

Impact of capital structure on profitability



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This study evaluates the impact of capital structure on profitability's of companies in fertilizer sector of Pakistan. Fertilizer sector is on its growth stage and contributes a huge volume to the economy of Pakistan. Data of four large companies from fertilizer sector of Pakistan representing about 89 percent of market share is used for analysis. Regression analysis is used to analyze the relationship between capital structure and profitability of a company. Results suggest that there is no significant relationship between capital structure and profitability of a company in fertilizer sector of Pakistan. Results also show a significant relationship between current liabilities and profitability of company in fertilizer sector of Pakistan.

Capital structure of a firm is debt to equity financing used by firms to finance its operations. Firms can use various combinations of debt to equity financing like it can issue bonds or can issue share. But this decision is crucial because you have to choose right combination of debt to equity ratio that minimizes the cost of borrowing for your firm.

Defining most favorable capital structure is very crucial for companies not only because the right capital structure minimizes the financing costs and maximizes return but it also has an impact on the organizations ability to survive in the competitive environment. (Herczeg)

In debt financing you have to repay the amount and you have make interest payments. It's like a loan you have taken and you are making interest payments on it till its maturity. Equity financing is addition of financing by new share holders. You give shares to people providing financing.

Companies need both debt and equity financing but the ratio for debt to equity financing is different based on the situation. Debt financing and equity financing are not substitutes of each other but they are different in nature and have different impact on the profitability of organization. Companies have to choose a mix of debt to equity financing based on the situation that minimizes the financing costs and maximizes the profits.

(Source: <http://www.dynamic-equity.com/vcmag03.htm>)

Pakistan is one of the agriculture based country with agriculture sector producing about 22% to total GDP and is providing employment to 43% of the total labor force in the country. There are nine fertilizer companies in Pakistan and fertilizer sector is monitored by the Ministry of Agriculture, Food and live stock. (Economic survey, 2008&2009)

The supply of fertilizer in the Pakistan is about 5.8 Million Tones Per Annum where as the demand at this time is about 6.8 Million Ton Per Annum. The economy of Pakistan is based on agriculture sector. In past Pakistan's agriculture sector has suffered due to bad weather but in the future the performance of agriculture sector is expected to improve because government is providing support like improvement in irrigation system and providing subsidiary to the farmers. Demand for fertilizer is expected to grow at a Cumulative Annual Growth rate of 5.25% during 2007-2012. (Din, 2007)

Definitions of terms:

Capital structure.

Capital structure consists of short term debt, Long term debt and equity financing. It tells how company uses different sources of finances to finance its operations.

Debt financing.

Debt financing means when a company wants to borrow money it takes debt from the banks, or other sources of finance and after a specified interval of time this debt have to be paid back. The lender in this case is not the owner of the company. He receives fixed interest payments till the maturity of debt and receives back the principal amount at maturity.

Equity financing.

In equity financing companies issue shares to get financing. In this case the person who buy share becomes owner of company. There are no interest payments in this case, and no return of principal amount.

Profitability.

Profitability is the ability of a company to generate net income consistently.

(Source: [http://www. buzzle. com/](http://www.buzzle.com/))

Broad problem area:

Agriculture sector is the economic back bone of Pakistan. It's contributing a huge share to the GDP of Pakistan. There is no study done on relationship between capital structure and profitability of fertilizer sector of Pakistan. So

this study is aimed to observe the impact of capital structure on fertilizer industry in Pakistan.

Scope and significance of study:

As the demand for fertilizer is increasing world wide and it is going to play a major role in economic development of Pakistan in the coming years. New fertilizer companies are emerging in Pakistan. Engro and Fauji fertilizer are among the companies with very good performance in the recent years and are supporting the national economy. Capital structure of firms is one of the areas of greatest interest in finance today. This study will help to understand relationship between capital structure and profitability in fertilizer sector of Pakistan and fertilizer companies of Pakistan can benefit from the findings of this study, it will also add to the body of the knowledge which will be useful for future studies. This study is aimed to influence the companies in fertilizer sector of Pakistan to control and increase their productivity by understanding the relationship between capital structure and profitability of company.

Objective of study:

Objective of this study to examine whether the debt financing and equity financing used for financing operations have any impact on a company's profitability in fertilizer sector of Pakistan.

Limitation of study:

This study is subject to following limitations and constraints:

Time constraints

Impact of capital structure on profitability of companies is very broad topic but due to time limitations, the study is narrowed to fertilizer sector of

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Pakistan and data is collected from financial statements of four fertilizer companies of Pakistan.

Resource constraint

Another constraint faced during the study is limited availability of resources such as financial resources, so this is also a constraint to this study.

Lack of data available

The major constraint to this study is lack of data availability. Data of more than eight years is not available on the internet, or with the ISE. So it's the major limitation of this study.

Research Question:

“ Whether capital structure affects profitability of companies in fertilizer sector of Pakistan?”

Hypothesis:

Ho: Capital structure has no significant impact on profitability of companies in fertilizer sector of Pakistan.

H1: Capital structure has significant impact on profitability of companies in fertilizer sector of Pakistan.

Theoretical frame work:

1. 9. 1. Independent variable:

Debt financing, Equity financing.

1. 9. 2. Dependent variable:

Profitability.

1. 10. Key words:

Capital structure, Profitability, Fertilizer sector, Pakistan, Equity financing, Debt financing.

Chapter 2

Literature Review

The Effect of Capital Structure on Bank Profitability in Ghana

This study is done on 14 bank of Ghana for a time period of 10 years. Capital of Ghanaian banks consists of about 87% debt which consists of short term as well as long term debt. A firm capital consists of debt and equity. This decision is crucial for company for efficient running of the organization. Profits are very much important to the firm and are related negatively with the debt financing of the firm. Ghanaian firms mostly go for internal sources of financing then going for external financing like using the deposits. As the size of banks in Ghana increase their profits fall and the profits go up with the increase in sales.

(Akoto, 2006)

Profit Margin & Capital Structure: An Empirical Relationship

A firm's financial structure has impact on the firm's profitability. Firms can use this financial structure that is debt to equity ratio to increase profitability of a company. A firm may go for a high debt to equity ratio or it can choose a low debt to equity ratio. Right selection of this ratio is important part of a company's financial strategy. Firms that are using internal financing i. e.

retained earnings are found to be more profitable than those using external financing i. e. borrowing. It is also observed that firms tend to compete on resources rather than to cooperate.

(Eriotis, 2002)

Optimal Capital Structure Vs. Pecking Order Theory: A Further Test

Firms prefer internal financing over external financing and if external financing is necessary then firms prefer debt financing over equity financing. When firms are using a high level of debt then at a point the cost of borrowing becomes very high then companies start reducing debt financing. In some situations companies don't consider their debt level because there are other important issues like shortage of financing and the prevailing conditions of the market. Firms try to match their capital structure with the industry when they are above the average of industry but firms don't do so if they are below the average of industry.

(Ghosh, et al., 2004)

Effect of capital structure on profitability: an experiential analysis of listed firms in Ghana.

There is a positive relation between short term debt and total assets and return on equity and a negative relation between long term debt and total assets and return on equity. Results of search show a positive relationship between total debt ratio and total assets and return on equity. Results also show that profitable firms depend more on debt financing and in Ghana about 85% debt is short term debt.

(Abor, 2005)

DETERMINING THE BEST CAPITAL STRUCTURE BY AGRICULTURAL ENTERPRISES

Defining a most advantageous capital structure is very important. This decision is important not only for maximizing profits but also to compete in a strong environment. There is a trade off between the advantages of tax and bankruptcy cost associate with debt financing. This trade off finally results into a optimal capital structure. In spite of theoretical work in this field, researchers still can not found an optimal capital structure.

(Herczeg, 2003)

Debt policy and performance of SMEs

It is an important decision for companies choose the level of debt and equity financing used to finance their operations, this decision is of so much importance because this decision have impact on the companies market value, so its very important for a company to use such a combination that increases the market value of the company. Managers who are able to find such a combination are rewarded by the firms because if we suppose all the other variables constant then right combination of debt and equity financing decrease financing cost for a company. Agency conflicts are due to heavy use of debt financing by the SME sector leading to negative relationship between profitability and capital structure of the company.

(Abor, 2007)

Determining optimal capital structure by agricultural enterprises

Determining optimal capital structure is very important decision because it not only affects the returns but right optimal structure also gives you competitive edge competitors. Due to equilibrium in perfect capital markets, the capital structure has no impact on profitability of companies. In agriculture sector companies use conservative financing to run their operations which do not affect the cost of financing in the fertilizer sector, so it have no impact on companies value.

(Herczeg, 2003)

The determination of optimal capital structure: the effect of firm and industry debt ratios on market value

Each firm have a unique capital structure then others, firms with capital structure related to industry average, market will react positively to those firms in comparison to those whose capital structure is different from industry average. Relationship between debt level and industry has no concern with the market. Markets do not consider industry average for leverage as prejudice for a companies financial leverage. It is observed firms in same industry mostly have similar capital structure.

(Gay B. Hatfield*, 2009)

Profits and the Capital Structure

Relationship between debt financing and profits has been misinterpreted. Firm's size matter, large firms issue more debt then smaller firms where as smaller firms mostly go for equity financing. Firms which are more profitable

tend to repurchase equity and issue debt. Market conditions also have impact on debt to equity financing decision. Bad market condition affect small firms more then the large and more profitable firms.

(Goyalz, 2008).

Capital structure and Profitability: The Brazilian case

The decision about capital structure is very important especially when the economic environment is not stable. So this decision can impact on company's profitability. Results fir Brazilian companies show a positive correlation between profitability and short term debt and equity and long term debt and equity.

(Carvalho de Mesquita¹ & Lara²)

Chapter 3

Methodology

3. 1. Type of research:

Although the literature is on this topic is available on different media but it is not mature enough to describe the topic on a wide range, so this is a descriptive study.

3. 2. Nature of data:

Nature of data used in this study is quantitative.

3. 3. Type of data:

Secondary data is used for this study because data is collected from published annual reports of the company.

3. 4. Data source:

Source of data used in this study is annual published reports of Fauji Fertilizer Company Ltd, Fauji Fertilizer Bin Qasim, Dawood Hercules Chemical Ltd, and Engro Chemical Pakistan Ltd. Annual reports are collected from the Internet and ISE (Islamabad Stock Exchange).

3. 5. Sample type and size:

All the fertilizer companies of Pakistan are part of the population but here the study is based on a sample of four companies which have a market share of about 89% of fertilizer sector of Pakistan.

3. 6. Statistical tool:

Data is analyzed using SPSS and regression test is applied to generate the results.

3. 7. Time horizon:

This is a longitudinal study.

Chapter 4

Data Analysis

4. 1. Data Analysis

Data is analyzed through SPSS and regression analysis is used to generate the results. Regression analysis is used to investigate relationship between different variables. Usually regression is used to measure impact of one variable on another; it shows how the dependent variable changes its value when the value of independent variable is changed. The objective of this study is to study the Impact of Capital Structure on Profitability of a

Company in Fertilizer Sector of Pakistan. The four companies used in this study are.

Fauji fertilizer Company Limited.

Fauji Fertilizer Bin Qasim.

Engro Chemicals Pakistan Limited.

Dawood Hercules Chemical Limited.

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Regression model and the data analysis in the form of charts and tables are shown below.

Regression model:

Regression models are used to analyze relationship between different variables. The linear regression model used to explain the relationship between NIAT and Capital structure and Current is shown below.

$$\text{NIAT} = 7\text{E}+008 + .040 * (\text{capital structure}) + .186 * (\text{current liability})$$

Interpretation:

Here 7E+008 is the value of intercept, which is the point where the regression line intersects the Y axis.

.40 And .186 are the slopes of regression line, slope of model show how steep the regression line is, they represent increase or decrease in NIAT when there is one unit change in capital structure or current liability. That is when capital structure or current liability change by 1.0, NIAT changes by .

040 and .186 respectively. Regression equation predicts change in dependent variable due to change in independent variable. Given the large value of R of our data which is .774 our predictions in general will be accurate enough.

Fig 01

Scatter plot of NIAT as a function of Capital structure

Source: generated from field data

Interpretation:

Value of R square linear is very small, show weak positive linear relationship. This suggests there is no significant impact on NIAT due to capital structure. If the slope of this regression line would be horizontal then we may conclude no relationship between capital structure and NIAT at all.

Fig 02

Scatter plot of NIAT as a function of current liability

Source: generated from field data

Interpretation:

Here value of R Sq Linear is 0.504; this large value suggests a strong and positive relationship between current liability and NIAR.

Table 01

Variables Entered/Removed

Model

Variables Entered

Variables Removed

Method

1

Current liability, capital structure

•

Enter

a. All requested variables entered.

Source: Field Data

Interpretation:

This table is showing that the number of models reported in regression command. The number of models used is one. This table is showing independent and dependent variables entered. Independent variables entered for the analysis are current liability and capital structure, and the dependent variable entered is net income after taxes. The method of including the variables is “ Enter” as shown in the table.

Table 02

Model Summary

Model

R

R Square

Adjusted R Square

Std. Error of the Estimate

1

.744a

.554

.523

1.884E9

a. Predictors: (Constant), Current liability, capital structure

Source: Field Data

Interpretation:

Model summary table explains the strength of relationship between regression model and dependent variables. The R is multiple correlation coefficients. It shows how strongly capital structure and current liability are related to net income after taxes. A larger value of .744 is showing a strong relation since values of R range from 0 to 1. R Square explains percentage change in dependent variable due to collection of independent variables. R square shows an overall measure of the strength of association and does not reflect the extent to which any particular independent variable is associated with the dependent variable. R square values range from 0 to 1. R square of .554 is showing that this model explains 55 percent variance in net income after taxes due to capital structure and current liability holistically.

Table 03**ANOVA^b**

Model

Sum of Squares

df

Mean Square

F

Sig.

1

Regression

1E+020

2

6. 396E+019

18. 013

. 000a

Residual

1E+020

29

3. 551E+018

Total

2E+020

31

a. Predictors: (Constant), Current liability, capital structure

b. Dependent Variable: NIAT

Source: Field Data

Interpretation:

The ANOVA table shows an analysis of variance in regression model. The values of sum of squares for regression and residual are equal which means that the model accounts for about 50 percent variation in the net income after taxes. F statistics is mean square of regression divided by means square of residual, i. e. $6.396E+019/3.551E+018$. Sig level of F statistics shows the test of all the independent variables (i. e. current liability and capital structure) as a whole. As Sig is less than .05, it means that the current liability and capital structure have impact on profitability of company.

Table 04

Coefficientsa

Model

Unstandardized Coefficients

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Standardized Coefficients

B

Std. Error

Beta

t

Sig.

1

(Constant)

7E+008

6E+008

1.125

.270

capital structure

.040

.022

.233

1.796

. 083

Current liability

. 186

. 038

. 643

4. 963

. 000

a. Dependent Variable: NIAT

Source: Field Data

Interpretation:

This table shows Sig level for both capital structure and current liability. The significance level for capital structure is greater than . 05 which implies it have no significant impact on profitability of a company in fertilizer sector of Pakistan, and the Sig level for current liability is less than . 05 which shows that it have significant impact on profitability of a company in fertilizer sector of Pakistan. Positive t values suggest there is a considerable relationship between dependent and independent variables.

4. 2. Findings

Regression model explains that when capital structure or current liability change by 1. 0, value of NIAT changes by . 040 and . 186 respectively.

Current liability and capital structure are independent variables.

Net Income after Taxes is the dependent variables.

Correlation coefficient “ R” shows a strong relationship between dependent and independent variables.

Value of R square tells that this regression model explains 55 percent variation in Net Income after taxes due to Capital structure and Current liability.

ANOVAs table shows significance level of . 000 for the f statistics which shows that all the independent variables (holistically) have impact on dependent variables.

Positive values of t in the Coefficients table suggest that there is considerable relationship between dependent and independent variables.

Sig level for capital structure is more than . 05 which implies it have no significant impact on profitability of a company.

Sig level for current liability is less than . 05 which suggest there is impact of capital structure on profitability of company.

4. 3. Summary

The topic of this study is “ Impact of capital structure on profitability of a company in fertilizer sector of Pakistan.” Impact of capital structure on profitability is a very broad topic but this study is focused on fertilizer sector of Pakistan. Four large companies comprising about 89 percent of market

share of fertilizer in Pakistan are Fauji Fertilizer Company Ltd, Fauji Fertilizer Bin Qasim, Dawood Hercules Chemical Ltd, and Engro Chemical Pakistan Ltd.

A sample of these four companies from fertilizer sector of Pakistan is selected for study. Data is collected from published Annual reports of these four companies. Data of eight years from 2002 to 2009 is used for analysis. Only eight years data is used in analysis because data of more than eight years is not available on the internet or with the Islamabad stock exchange.

To analyze data SPSS is used linear regression is applied to generate the results. The output of regression analysis is created in the form of scatter diagram and the tables to interpret the results of the regression.

Chapter 5

Conclusion & Recommendations

5. 1. Conclusion:

This study is focused to evaluate the Impact of capital structure on profitability of a company in fertilizer sector of Pakistan. The study is aimed to influence the companies in fertilizer sector of Pakistan to control and increase their productivity by understanding the relationship between capital structure and profitability of company.

Companies use different mix of debt and equity financing to support their operations. Literature review shows firms mostly use internal sources of financing like retained earning rather than going for external financing. And literature also shows that there are some situations on which companies don't consider the level of debt to equity financing used because there are

some other important issues mainly the shortage of financing available and market conditions.

The results of this study show that capital structure has no significant impact on profitability of a company in fertilizer sector of Pakistan, whereas current liabilities show a significant positive impact on profitability of a company in fertilizer sector of Pakistan. Results show that holistically independent variables have impact on dependent variable and this study suggest that there is a considerable relation between dependent and independent variables.

So based on this analysis we accept the null hypothesis H_0 , capital structure has no significant impact on profitability of a company in fertilizer sector of Pakistan. And we reject the alternative hypothesis H_1 which states that capital structure has significant impact on profitability of a company in fertilizer sector of Pakistan.

5. 2. Recommendation

This study was conducted to analyze the impact of capital structure on profitability of a company in fertilizer sector of Pakistan. Based on the literature review and the results of this study it is recommended that.

In future research on impact of capital structure on profitability of a company should be conducted based on data of more then ten years,

It is recommended to analyze the impact of capital structure on profitability in other industries of Pakistan. Like cotton industry, cement industry etc.

It is also recommended to further explore the independent variables that impact on the profitability of companies in Pakistan.

A research in collaboration with Government and industrial sector should be conducted to overcome the barriers faced in this study.

A research should be done to evaluate if there is a difference between short term debt and equity financing and profitability versus long term debt and equity financing and profitability of companies.