

Effect of Capital Structure on Profitability: An empirical study of non-financial firms listed in Karachi Stock Exchange (KSE) in Pakistan

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Abstract

This paper helps to find out the relation between capital structure and profitability of listed Companies of Pakistan on Karachi Stock Exchange (KSE) during six year periods i.e. 2004 to 2014. Regression analysis is used to expose the impact functions relating to return on equity (ROE) with measures of capital structure. We concluded that there is negative relation with the short term debt long term debt and total debt. So this research suggests that companies should observe the optimal level of debt in their capital structure.

Introduction

The capital structure decision is one of the most sensitive issues for any organization because it directly relates to competitive environment. Capital structure is the mix of securities e.g. it can issue large amount of debt or little debt, arrange lease, warrants, trade bonds etc. However its main focus is to find comprehensive combination of that maximize the overall market position. There is a list of theories on capital structure which explained this in various forms.

Capital Structure is actually the combination of debt and equity. The proportion of debt funding is measured by leverage or gearing. It also involves the tradeoff between risk and return. In the world of corporate finance, the capital structure has very important role in small as well as large companies. When company uses more debt, it raises the risk in the company. So this higher percentage of debt move towards the higher expected rate of return. This higher risk associate with higher to lower the stock price. So the higher expected rate of return makes the share more

attractive to the market. In the result the share price increases automatically.

This basic purpose of this article is that to find out the impact of capital structure on Profitability of companies listed on Karachi Stock Exchanged (KSE) during the period 2004 to 2014. The effect of capital structure on profitability is a scientific area in Pakistan which not yet has been explored in Pakistani finance literature.

This paper is organized as follows: the following section is the literature review which describes the previous studies .The next section describes the data analysis and methodology. Then empirical results with discussion and ended with the conclusion.

Literature Review

The concept of capital structure and firm value has always been the subject under discussion. Some researches are agreed on the point that there is best possible capital structure to the individual firm's value and some told that

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there is proportion of debt usage which is irrelevant to the individual firm. Therefore the relationship between firm value and capital structure is arguable point.

The selection of capital structure is basically a marketing problem (Brealey & Myers, 2003). They told that firm can issue as much as securities in various endless combinations but it should endeavor to find the particular combination that maximizes share value. Also the optimal structure is the one that maximizes the market value of the firm's outstanding shares (Wald & Brigham, 1992).

The capital structure provided a considerable increase in the development of the theoretical structure within which various theories were about to emerge in future (Modigliani & Miller, 1958).

Many researchers have analysed the impact of profitability on the firms leverage and they found different results. Friend & Lang (1988) and Kester (1986) find a significantly negative relation between profitability and debt. Rajan & Zingales (1995) and Wald (1999) also confirm a negative relationship between capital structure and profitability. On the other hand

Methodology

This analysis is based on the data which have been taken from the State Bank of Pakistan website and publication "Balance Sheet Analysis of Joint Stock Companies Listed on The Karachi Stock Exchange 2004-2014." Financial sectors are not included in this research because the capital structures of financial firms are different with the non financial firms. So this analysis includes 201 non financial firms listed in Karachi Stock Exchange.

Following variables have been used during (Myers & Majluf, Corporate financing and investment decision when

firms have information that investors do not have, 1984) analysis:

1	ROE	Return on Equity	Dependent Variable
2	LDA	Long Term Debt	Independent Variable
3	SDA	Short Term Debt	
4	DA	Total Debt	
5	SIZE	Log of Sales	Control Variable
6	SG	Sales Growth	

Descriptive Statistics

Descriptive statistics demonstrates the different sort of results of 201 companies of non financial sectors of Pakistan from 2004 to 2014. The totality observation is 1203. First of all it shows mean value of data and standard deviation of all variables of this study. It also presents the minimum value and maximum value of depended variable as well as independent variable.

Table no 1 show the mean value of dependent variable Return on Equity (ROE) or profitability is 20.45 % and standard deviation is 36.28 both side of mean so the minimum profitability value is 0.01 and maximum profitability value is 506.9 and same as in other variables you can see in table no one in detail and the sale growth variable shows 41% average growth with 259 standard deviation and the minimum value of sale growth is 0.1 and the maximum value is 7073.

	Mean	Standard Deviation	Median	Minimum	Maximum
<i>ROE</i>	20.45	36.28	12	0.01	506.9
<i>LDA</i>	0.64	4.69	0.34	0	124.33
<i>SDA</i>	2.33	20.49	0.93	0	597.67
<i>DA</i>	2.77	23.72	1.28	0	722.00
<i>SIZE</i>	7.32	1.84	7.2	0.47	13.33
<i>SG</i>	41.09	258.77	18.8	0.1	7073.80

Table I

Descriptive Statistics

One Way ANOVA

We also use ANOVAs analysis for control variable. The control variable of this study is firm size and sale growth so with the help of ANOVAs we will describe that these

variables are significant or not so if you see on following table no II, the p value of both variables are significant so its mean we can use both variables in regression analysis with independent variable because both variables impact on the dependent variables.

Table II

ANOVA OF SIZE						ANOVA OF SG					
ROE						ROE					
	Sum of Squares	df	Mean Square	F	Sig.		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	470288.412	452	1040.461	3.087	.000	Between Groups	322512.883	386	835.526	1.327	.011
Within Groups	121676.806	361	337.055			Within Groups	133509.705	212	629.763		
Total	591965.217	813				Total	456022.588	598			

Quantitative Analysis

In quantitative portion we used two type of replica for this cram. The initial is correlation which describes the association flanked by all variables and next one is regression model it will describe about the impact of independent variable in to dependent variable.

Correlation Analysis:

In table II showing the consequences of correlation in this result it presents the connection of independent variable with dependent variable with the reference of this table if we see the independent variable of LDA, where the value of LDA is (-0.01564) shows that if we increase one unit of this variable then this variable will decrease the ROE or profitability of firm with the ratio of this LDA value. Therefore the result of ALDA variable has negative

relationship. If this LDA increases, then firms will decrease their profit and if we decrease the value of LDA then firms will increase their profitability.

The second variable is SDA, which have also negative relationship with the firm's profitability with the reference of given below table you can see that this variable value is (-0.38376).

The third variable DA is also has negative relationship with ROE. It means if we increase DA value from point one then the dependent variable will be decreased with the ratio of DA value so it's proved that the third variable has negative relationship with dependent variable.

The last variable is SG (Sales growth), which have been calculated as current year's sales - last year's sales / last year's sales. The value of SG is (0.022516) and this variable and firm size has positive relationship with ROE.

	ROE	LDA	SDA	DA	SIZE	SG
ROE	1					
LDA	-0.01564	1				
SDA	-0.38376	0.235966	1			
DA	-0.33046	0.249003	0.995334	1		
SIZE	0.12678	0.061246	-0.0317	-0.02608	1	
SG	0.022516	0.00731	-0.00731	-0.00638	0.005996	1

Table III

Correlation Analysis

Regression analysis

The results of regression analysis 1203 observations of 201 firms .The formula of regression analysis is:

$$ROE_{it} = \beta_0 + \beta_1 (LDA_{it}) + 2 \beta (SIZE_{it}) + 3 \beta (SG_{it}) + \epsilon$$

$$ROE_{it} = \beta_0 + \beta_1 (SDA_{it}) + 2 \beta (SIZE_{it}) + 3 \beta (SG_{it}) + \epsilon$$

$$ROE_{it} = \beta_0 + \beta_1 (DA_{it}) + 2 \beta (SIZE_{it}) + 3 \beta (SG_{it}) + \epsilon$$

Where:

- ROE_{i,t} is EBIT divided by equity for firm i in time t;

- LDA_{i,t} is long term debt divided by the total capital for firm i in time t;
- SDA_{i,t} is short term debt divided by the total capital for firm i in time t;
- DA_{i,t} is total debt divided by the total capital for firm i in time t;
- SIZE_{i,t} is total debt divided by the total capital for firm i in time t;
- SG_{i,t} is total debt divided by the total capital for firm i in time t; and
- ε is the error term.

In table 3 the regression analysis showing the result regarding impact of independent variables on dependent variable.LDA, DA and SDA have negative impact on dependent variable and remaining the two

independent variable SIZE and SG have positive

impact on dependent variable (ROE).

Table IV

Variables	Coefficients	Standard Error	t Stat	P-value
Intercept	-75.8582325	18.00920237	-4.21219	2.72E-05
DA	2.499928583	0.206605812	-12.1	7E-32
SIZE	10.5059473	2.405412773	4.367628	1.36E-05
SG	0.016983388	0.023284302	0.729392	0.465904
R Square	0.123567572			
Adjusted R Square	0.121374663			

	Coefficients	Standard Error	t Stat	P-value
Intercept	-72.75516227	17.62765466	-4.12733	3.92E-05
SDA	-3.382498293	0.235627715	-14.3553	3.05E-43
SIZE	10.19418383	2.354169495	4.330268	1.61E-05
SG	0.016406376	0.022784714	0.720061	0.471628
R Square	0.160783645			
Adjusted R Square	0.158683854			

	Coefficients	Standard Error	t Stat	P-value
Intercept	87.66739328	19.08521076	-4.59347	4.82E-06
LDA	0.284662214	0.345391206	-0.82417	0.410005
SIZE	11.39257723	2.551244048	4.465499	8.74E-06
SG	0.018877954	0.024658125	0.765588	0.444072
R Square	0.017103311			
Adjusted R Square	0.014644019			

Conclusion

This research is conducted on capital structure relationship with firm profitability. This study concludes that the Long term debt, short term debt and total debt have negative impact on profitability of selected 201 companies listed on KSE. The results suggest that these companies are not observing that optimal level of capital structure due to which profitability suffers.

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