decrease. Therefore it can be asserted that there is no impact of capital structure on financial performance (Net worth).

EBIT: The table 1.4 presents the regression analysis between the two variables like Capital Structure (independent variable) and EBIT (dependent variable) considering the significant level at 5percent. The regression statistics shows that the Correlation (Multiple R) is 0.33 indicating weak relationship between the two variables. The Coefficient of Determination (R Square) is 0.11 which indicates that there is only 11 percent of variance in the EBIT is accounted by Capital structure and the balance 89 percent of variance is attributed to other factors. Further, the reliability of individual coefficient as per the ANOVA provides that the value of significance F as well as P value is 0.35 which is much higher to 0.05 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is not reliable because it has high dispersion or variance. The Regression equation $y = 6.38 + 0.00x$ indicates the impact of capital structure on financial performance .If capital structure is $x = 0$, the financial performance (EBIT) is to be 6.38. If capital structure is increased by 1, the financial performance (EBIT) will neither increase nor decrease. **Therefore it can be asserted that there is no impact of capital structure on financial performance (EBIT).**

EBIT/Sales: The table 1.4 presents the regression analysis between the two variables like Capital Structure (independent variable) and EBIT/Sales (dependent variable) considering the significant level at 5percent. The regression statistics shows that the Correlation (Multiple R) is 0.22 indicating weak relationship between the two variables. The Coefficient of Determination (R Square) is 0.05 which indicates that there is only 5 percent of variance in the EBIT/sales is accounted by Capital structure and the balance 95 percent of variance with EBIT/Sales is attributed to other factors. Further, the reliability of individual coefficient as per the ANOVA provides that the value of significance F as well as P value is 0.54 which is higher to 0.05 (at 5 percent confidence level). It can be asserted that the coefficient of estimate is not reliable because it has less dispersion or variance. The Regression equation $y = 3.69 + 0.09x$ indicates the impact of capital structure on financial performance .If capital structure is $x = 0$, the financial performance (EBIT/Sales) is to be 3.69. If capital structure is increased by 1, the financial performance (EBIT/Sales) will be

increase by 0.09. Therefore it can be asserted that there is positive impact of capital structure on financial performance (EBIT/Sales).

Test of Hypothesis

Hypothesis - There is no impact of the Capital Structure on Financial Performance of DPSUs.

Test result - On the basis of above analysis, it is noted that the null hypothesis is rejected in cases of ROCE and EBIT/Sales and accepted in case of PAT, NW and EBIT indicating that there is impact of the Capital Structure on Financial performance (ROCE & EBIT/sales) and no impact on Financial performance (PAT, NW and EBIT) of the DPSU (GRSE).