Impact of Financial Leverage on Performance of Sugar Firms: Evidence from Pakistan Stock Exchange (PSE)

Omer Farooq¹, Abu Bakar Sani² & Dr. Bilal Aziz³

¹MBA (Fin)-fall-16-938, SESSION 2016-2017
²MBA (Fin)-fall-16-933
³Assistant Professor, Institute of Business & Management University of Engineering and Technology Lahore

Abstract: The research pursues to explore the impact of Financial Leverage on firm performance by studying the relationship between performance of Pakistani firms, measured by return on assets (ROA), Return on equity (ROE), Size, Growth and Financial Leverage Ratio (FLR). This research consist on 30 Sugar Firms that are listed at Pakistan Stock Exchange Pakistan for the period of 5 years from 2011-2015. Regression analysis used for determining the relationship between Financial Leverage and firms’ performance. There are four independent variables such as return on assets (ROA), Return on equity (ROE), size and growth. And only one dependent variable that is Financial Leverage Ratio. These result shows that financial leverage plays a vital role for the performance of firms.

Keywords: Financial Leverage, Firms’ Performance, Sugar Firms, Regression Analysis and Pakistan Stock Exchange.

Introduction

Capital structure of an organization plays vital role to raise organization worth and the financial performance of an organization. Debt and Equity are the main parts of capital structure. When an organization uses debt the term financial leverage arises. Financial leverage means the use of debt for the purchasing of further assets or property. According to Chen (2003) if an organization uses more debt on equity then its financial leverage will more because this organization pays a huge or large amount of interest for borrowing debt. So, a firm should use the mixture of debt and equity for purchasing the assets. Capital structure has a significant part for decision making. Debt is a portion of capital structure that gathers money from numerous source of fund for successively its actions and for the purposes of investment. These numerous sources contain the short term and long term borrowing, common and preferred stocks and term finance certificates (debentures). Financial Institutions (FIs) and Banks are the key bases for collecting or generating funds from public. Each firm has his own capital structure for running the organization or business and for the investment procedures. But it is very challenging for the management of an organization to take decision the percentage of capital debt and equity.

Overview of the Sugar Mills:

There were only two Sugar Mills in the Pakistan with a total manufacture of 7932 Tons during year 1947-1948. In 1948-58 there are 10 Sugar Mills in the sector of sugar which manufacturing 100000 Tons sugar. In 1958-68 there are 18 Sugar Mills in the sector of sugar which manufacturing 200000 Tons sugar. In 1968-78 there are 37 Sugar Mills in the sector of sugar which manufacturing 500000 Tons sugar. In 1978-88 there are 57 Sugar Mills in the sector of sugar which manufacturing 1.4 million Tons sugar. In 1988-98 there are 75 Sugar Mills in the sector of sugar which manufacturing 2.4 million. In 1998-2015 there are 82 sugar mills are working in the sugar sector of Pakistan and the total production is 6.8 million Tons sugar. But only 31 sugar firms are listed in Pakistan Stock Exchange and 23 out of 31 show their financial statements on the website of Pakistan Stock Exchange. According to the data of 31 firms, there are many sugar mills facing loses in every years. We can check the production of sugar firms of Pakistan in different years with help of following chart:
Literature Review

In this literature debt-equity discussion is recognized in good manner. This literature delivers a number of theories (containing signaling theory, MM theory, Trade-off theory, pecking order theory and agency theory), theoretical studies and experimental proof to disclose this question. This discussion started with the influential paper of Miller and Modigliani (1958). In this paper they demonstrate that below some limitations (insolvency or financial suffering costs, lack of taxes, and perfect market) the significance of the firm is liberated in the choice of debt and equity. These debatable suggestions led to a continuous discussion on capital structure choices.

Theoretical Literature:

Here are many models that recommended choices for the relations amongst capital structure and corporations enactment, many of them are, Modigliani and Miller Model (1958) and (1963), Agency Cost Model (1976), Trade off Model (1977) and Pecking Order Model (1984).

Agency cost concept established by Jensen and Meckling (1976) this model rise because of the clash of interest concerning stakeholder and administration. The stakeholders want additional amounts financed by equity funding since the participation of stakeholder in choice creating enhanced due to extraordinary debt funding, the administration cannot want to ensure that. So, extraordinary debt financing remove the clash interest of stakeholder and administration.

Tradeoff Model by Miller (1977) is a finest essential theory for investment arrangement. It mentions to clarify that in what way they must be financed in debt sponsorship and how considerable in equity investment and what should be used for overheads and welfares. That means if corporation want further return for enhancing debt funding. If revenue small than there are probabilities of insolvency while he consume more debt funding.

Pecking Order Concept (POT) established by Myers and Majluf (1984) according to this model if corporations want high income than the inside funding means present stakeholder financing best for corporation’s income and worth of stakeholder.

Lowe and Rohl (1993) Agency Costs ascending from irregularly among expected earnings on investments by creditors and stakeholders. Creditors are enabled to permanent interest payments though stakeholders have limited obligations and rights on remaining obligations. Consequently corporate supervisors as representative to stakeholders might assume unsafe reserves to suitable reserves from creditors since advanced improvements after uncertain reserves will accumulate further to stockholders comparative to creditors. Creditors respond by constriction credit relations. They claim extraordinary interest rate and greater assessment of indemnity as an actual assurance. They also argument on clash of interest amongst corporate supervisors and stakeholders. Insolvency on description of extreme usage of liability places occupations and standing of the corporate supervisors at pale.
Problem Statement

Sugar sector is playing a vital role in the economy of Pakistan. There is no study conducted on impact of growth and financing behavior of sugar sector of Pakistan. The problem of this research is set to checking out the impact of financial leverage on financial performance of the sugar sector.

Objective of the Study:

This research helps to evaluate the consequence of financial leverage decisions on the financial performance of Sugar Mills listed at the Pakistan Stock Exchange through the following objective:

1. Identify the impact of financial leverage on the financial performance of Sugar Mills listed in Pakistan Stock Exchange.

Hypotheses:

To find there is a relationship between financial leverage and firm performance. Hypothesis testing is a best for determining the relationship between them. Directional hypothesis testing is given below:

Hypothesis 1:

H_1: There is a significant relationship between financial leverage ratio and ROE

Hypothesis 2:

H_2: There is a significant relationship between financial leverage ratio and ROA

Hypothesis 3:

H_3: There is a significant relationship between financial leverage ratio and SIZE

Hypothesis 4:

H_4: There is a significant relationship between financial leverage ratio and GROWTH

Variables

A variable is a purpose, happening, information, sense, time period, or any other type of class you are trying to measure. There are two types of variables dependent and independent.

Dependent Variable:

It is something that depends on other factors. Financial Leverage is one dependent variable selected to measure the impact of growth and financing behavior of Sugar Firms of Pakistan.

Financial Leverage:

Financial leverage means the use of debt for the purchasing of more assets or property for an organization and financial leverage ratio calculate the total debt load of the organization. There are three financial ratios are following:

1. Debt Ratio
2. Debt to Equity Ratio
3. Equity Ratio

But we use only Debt to equity ratio as a financial leverage ratio because debt to equity ratio shows the proportion of firm funding that comes from creditors. A greater debt to equity ratio shows that more creditors funding is used than shareholders funding. We can calculate debt to equity ratio by the help of following formula:

\[ \text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equity}} \]

Independent Variable:

There are many independent variables which effect on the performance of dependent variable of sugar firms. One is increase or decreases and other is also increase or decrease respectively. Independent variables of the study are given below:

1. Return on Equity (ROE):

The return on equity ratio measures the ability of a company to earn profits its shareholders funding in the firm. In other words, the ROE shows how much profit every Rupee of common stockholders’ equity generates. So a return 1 means that every rupee of common stockholders’ equity earn 1 rupee of net income. The formula of return on equity ratio is following:

\[ \text{ROE} = \frac{\text{Net Income}}{\text{Shareholders' Equity}} \]

2. Return on Assets (ROA):

Return on assets or ROA measures how efficiently a firm can manage its assets to produce profits during period. ROA is also called return on total assets. The formula of ROA is following:

\[ \text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}} \]

3. Size

Size of firm is also a cause of capital structure. A big firm without difficulty manage long term debt on simple terms and conditions. On other hand small firm might face trouble in managing long term debts. If someway small firm manages to find long term debts, it is available at a high cost and on strict conditions. But organization cannot run business easily and have to depend on shareholder equity.
4. Growth:
Growing companies need extra funds for their growth. If companies reduce their inside funds during the growth procedure, the companies would prefer debt to equity. Therefore, Signaling and Pecking order model recommends a positive impact of growth on financial leverage. If growing companies have limited access to equity market, they would tend to rely on debt choice for funding their growth process.

Conceptual Framework

Conceptual framework determined what things we will measure and what statistical relationship we will measure. Conceptual framework is given below.

Dependent Variable

Independent Variables

Regression Model:
These models describe the relationship between financial leverage and financial performance of Sugar Mills through using regression models described below:

Model:

\[ \text{FLR} = \alpha + \beta_1 \text{ROE} + \beta_2 \text{ROA} + \beta_3 \text{SIZE} + \beta_4 \text{GROWTH} + \varepsilon \]

Estimation of Techniques:
FGLS (feasible general least square) regression technique and POOL OLS used for determining the relationship between financial leverage and financial performance of sugar firms.

RESEARCH DESIGN & METHODOLOGY

Research methodology means which kinds of techniques and pattern was used in this research paper. This chapter contains on the source of data, nature of data, period covered for this research, choice of sample, variables and the expected relationships between variables, conceptual framework, regression analysis and the last what techniques used in this research.

Data Sources:
The nature of data is secondary. The main source of data is taken from the Financial Statements of Sugar Mills of Pakistan which are listed at Pakistan Stock Exchange. There are 31 Sugar Mills listed in Pakistan Stock Exchange. All data are taken from the Annual reports of the listed Sugar Industries.

Time Period:
The data consist of the latest 5 years annual report from 2011 to 2015 of the Sugar Mills that are listed in Pakistan Stock Exchange.

Choice of Sample Size:
There are 31 Sugar Mill listed in Pakistan Stock Exchange. But here we are able to taken a data of the 30 Sugar Mills from PSE. It was very difficult to find data of Sugar Mills of Pakistan because many Sugar Mills do not disclose the all information properly. Only 30 Mills disclose the all type of the data properly and all annual reports display on internet. Therefore, i decided to take a data of 30 Sugar Mills from the 2011 to 2015 years annual reports.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE</td>
<td>1.15</td>
</tr>
<tr>
<td>ROA</td>
<td>1.10</td>
</tr>
<tr>
<td>Size</td>
<td>1.08</td>
</tr>
</tbody>
</table>
Analysis and Result

Multi Co-linearity Test:

Here, we are discussing the result on the 5 years data which taken from annual report of the Sugar Mills of Pakistan. This is called multi co-linear test through which we are able to conduct a relationship among the dependent variable as well as independent variable. The value of VIF must be greater than 10, if the value less than 10, we can say easily that there is no correlation to the independent variables. Therefore the values of the given tests are VIF where not more than 10, no association among independent variables.

Regression Analysis:

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Financial Leverage Ratio (Dependent variable)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pool OLS</td>
</tr>
<tr>
<td></td>
<td>R-squared = 0.58</td>
</tr>
<tr>
<td></td>
<td>Coefficient</td>
</tr>
<tr>
<td>ROE</td>
<td>.2908610</td>
</tr>
<tr>
<td>ROA</td>
<td>.0355894</td>
</tr>
<tr>
<td>Size</td>
<td>4.309873</td>
</tr>
<tr>
<td>Growth</td>
<td>0.0880553</td>
</tr>
<tr>
<td>Constant</td>
<td>-45.43815</td>
</tr>
</tbody>
</table>

Model: FLR=β0+β1ROE+β2ROA+β3SIZE+β4GROWTH+€

Significant Level:

The significant level of the ROE is 5% in pool OLS and GLS techniques but ROA, Size and Growth are insignificant because the value of P more than 10%.

Per Unit Analysis:

FLR=constant +.291ROE+.0356ROA+4.31SIZE+.088GROWT H+€

1 unit change in ROE, ROA, SIZE, GROWTH, FLR increase by 0.291, 0.0356, 4.31, 0.088 units respectively.

Nature of Relationship:

H1: There is a relationship between financial leverage ratio and ROE

According to table which we conducted the result from annual report and took a regression analysis on it. According to above table there is a no significant relationship between financial leverage ratio and ROE, because the value of P is less than 2. But there is a positive relationship between FLR and ROE because the value of coefficient is positive they show that increase in one variable to increase in other variable.

H2: There is a relationship between financial leverage ratio and ROA

H3: There is a relationship between financial leverage ratio and SIZE

According to above table there is a no significant relationship between financial leverage ratio and ROA, because the value of P is less than 2. But there is a positive relationship between FLR and ROE because the value of coefficient is positive they show that increase in one variable to increase in other variable.

H4: There is a relationship between financial leverage ratio and GROWTH

According to above table there is a no significant relationship between financial leverage ratio and SIZE, because the value of P is less than 2. Firm size is the most important part of the firm through which we can easily conducted current sales subtract from previous sale dived by previous sales. But there is a positive relationship between FLR and SIZE because the value of coefficient is positive they show that increase in one variable to increase in other variable.
R-squared:
The value of R-squared is 58%; it means total Financial Leverage Ratio is 58% dependent on the all independent variables like ROA, ROE, SIZE and GROWTH.

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

Conclusion:
This research describes the impact of growth and financing behavior of sugar firms are listed in PSE. This research consists of 30 Sugar Mills which is listed at Pakistan Stock Exchange Pakistan for the period of 5 year from 2011-2015. We applied FGLS regression analysis for determining the relationship between financial leverage on sugar firms’ performance. There are independent variables such as return on asset (ROA), Return on equity (ROE), size and growth that describes the financial performance of Sugar Mills and one dependent variable financial leverage ratio. After empirical result the show that According to table which we conducted the result from annual report and took a regression analysis on it. Therefore, we can say that there is no significant relationship between dependent variables FLR and independent variables like ROA, ROE, GROWTH and SIZE because the value of P is less than 2. According to above table, there is positive relationship between dependent variables FLR and independent variables like ROA, ROE, and GROWTH and SIZE because the values of coefficients are positives that show if independent variables increases and decreases, the total financial leverage ratio also increases and decreases respectively. Therefore we can say that financial leverage is a factor which effect on the financial performance of the firms.

The result of this research proves that financial leverage plays a vital role on the financial performance of the Sugar Mills. According to the result there is 58% relationship among the variables dependent and independent. All independent variables are showing the relationship on dependent variable.

Limitations:
We can easily say that this research is not in wide nature, because we are facing some problems which can say it is limitation of the research. The limitation of the research is that only 31 Sugar Mills listed in the PSE. But there are 82 sugar firms are working in Pakistan which is not listed. Consequently, we can take data only 30 sugar mills and 5 years data from annual report of the all listed firms. Some companies were not interested to show the financial performance of the firm and some firm could not disclose the all relevant information to the internet like Abdullah Shah, Salim Sugar and Tandlian wala Sugar. These companies above mention cannot disclose the information.

Recommendations:
Recommendations are following:

- This research use the annual data from 2011 to 2015 from PSE’ website for the result to take more correct result in future the research should take monthly, quarterly or seminally data instead of annually data.
- This result focuses only listed companies of PSE may be this result not accurate. To get better result the data of unlisted sugar firms should be taken because there are 82 sugar firms currently working in Pakistan sugar sector and only 31 are listed in PSE. So, the data of unlisted companies must be taken to get accurate and better result.
- The financial leverage will be higher if any firm use debt more instead of equity. So, firms should use equity more rather than debt.
- This study only focuses on sugar sector to check the relationship between Financial leverage and financial performance of sugar firms in future the research should be conduct in the others sector of the Pakistan to check the relationship between Financial leverage and financial performance.

References


Appendices:

Name of Companies:

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<tr>
<th>Sr. #</th>
<th>Company Name</th>
<th>Sr. #</th>
<th>Company Name</th>
</tr>
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<tbody>
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<td>1</td>
<td>AL-Abbas Sugar</td>
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<td>Khairpur Sugar</td>
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<td>Adam Sugar</td>
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<td>Mirpurkhas</td>
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<td>Shak Sugar</td>
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