Impact Of Capital Structure On Performance Empirical Evidence From Sugar Sector Of Pakistan

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Abstract

This paper examined the impact of firm's capital structure components and leverage on firm's performance. Data of 10 firms of food sector is taken. All the firms are listed on Karachi stock exchange. Data duration of this paper consists of five years from 2007-2011. Variables used in this paper are assets turnover ratio, return on assets, current liabilities to total assets, long tern debts to total assets and debt to equity ratio. Results are derived by applying multiple regression models. The results of this model show that there is a significant positive impact of long term debts on firm's performance and significant negative impact of short term debts on firm's performance. There is a negative relationship of firm's leverage on firm's performance. As firm's leverage increases its performance decreases. There is a negative relationship between them.   Results show that firms using high amount of short term debts are facing negative trend in performance. So, results indicate that firms must try to use long term debts to meet their daily needs.

Keywords: Short term debts, long term debts, debt to equity and performance.

1. Introduction

1.1 Significance of the study

Anything that is used in a business is called capital. Capital is most important to run the activities of a business. If a firm does not possess capital up to a specific limit it could not meet its obligations. So, capital is most important for the organizations. Capital structure choice causes a significant impact on firm's performance. Capital structure defines how a firm is financed? What are its sources of finance? A firm may run its business through equity financing or through debt or combination of debt and equity. The choice of source of financing depends upon the management of the company.

If a company has good capital structure with a good mix of debt and equity it may be a competitive edge on other firms. Research proved that organization must use debt and equity financing because it is beneficial. If a firm use 100% equity financing it may face many problems such as poor Governance, poor check and balance and higher taxes. On the other hand if a firm is highly leveraged it faces a problem that all the profit is distributed among creditors and creditors only care for their principal and interest. Kim (2005) said that firms with higher debt face a negative trend in performance. So, a capital structure should be a combination of debt and equity. Debt must be used up to a specific limit.

Many capital structure theories were introduced by the researchers on the basis of its importance. Modigliani and Miller in 1958 first time introduce this concept. In 1963 they realized that tax is also an important factor it should be analyzed. Myer and Majluf in 1984 introduced Pecking order theory. Pecking order says that a firm prefers to use its equity resources. But it is only possibly to implement by the organizations which are large one and possess large amount of sources. Later on agency theory was introduced. According to this theory due to difference in firm's management and shareholders conflicts rise which cause agency cost. The amount spend to eliminate agency problem is agency cost.

1.2 Aim of the study

This study will examine the impact of capital structure on firm's performance of Pakistan in Food Production (sugar) sector. Firms are still facing a problem of incorrect choice of capital structure. The purpose of this study is analyzing the relationship of capital structure and firm's performance and to provide suggestions to firms that how these can improve their performance through capital structure choice. Sugar sector is one of the major sectors of Pakistan. It is growing rapidly due to higher demand for sugar at local and national. But still chances are there to improve its performance. This study will help for selection of capital structure which ultimately impact on firms' performance.

1.3 Research objectives

Research objectives are to provide suggestions regarding capital structure selection and to enable the organizations to find an optimal capital structure for themselves. The ultimate objective is to help the organizations to improve their performance.

1.4 Research questions

This study will try to find the answers of the following questions: Does a firm's capital structure choice impacts on its performance? If it impacts, than to what extent? What should be the results if organizations do not have a good combination of debt and equity?

1.5 Delimitations of the study

Firm's age, Government policies, firm's governance and ownership structure are considered as controlled variables. It is assumed that all these do not have any impact on firm's performance.

2. Literature Review

Capital structure is a mix of debt and equity. It is a way through which organizations are financed. Capital structure decisions are most important because it involves heavy investments of the company. A good combination of debt and equity is required for a better performance. If a company has a good debt and equity combination it has an edge on others.

Casmir and Anthony (2012) said that a capital structure of a firm has a negative impact on firm's performance. They proved that highly leverage capital structure caused negative impact on firm's performance but it also provides tax rebate on interest expenses. They used different variables to obtain results such as return on assets, return on equity, debt to equity ratio,

assets turnover ratio, firm's size and age, asset tangibility, growth and industrial sector. They used ordinary least square (OLS) model of estimation. They proved that ROA, ROE and asset turnover are important measure of firm's financial performance. They also concluded that tangibility of assets have great impact on firm's performance. They concluded that the firms of their sample size are not utilizing their tangible assets up to their maximum capacity. So, assets tangibility is also a vital measure of firm's performance. They could not prove the result of industry growth.

Ahmad, Abdullah and Roslan (2012) said that capital structure decision has a vital importance. A wrong decision may cause a negative impact so; great care is required. There are different theories of capital structure such as Modigliani Miller theorem, pecking order theory, static trade off theory and agency cost theory. Pecking order theory focuses on the use of an organization's internal funds. They used return on assets, return on equity with short term and long term debt and total debt, size, asset growth, firm growth and efficiency. They used series of regression analysis to measure the desired results. They studied pecking order theory, Modigliani Miller theorem and static trade off theory to understand the relationship between capital structure and firm's performance. The study found that short and long term debts with ROA and ROE and total debt of capital structure has great impact on firm's performance.

Chowdhury and Paul (2010) said that a company injects capital to generate revenue. If capital of a company is 100% equity than all the earnings after tax goes to shareholders if capital structure consists debt than a part of profit is also given to creditors as a rent of their funds' use. According to financial experts use of debt upto specific point is profitable otherwise it is harmful. They used different variables as; share price, firm size, profitability, public

ownership in capital structure, dividend payout, asset and operating efficiency, growth rate, liquidity and business risk. They used cross sectional times series regression model to measure the relationship of all these variables. On the basis of their analysis they concluded that if capital structure of a firm is designed in a good manner it multiplies the value of firm. They also proved that if a firm makes amendments in its capital structures it also causes a positive impact on its value.

Umar, Tanveer, Aslam and Sajid (2012) said that capital structure has a vivid impact on firm's financial performance. It is a way through which a firm is financed. They used different variables of financial measure such as return on asset, return on equity, earning per share, price earnings ratio, earnings before interest and tax and net profit margin. They also used three ratios to measure leverage 1) current liabilities to total assets 2) Long term liability to total asset 3) Total liabilities to total assets. They used least square regression model to estimate results. They found that all the three leverage ratios negatively affect earnings per share, return on asset, earnings before interest and tax and profit margin. There is a negative relationship between price earnings ratio and current liabilities to total asset but a negative relation with long term liabilities to total asset and unclear relation with total liabilities to total assets. Return on equity has a negative impact on current liabilities to total asset and total liabilities to total asset while a positive relation/impact on long term liabilities to total asset.

Boodhoo (2009) wrote that capital structure has great importance. On the basis of its importance many capital structure theories were developed. Modigliani and Miller were first who took step on this in (1963). Pecking order theory, agency cost theory etc. Variables used in this paper are Market value (debt/total market value), Effective tax rate, insider holding percentage of total shares outstanding, fixed assets to total asset, annual spending to book value, return on asset, Return on investment (EBIT/MV) and return on equity. Generalized least square model is applied to obtain results. The researcher proved that agency cost, tax rate, capital expenditure and ownership structure are important determinants of capital structure.

Khale and Shastri (2002) said that during 1990s stocks were given to the employees in order to retain them but these could not bring tax benefit because these were not expenses these only caused a change in shareholders' equity. Tax variables used in this paper are option exercised to shares outstanding, options outstanding to shares outstanding, options granted to shares outstanding, option granted to assets and tax benefit to asset. These were calculated to analyze tax benefit with compare to other variables. Other variables are book value of asset as a measure of firm size, operating income to sales, operating income to assets, ratio of property, plant and equipment to total asset, ratio of intangible assets to total assets and ratio of depreciation to assets. On the basis of these variables or ratios' results they concluded that firms which use options are less leveraged and receive low tax benefit. Firms which decrease use of stock option these are highly leveraged and receive tax benefits.

P-Eriotis, Frangouli and ventoura (2011) said that firms financed with equity are more profitable as compare to those financed by debt. If debt amount is high than a part of its profits is given as interest which ultimately reduces its profits. So, capital structure choice has vital importance. Debt to equity ratio is used in order to examine its impact on firm's profitability. Fix effect model and random effect model are used. It is analyzed that debt negatively impacts a firm's profitability because mostly the cost of debt is high than profits of the firm. They also concluded that firms liked to compete with one and another rather than cooperating.

Cai and Zhang (2006) said that firms which are highly leveraged have low profits. Highly leveraged has a negative impact on firm's performance. According to pecking order model theory more debt usage by a firm reduces a firm's future debt taking ability and firm's investment goes down. Tradeoff model proved that if firms used debt more than a limit it negatively affected their performance. Variables used in this paper are; return on asset, return on equity, earning before interest, tax and depreciation, book to market value, firm size and debt to equity ratio. The results showed that highly leveraged firm negatively affected performance. If current leveraged is negatively changed it caused an impact on future investment. A change in long term debt has impact on firm's short term debt.

Kim (2005) showed an impact of ownership structure on firm's capital structure. High debt has a negative relation with the productivity of the firm. Performance in Chaebol firms is shown. Chaebol is a large group of business. Firms with family ownership have better control and earning. It is because they took such decision, which cause a positive impact on firm's profit. Total firm productivity (TFP) is calculated by multiple index approach developed by Caves, Christensen and Diewert, firm output, percentage of family members' ownership and debt to equity ratio. Basic regression model is applied to obtain desired results. It is found that family owned businesses have higher

productivity and shareholders enjoy higher profits. Owners also pay attention toward other investment like R&D and Human capital investment to explore new ideas which cause value addition of a firm.

Lappalainen and Niskanen (2009) analyzed the impact of capital structure on firm's performance. They said that managers of firms started misuse of company's resources. Jensen and Meckling (1976) said that if the managers hold shares of company they work for its better performance. Return on assets, sales growth, percentage of ownership, CEO duality, firm age, firm size, debt to asset ratio and profitability and liquidity ratios are used to test the hypotheses developed. Regression model is used. On the basis of these calculations it is found that ownership structure and board composition has significant impact on firms' performance.

Imran (2012) investigated a relationship between a firm's performances, equity ownership and capital structure. Many organizations use debt as a controlling measure. The external parties keep check and balance on management's decision making and generate better results. Debt to equity ratio to measure leverage (capital structure). Regression model is used to calculate desired outcomes. The results of this study showed that organizations with high leveraged showed more profit of those firm which use their extra cash and reduce it from management. Family ownership has a positive relationship with performance.

This study will examine the impact of capital structure on firms' performance of sugar sector in Pakistan. It will find a relationship between capital structure and firms' performance. It is analyzed from the study of literatures that firms' capital structure put great impact on its performance. If firms use higher level of equity it increases tax burden and if use high level of debt it increases firms' expenses. So, a capital structure with good mix of debt and equity is favorable.

All the papers included in this study focus on capital structure but did not pay attention on towards the debt limitations put by the creditors. These may cause a negative impact on firm's performance. Sometimes due to these limitations organizations hesitates to take loan which may not bring a positive impact.

3. Research Methodology

3.1 Sample selection

Sample is a part of population which represents the whole data or population. There are different types of sample selection techniques e.g. The sample of this paper is selected through Random sampling technique.

The firms included in this paper are listed on Karachi Stock Exchange under a head of Food Product. All the sugar mills and food production related firms are listed on it. Total listed firms or total population is 54 firms. Sugar sector is contributing almost 3.4% towards GDP of Pakistan. Sugar is an important part of our food and its demand is increasing day by day. Pakistan exported almost 730000 tons of sugar in fiscal year 2008-2009. Its demand at local and international level is increasing day by day. It also contributes towards Government income through taxes.

The data or sample of this paper consists of 10 firms which are listed at Karachi Stock data is taken by random sampling technique. Exchange because Karachi Stock Exchange is maintaining the data of all Pakistani firms and it is more reliable source of information. The reliability of data is most important for accurate and desired results. So, I checked its reliability by confirming it from Karachi Stock Exchange as well as from firms' websites also.

It is a correlation research. In this study correlation of firm's performance and its capital structure's components are analyzed. The purpose to analyze this correlation is to examine that to what extent capital structure's components effect on firm's performance. To prove the hypothesis developed to analyze the impact of firm's current liabilities, long term debt and debt to equity five years data is taken from 2007-2011.The purpose of taking data of these years is to analyze the impact of different variables on firm's performance in current years.

3.2 Variables' definitions

Variables are those values which change with the passage of time. Variables measure the values of different things over time with the help of these it is easy to measure the percentage change in one variable with respect to other variables. Variables which will be used in this study are; ROA, asset turnover ratio (ATR), debt equity ratio (DE), Current liabilities to total asset ratio and long term liabilities to total assets.

Return on assets shows that how much an asset contributes to net income. It calculates number of money units earned against each asset contribution. This ratio also called asset turnover ratio. It is calculated as;

$$ROA = \frac{Net\ Income}{Average\ Total\ Assets}$$

Asset turnover ratio shows that how much an asset gives return. If it is high it means that assets of a company are used accurately. If it is low than it means that the returns can be increased by maximum use of assets. It is calculated as

$$ATR = \frac{Net\ Sales}{Average\ Total\ Assets}$$

Debt equity ratio determines that how much amount of money a firm can borrow for a specific period of time. It also tells about firm's leverage. If this ratio is very high it means firm is highly leveraged. This ratio is very important from creditors' perspective because they want assurance of their principal as well as interest amount. It is calculated as;

$$Debt\ to\ equity\ ratio = \frac{Total\ Debt}{Total\ Equity}$$

Current liabilities to total assets ratio shows that how much assets are contributing toward the payment of current obligations. It is calculated as;

$$CL\ to\ TA = \frac{Current\ liabilities}{Total\ assets}$$

Long term liabilities to total asset ratio shows a contribution of assets in long term debt payment. It is calculated as;

$$LTL\ to\ TA = \frac{Long\ term\ liabilities}{Total\ assets}$$

3.3 Empirical Model

Data can be analyzed through different techniques such as OLS regression model, Fix effects model and multiple regression model etc. Sometimes researchers develop model on the basis of their needs but sometimes it is adopted. Model of this paper is adopted. Model or data analysis technique used in this paper is least square regression model. The model is as follow;

$$Y = \alpha + \beta_1 DTE + \beta_2 \frac{CL}{TA} + \beta_3 \frac{LTL}{TA} + \varepsilon \tag{1}$$

3.4 Hypothesis

Hypothesis of this model are;

H^1 = Current liabilities has significant effect on firm's performance

H^0 = Current liabilities has insignificant effect on firm's performance

H^2 = Long term debt has significant impact on firm's performance

H^0 = Long term debt has insignificant impact on firm's performance

4. Results and Discussions

4.1 Descriptive Statistics

The research sample consists of large number of calculations which are very difficult in order to reduce this problem 'Descriptive statistics' are used. These statistics present large amount of data calculations in a very concise way. There are different descriptive statistics used for calculations which are; mean median, mode, range, standard deviation, quartile deviation, coefficient of variance and variance.

Correlation shows the interdependence of one variable with another. It can be positive or negative. If it is +1 it means that two variables are perfect positively correlated. If it is -1 it is said that two variables are perfect negatively correlated. It can be within this limit of   -1---------0--------+1

If correlation negative it means that particular independent variable has specific effect on dependent variable. Its formula is

$$R = \frac{1 \Sigma (x - xbar)^2 + (y - ybar)^2}{n - 1}$$

4.2 Discussions

Results of this paper are driven through least square model. Results consist of Descriptive Statistics, Correlation and Regression results. These are as follow;

Table 1 consists of Descriptive Statistics. This table consists of mean, median, median, maximum, minimum, Standard. Deviation and skewness etc. Mean is calculated by dividing sum of all values by their number. It is considered most appropriate value because it is calculated by adding all values of data. According to this table average of return on assets is 5.55 times which means that assets of leveraged firms are getting returns almost 5 to 6 times in a year. Assets turnover ratio is only 1.2312 times which means that assets of leveraged firms are only contributing is very low. Average of current liabilities is 0.697158 which is 69.7158%. Current liabilities show that capital structure of firms of this model consists of high amount of short term debts. Short term debts are more expensive as compare to long term debts which cause a negative impact on firms' performance. Average of long term debts is 0.35792 or 35.792%. This means that firms' capital structure consists of almost 35% long term debts. Debt equity ratio is 3.3424 times which means that firm's debt is 3 times as compare to equity. It is showing that firms are highly leveraged.

Median is the most middle value which is and in even values it is derived by adding two middle values and dividing by two. In odd values it is the middle value. Range is difference between maximum values of the data minus minimum value. Standard Deviation shows that how many chances are there that the results may be deviated from expected results. Skewness may be positive or negative. It shows that how data or results are skewed. If skewness is shown through diagram its longer tail from right side shows positive skewness. If the tail of diagram is longer from left side it is called negatively skewed.

Table 2 shows the relationship or correlation between independent variables. It shows that what kind of relationship exists between different variables. Correlation may be negative or positive. Correlation may be positive or negative. A positive correlation shows that two values are moving toward same direction. If two variables move towards two different directions this is called negative correlation. According to this table there is positive correlation between current liabilities and long term liabilities. It is 0.393558 which is almost 39.3558%. There is a negative correlation between debt to equity and current liabilities. It shows that there is negative relationship between current liabilities and debt to equity. It is almost -16.7056%. There is a negative correlation between long term liabilities and debt to equity ratio.

Table 3 consists of results of regression model. According to this table long term liabilities has a significant impact on return on assets or firm's performance while there is a negative significant impact on return on assets or firm's performance. Current liabilities and debt equity ratio has negative co-efficient and positive co-efficient with long term debts. T-statistics also show that long term debt has a significant impact on firm's performance. Return on assets show that how many times an asset is earning within a specific period. R-square is 0.346736 which is 34.6736% which means that it is only defining only 34.6736% of model.

Assets turnover shows that how much an asset is contributing towards sales generation of a company. According to table 3 co-efficient of current liabilities, long term debts and debt equity positive. T-statistics are also positive. T-statistics show that long term debt has a significant impact on firm's performance. R-square is 0.239921 which is 23.9921% which means that it is defining the model only 23%.

5. Conclusion and Recommendations

In this study the impact of firm's capital structure is shown on performance of sugar industry of Pakistan. All the firms are listed on Karachi stock exchange of Pakistan. Capital structure is one of the most important decisions for the companies because it provides the source of capital for the firms. A correct decision of capital structure causes a positive impact on firm's performance. An incorrect decision causes a negative impact on firms' performance. It is necessary for the firms to choose a capital structure with an appropriate mix of debt and equity. in this study different variables are used to show the impact of capital structure these are; long term debt to total assets, current liabilities to total assets, debt to equity assets, assets turnover ratio and return on assets ratio. Some ratios are not used due to lake of data availability.

Average of assets turnover ratio is 5.5 times but industry average is 12.98 times. Assets turnover ratio is low as compare to industry practices. Poor performance is indicating that firms didn't use good combination of debt and equity that's why their performance went down.

According to the results of the model there is a significant impact of long term debt and current liabilities on return on assets. Co-efficient of current liabilities is -2.8142 and long term liabilities are 20.97195. Co-efficient values show that there is significant negative impact of current liabilities on return on assets ratio and a positive co-efficient between long term debt and return on assets. This means that if firms take short term loans to fulfill their capital needs it causes a negative impact on firm's performance because these kinds of loans are more expensive and causes a negative impact on performance. Long term debts are cheap as compare to short term loans and if a firm takes long term loan it will cause a positive significant impact on firm's performance.

Results also show that there is a significant positive impact of long term debts on assets turnover ratio. It shows that how much assets are generating sales. It shows the utilization of assets in production. Maximum utilization is necessary to get maximum production.   The overall results of this model show that there is a significant impact of debt on firm's performance. The results of this study are alike to results of the results of P-Eriotis et al. (2011).

Capital structure causes a positive impact as well as negative impact on firm's performance. Its importance is recognized in business world but still it is implemented at its poor condition especially in developing countries like Pakistan. As organizations grow their debt used to increase and these firms started to become highly leveraged. It is necessary for the management of the company to choose appropriate capital structure in order to get success. In Pakistan firms are highly leveraged that's why firms are facing poor performance. It is very difficult for them to continue their operations accurately and appropriately. Due to high debt they have to pay a part of their profits as cost of capital and it increases firms' expenses which negatively affecting firm.

In this study effect of ownership structure is not analyzed. The performance of family owned business and non-family owned business may be different but this impact is not analyzed. Impact of corporate governance is not analyzed. Corporate also put a great impact on firm's performance. A good governance leads a firm towards progress but a poor governance may cause its deterioration. There may be future studies or researches on ownership structure, corporate governance and CEO tenure etc. Some variables are also not part of this study due to non-availability of data these are, Tobin's Q and employees turnover etc.

5.1 Recommendations for Stakeholders

According to results of this study it is proved that elements of capital structure have significant impact on firm's performance. Long term debts as well as short term debts has a significant impact on firms' performance. It is observed that short term debts are more expensive as compare to long term debts. It is suggested to firms to use long term debts in their financing rather than short term loans because these are expensive. Institutional investor must be part of company. It will cause a healthy impact on performance.

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Table 1. Descriptive Statistics

	ROA	ATR	CL	LTD	DE
Mean	5.55048	1.2312	0.69716	0.35792	3.3424
Median	5.175	1.12	0.50859	0.27056	2.4
Maximum	53.37	3.5	2.86644	1.67764	32.66
Minimum	-16.31	0.27	0.1047	0.00827	-2.88
Std. Dev.	11.88865	0.67158	0.63411	0.33072	5.337855
Skewness	1.765419	1.16705	2.28175	2.15749	3.609621
Kurtosis	8.768862	4.6773	7.52951	7.91232	19.8477
Jarque-Bera	95.3054	17.2111	86.1291	89.0624	699.922
Probability	0	0.00018	0	0	0
Sum	277.524	61.56	34.8579	17.896	167.12
Sum Sq. Dev.	6925.662	22.0997	19.7026	5.35945	1396.142
Observations	50	50	50	50	50

Table 2. Correlation Matrix

	CL	**LTD**	**DE**
CL	1	_	_
LTD	0.39358	1	_
DE	-0.167056	-0.426226	1

Table 3. Regression Results

	ROA		**ATR**	
	Coefficients	t-statistics	Coefficients	t-statistics
C	0.728174	0.25286	0.78807	4.491212
CL	-*2.8142	-1.15791	0.03089	0.208566
LTD	*20.97195	*4.129204	1.04554	*3.378478
DE	-0.21602	-0.73626	0.01417	0.792818
R-Squared	0.346736		0.23992	
F-statistic	8.138561		4.84002	
Total observations	50		50	