

## **IMPACT OF DEBT STRUCTURE ON PROFITABILITY IN TEXTILE INDUSTRY OF PAKISTAN**

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### **Abstract**

*This study aims to analyze the impact of capital structure (i.e. short-term, long-term and total debts) on the profitability of companies in textile industry of Pakistan, while controlling the size of the company. A total of 17 companies (initially 7 and then another 10) were selected randomly for the study. Regression analysis was conducted on six different regression models. The results show that there is a significant and positive impact of short term debts on the profitability of the firm, however long-term debt has no impact on the profitability. It is shown that short-term debts are useful for companies having small sales and vice versa. This study has potential for replication in other industries like cement, petroleum and pharmaceutical.*

**Keywords:** Profitability, capital structure, short-term debts, long-term debts, total debts

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### **INTRODUCTION**

Pakistan is endowed with the abundance of the raw cotton. The abundance in the raw cotton has prospered the textile industry of Pakistan. The textile industry of Pakistan is as old as the country itself. At the time of independence there were 78,000 spindles and merely 3000 looms, operating with a single textile unit. However, according to Pakistan Economic Survey (2008) at present there are 440 units, 8.4 million spindles and 143 rotors operating in Pakistan. There is a huge demand for the textile products both inside and outside the country.

Textile is the most important industry in Pakistan. The contribution of textile industry in the foreign exchange earnings is 65%. However, the export contribution of Pakistan in the world's export as a whole is

less than 1%. Comparatively poor performance of textile is attributed to obsolete technology, shortage of power both electric and gas and the high interest rates more than 24% paid by the industry. Therefore, there is a dire need of reengineering of the processes and the structure of the industry to avoid any difficulties in future.

The textile industry is considered to be the backbone for the Pakistan economy. Export of textile products in large quantity has helped in the development of the industry in Pakistan. Other reasons for textile's importance and development include fairly share in GDP, employment and foreign exchange earnings. Government is also taking measures to improve the standards of the industry by implementation of the ISO 9001 and 14000 for quality and

environmental standards, respectively (Majeed, 2008). The cotton yarn export has experienced abrupt shifts since the downfall of East Pakistan in 1971. Every shift has resulted in new phase of cotton yarn exports. In this study we have identified five such phases and accordingly have divided the time series data for our analysis, which are the basis to identify the time series data into five phases.

According to various Pakistan Economic Surveys (1971-78) the first phase, 1971-72, experienced declines in export of yarn viz-a-viz earlier. This happened due to the fact that financial institutions stopped financing to the mills due to fluctuations in rupee and excise duty, exports increased in 1972-73. The exports again declined in 1973-74 due to multi-fiber agreement, and further dropped in 1974-75 due to recession, but slightly recovered in 1975-76 due to government supportive policies. The period of 1976 to 1978 was disaster for yarn exports because of the changing fiscal policies.

The second phase experienced dynamic results in the yarn productions. Due to promotional government policies, yarn exports saw 63.33% growth in 1978-79. However, the rate declined to 40.24% in the year 1983, but decreased to 24% in the year 1984 as a result of poor cotton production and availability of raw material. The industry experienced harmony in the last two years of the phase (ESP, 1978-85).

Government focus on Balancing, Modernization and Replacement (BMR) in the textile industry, in the later years of the phase II, boosted the yarn production by 50%. The production improved by 64.46% in 1987 viz-a-viz the previous year. In 1988 the production increased even more due to increase in prices world wide and adoption

of new technology. In 1994, due to non-availability of raw material, the production of the yarn was affected badly and the production remained low till the end of the phase III (ESP, 1986-96).

The fourth phase comprised of years 1996-97 to 1999-2000. The early years of this phase faced decline in export of yarn by 5.17% over the previous year. This was due to the antidumping duties and quota restrictions imposed on cotton yarn by the importing countries like USA and Japan. By the end of phase IV in year 2000 prices of yarn fell leading to increase in cotton yarn export by 21.71%.

The fifth and last phase of development in 2000-2007, Pakistan emerged as the major cotton producer/exporter in the world and its share increased to around 30% in the world market. Pakistan exported a total of 1,685 million sq. meters of cotton fabrics, valued at US\$1,017.70 million in year 2000-01. Government of Pakistan took measures in the Federal Budget and the Trade Policy FY 2004-05 to improve and prosper this industry. The steps included elimination of sales tax on ginned cotton to reduce costs for the spinning sector (Recorder, 2008).

The quantified phase wise information of the yarn export and their subsequent annual percentage change in the export can be seen from the table given in the Appendix-A. Quantification of the importance of textile industry can be assessed from a study carried out by a committee from the Lahore Chambers of Commerce being constituted on World Trade Organization (WTO). The committee recommended that a target of \$ 800 billion in textile exports for year 2014. Pakistan contributed 2.7 % of the total target set by the LCC (News, 2008).

India and China are the major competitors of Pakistan in the region. Pakistan is comparatively weak as compared to her competitors. The weakness is attributed to the lack of sophisticated engineering facilities, which compelled Pakistan to outsource the engineering operations, thus a financial burden on the industry. According to Mukhtar (2008) other issues, which contributed towards the rise in the constraints, are as follows:

- Rise in the prices of energy, i.e. one of the factors of the production in the textile industry, ultimately results in the rise of cost of production;
- Un-affordable interest rates of banks which are harming the operations of the industry;
- Un-subsidized tariffs of the electricity, power looms and small industries; and
- Un-justifiable taxes on the usage of electricity and other energy based resources.

**Capital Structure:** Capital Structure can be defined as a combination of the debt and the equity made available for a firm to start its operations. This blend of the financial resources is termed as capital structure. "What should be the ideal capital structure for any organization?" is such a statement which needs deep deliberation from the financial experts to run the operations successfully (Anonymous, 2008).

**Problem Statement** Is there any impact of debt structure on the profitability of the companies? If yes, then what is the impact of the debt structure on the profitability of the companies in the textile industry? The statement is further segregated, after dividing the debt structure into its dimensions i.e. short-term, long term and

total debts, into three different questions accordingly.

The second section of the paper comprises of review of the relevant literature, followed by theoretical framework. Methodology and the data collection are elaborated in the fourth section. Data is analyzed in section five and paper is concluded in the last section. However, the last section also suggests some implications for future researches.

## LITERATURE REVIEW

The pioneer work done by Modigliani and Miller (1958) on capital structure is a source of motivation and encouragement. They stated that any firms' market value and its cost of capital were free of its capital structure in the perfect market conditions. However, it is almost impossible and complicated for this phenomenon to achieve and take place. It is still impractical to develop a definitive theory of capital structure and design empirical tests.

The firms would always like to raise finance from their internal resources, instead of the bank loans and debt issues. For any organization, the external equity financing is their last option. Many organizations use debt financing to reduce their cost of capital so that they can lower the "Weighted Average Cost of Capital (WACC)" as it will allow the firms to have wider extent of acceptance for capital budgeting options.

Firms which use low cost capital in productive investment projects, allows these firms to enlarge their profits. This theory also explains and is reliable with the purpose of financial management i.e. maximization of present shareholders' wealth. O'Brien and

Peters (2002) argue that the firms with lower expected cash flows find it tricky to acquire higher level of debt (because bankruptcy is more likely) than compared with firms which have higher level of expected cash flows and profitability. Thus, indicating that an increase in the long-term debt position is linked with a decrease in profitability.

Predictions made by the finance theorists may or may not be reliable and dependable between the different variables considered in the study. Without a doubt, there are some opposing outcomes on the affiliation between these variables and capital structures among the firms of different countries (Michaelas 1999; Mira 2001, Heshmati 2001). Chittenden and Pitzouris (1998) debated on the issue that the behavior of different owners of business, combining with the internal and external factors determines the capital structure decisions for a particular business. Thus further quantitative research may be carried out in order to observe the factors which manipulate and control the capital structures in the business sectors of the developing countries.

However, the pecking order theory (Myers and Majluf 1984; Myers 1984) explains that there are no definite and clear targeted debt ratios which could be targeted by a particular organization and industry. The model further suggests that any organization and industry would first prefer using internal available funds, then debt and finally external equity. In addition to this, it is now also believed that capital structure decision is also being influenced by competitive environment an industry and an organization in which they operate. For instance MacKay and Phillips (2003) argue that the leverage acts differently to the profitability in concentrated industries, as compared to competitive industries. They have further

suggest that the profitability of a leveraged firm depends on the grouping of the firms according to the industry concentration, however, this explanation is beyond the scope of this research work.

## THEORETICAL FRAMEWORK

Variables used for the analysis include profitability and leverage ratios. Profitability is calculated by frequently used ratio by many researchers i.e. return on equity (ROE). It is calculated by dividing the net profit before interest and taxes by the shareholders' equity, stating the result in percentage. Return on equity reveals the percentage earnings of the funds of a shareholder.

The Dependent variable is the Profitability and the independent variables are;

1. Short-term debt (current liabilities) to total assets: The portion of debt that is payable within one year. This data Falls under current liabilities on the company balance sheet;
2. Long-term debt (Fixed liabilities) to total assets: Liabilities those are due to be repaid after more than one year. This is inclusive of bonds and long-term loans;
3. Total debt (total liabilities) to total assets: It is the combined amount of current liabilities and long-term liabilities. It can be found on the balance sheet as "Total Liabilities"; and
4. Sales Growth

Mathematical representations of the models:

$$ROE_{(i,t)} = \alpha + \beta_{(s,p)} SDA_{(i,t)} + \gamma SG_{(i,t)} + e \quad (1)$$

$$ROE_{(i,t)} + e = \alpha + \beta_{(l,p)} LDA_{(i,t)} + \gamma SG_{(i,t)} \quad (2)$$

$$ROE_{(i,t)} + e = \alpha + \beta_{(t,p)} DA_{(i,t)} + \gamma SG_{(i,t)} \quad (3)$$

Where,

$ROE_{(i,t)}$  = EBIT divided by equity of firm  $i$  in time  $t$   
 $SDA_{(i,t)}$  = Short-term debt divided by the total assets of firm  $i$  in time  $t$   
 $LDA_{(i,t)}$  = Long-term debt divided by the total assets of firm  $i$  in time  $t$   
 $DA_{(i,t)}$  = Total debt divided by the total assets of firm  $i$  in time  $t$   
 $SG_{(i,t)}$  = Sales growth of firm  $i$  in time  $t$ ; and  
 $e$  = Error term

<b>(A)</b>	<b>Group (B)</b>
1. Chakwal Spining	1. Crecent Textile
2. Chenab Limited	2. Din Textile
3. Gul Ahmed Textile	3. Gadoon Textile
4. Kohat Textile	4. Hira Mills
5. Kohinoor Textile	5. ICC Textiles
6. Nishat Textile	6. Island Textiles
7. Sapphire Textile	7. Premium Textiles
	8. Quality Textiles
	9. Saif Textiles
	10. Tata Textiles

### METHODOLOGY AND DATA COLLECTION:

A firm’s better performance is subject to the decisions of the management regarding the capital structure, that what kind of structure they will apply. The current study is an attempt to analyze the capital structures of seventeen (17) textile companies in order to explore and answer the ideal level of debt to equity ratio, as well as which debt structure i.e. short term and long term debts suitability for the organization and also their affects on the profitability. Longitudinal data from 2003 to 2007 is collected from the following enlisted companies. Similarly information was obtained from the various financial statements of the following companies:

The research was carried out in two parts. The initial set of data comprised of seven companies as follows:

<b>First Group</b>	<b>Second</b>
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The technique of Ordinary Least Square (OLS by Carl Friedrich Gauss) is used because under certain assumptions namely; the equation to be estimated is linear in parameters, is non stochastic, has zero mean value, possess equal variance of distribution etc., it becomes a powerful method of regression analysis. Regression analysis is conducted using the E-views software while specifying and estimating the model.

### DATA ANALYSIS

Three regression tests were carried out on the group (A) which contained information from the financial statements of seven companies for the period 2003-2007. Afterwards another sample of the 10 companies (group B) was collected and same tests were applied thereon while taking data for the same time period.

The tests applied to the group A were for the assessment of the validation of the tests.

After successful validation, same tests were applied to the group B. The basis for the selection of the companies for the latter group was their size (i.e. sales).

### Regression Analysis of Initial Dataset i.e. Group of 7 Companies

The results of the Regression Equations are used in analyzing the different debt financing options separately.

Table 1: Regression Analysis

Hypothesis		Coefficients	Standard Error	t Stat	P-value	R <sup>2</sup>
1	Intercept	-0.01	-0.01	-0.10	0.92	0.92
	Sales Growth	0.15	0.25	0.61	0.54	
	Short Term Debt	0.68 **	0.30	2.28	0.03	
2	Intercept	0.11	0.19	0.61	0.55	0.55
	Sales Growth	0.25	0.27	0.93	0.36	
	Long Term Debt	0.07	0.50	0.13	0.90	
3	Intercept	-0.07	0.18	-0.41	0.69	0.07
	Sales Growth	0.23	0.26	0.86	0.39	
	Total Debt	0.40	0.33	1.24	0.22	
4	Intercept	0.57 **	0.17	3.43	0.00	0.03
	Sales Growth	0.02	0.10	0.15	0.88	
	Short Term Debt	-0.61	0.36	-1.69	0.09	
5	Intercept	0.35 **	0.09	4.14	0.00	0.01
	Sales Growth	-0.03	0.10	-0.29	0.78	
	Long Term Debt	-0.14	0.18	-0.78	0.44	
6	Intercept	0.37 **	0.13	2.77	0.01	0.05
	Sales Growth	-0.01	0.10	-0.13	0.90	
	Total Debt	-0.10	0.20	-0.51	0.61	

Note: \*\* At 5% level of significant

Hypothesis 1  $H_{01}$  : There is no significant impact of Short-term debt on the profitability

$$H_{01} : \beta_{(s,p)} = 0$$

$$H_{11} : \beta_{(s,p)} \neq 0$$

The table shows that the 92 % of the variation explained in the profitability is due to the variables considered in this model, i.e. sales growth and short term debts. The results reject the null-hypothesis, hence accepting the alternative hypothesis, i.e. there is an impact of short-term financing on the profitability. The above table shows that there is a positive and significant impact of short term debt on the profitability at 10.05 % level of significance ( $\beta_{(s,p)} = 0.68$ ,  $p = 0.03$ ), while keeping the size constant, as a controlling variable. This means that 68 % increase in the profitability can be achieved with a 1 % increase in Short Term Debt.

This value depicts that the short-term debts are suitable for the business organizations in group A. The relevant regression model for the short term financing, for the companies selected for the study, is as follows:

$$\text{Profitability (ROE)} = -0.01 + 0.68 (\text{Short-Term debts}) SDA + 0.15 (\text{Sales Growth}) SG$$

**Hypothesis 2**  $H_{02}$  : There is no impact of Long-term debt on the profitability

$$H_{02} : \beta_{(l,p)} = 0$$

$$H_{12} : \beta_{(l,p)} \neq 0$$

A 55 % of the variation in the dependant variable (profitability) is explained by the variables included in this model, i.e. sales growth and long term debts. The results supported the null-hypothesis, i.e. there is no significant impact of long-term financing on the profitability ( $\beta_{(l,p)} = 0.07$ ,  $p = 0.90$ ). The data is also not significant as depicted by the t-value of 0.13. The long term financing

should be avoided in running the business in lieu of the short term debts.

*ROE (Profitability) = 0.11 + 0.07 (Long term debts) LDA + 0.25 SG (Sales Growth)*

Hypothesis 3  $H_{03}$  : There is no impact of total debt on the profitability

$$H_{03} : \beta_{(t,p)} = 0 \quad H_{13} : \beta_{(t,p)} \neq 0$$

There is not such impact of total debts on the profitability of the company. The value of  $R^2 = 0.07$  shows that the variables included in the model explain only 7 % variation in the dependent variable. The variable total-debt is not appropriate in this model. There is no significant impact of total debts on the profitability ( $\beta_{(t,p)} = 0.40$ ,  $p = 0.22$ ).

*ROE (Profitability) = -0.07 + 0.40 DA (Total Debts) + 0.23 SG (Sales Growth)*

#### Regression Analysis for Complete Dataset i.e. Group of all 17 Companies

The same regression models were tested on a different dataset i.e. data collected from all the 17 companies, but this time there was no significant relationship found between the variables. There was a huge difference between the sales of the earlier companies and 9 of the current companies (i.e. earlier had sales in millions; however the latter companies had sales in billions of rupees). The results show that the regression models proposed were only substantiated when the companies taken had giant sales i.e. in billions of rupees.

Hypothesis 4  $H_{04}$  : There is no significant impact of short term debt on the profitability

$$H_{04} : \beta_{(s,p)} = 0 \quad H_{14} : \beta_{(s,p)} \neq 0$$

The model doesn't fit in the data set, as the total variation explained in the dependent variable by all the independent variables of the model is only 3%. However, there is a significant negative impact of the short term debts on the profitability at a significance level of 0.1 % ( $\beta_{(s,p)} = -0.61$ ,  $p = 0.09$ ).

*ROE (profitability) = 0.57 - 0.61 SDA (Short term debts) + 0.02 SG (Sales Growth)*

Hypothesis 5  $H_{05}$  : There is no impact of long term debt on the profitability

$$H_{05} : \beta_{(l,p)} = 0 \quad H_{15} : \beta_{(l,p)} \neq 0$$

The overall model is very weak ( $R^2 = 0.01$ ), which depicts only 1 % variation being explained by the independent variables in the dependent variable. There is also very weak and insignificant impact of the long-term debt on the profitability ( $\beta_{(l,p)} = -0.14$ ,  $p = 0.44$ ).

*ROE (Profitability) = 0.35 - 0.14 LDA (Long term debts) - 0.03 SG (Sales Growth)*

Hypothesis 6  $H_{06}$  : There is no impact of total debt on the profitability

$$H_{06} : \beta_{(t,p)} = 0 \quad H_{16} : \beta_{(t,p)} \neq 0$$

The model is very weak ( $R^2 = 0.05$ ), which depicts only 5 % variation being explained by the independent variables. There is also a very weak and insignificant impact of the long-term debt on the profitability ( $\beta_{(t,p)} = -0.10$ ,  $p = 0.61$ ).

*ROE (Profitability) = 0.37 - 0.1 DA (Total debts) - 0.1 SG (Sales Growth)*

## CONCLUSION

It can be seen from the results that the debt levels affect the profitability of the firm only when the sales are high (i.e. in Billions of rupees) and has no impact on the companies which have low sales (i.e. in Millions of rupees). The data collected for the study does not cover all companies in the textile industry, and may be the reason for divergent results.

The results propose that if the sales of the companies are high then the short term debts are not going to work. However, in case of the companies having small sales, the short term debts are very useful, as they have very strong, positive and significant impact on the profitability. Also there is a negative relationship between the long-term debts and the profitability, which implies that the decision regarding the capital structure must be taken while considering the size of the sales.

## RECOMMENDATION AND IMPLICATIONS FOR RESEARCHERS

There is a room for the researchers to consider more companies to test the model as this study has not exhausted the whole group of the companies operating in the textile industry. The impact of the government policies might have also affected the sales and the profitability of the companies concerned, therefore it is suggested the study has a potential for its replication in future in certain different environments i.e. after announcement of policies supportive for the industry.

Looking at the results of the Hypothesis, it is clear that firms with in the textile industry, having sales in billions may borrow short term debt which proves profitable to them. However, small firms with sales in

thousands figure will have no benefits from the short term borrowing. Thus the firms should look at the size (sales figures) before making any decision regarding the borrowing of short term debt as it might or might not prove profitable to them.

Further it is also suggested that the companies with huge sales should not go for the short term debts, as long term debts have less potential for profit for them. However, for the companies having small sales, as defined earlier, should go for the short term debts viz-a-viz long term debts. As the latter have negative relationship with the profitability. This study has future implications for the researchers in the field of both economics and management to carry out researches in other industries like cement, petroleum, pharmaceutical and other agriculture based production units.

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