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Determinants of Capital Structuring:
An Empirical Study of Growth and Financing Behavior of
Firms of Textile Sector in Pakistan

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ABSTRACT

Purpose- Purpose of this study is to investigate the determinants of optimal capital structuring that affect growth and financing behavior of textile sector firms in Pakistan keeping in view the important role capital structuring plays in any firm's financial management decisions and the positive contribution it makes to the creation of firms' value and profitability.

Methodology/sample- Size of the firm (capital), profitability, fixed assets structure and taxes were used as control variables to investigate the determinants of optimal capital structuring of textiles companies. A sample size of 90 textile companies across the country were selected and their data for the 2005 - 2010 period was used. The determinants of optimal capital structure were examined using correlation and regression analyses. F-value was calculated to test the fitness of overall model.

Findings- Results of the study showed a negative relationship between dependent variable financial leverage and independent variables. The statistical analysis of spinning and composite unit also showed consistency of results with the overall textile sector but outcome of weaving unit showed a significantly positive relationship between dependent and independent variables.

Practical Implications- The findings enhance the knowledge base of determinants optimal capital structure and are likely to help companies take effective decision related to capital structure needs. Furthermore, the study is likely to help the decision makers better adjust themselves towards adopting and considering proficient ways of managing capital structure of a firm.

Keywords : Capital Structure, Financial Leverage, Profitability, Taxes, Gearing Ratio

Jel classification : G300

1. INTRODUCTION & AIM OF STUDY

Textile sector plays a key role in the national economies besides providing support to various economic growth indicators like GDP, exports, employment and foreign exchange earnings etc. Pakistan is one of the major producers of cotton and has a sound textile industry. Today, Pakistan is the 4th largest producer of cotton, and has the third largest spinning capacity (7.6% of total Asian capacity) in Asia after China and India and constitutes ~5% of the global spinning capacity. Pakistan's textile sector has gradually ventured into the production of fairly high quality counts, hosiery, garments and other value-added items. Now a day's Pakistan is operating a big integrated textile industry consist of different products like cotton spinning (yarn), cotton weaving (cloth), cotton fabric, fabric processing, towels and apparels. The textile sector continues to be the mainstay of Pakistan's exports comprising ~52% of total exports and also represents the principal employment-generating avenue in the organized and large scale industrial segment.

All the companies including textile mills around the world need investment to finance their assets by the sum of equity, debt, or hybrid securities (Joshua Abor, 2008) which generates the concept of capital structuring. Thus, we say that a firm's capital structure refers to the composition or forms of liabilities. Other explanation related to capital structure can be that it is a mix of company long term debt; short term debt also includes common equity and referred equity (Hussain, 2011). In other words, capital structure also tell that how a firm finances its complete work performance with the use of funds. It plays a major role and acts as an important part in firm financial management decisions. As per Shah and Hijazi (2004), a firm's capital structure can be affected by several factors from which a firm should try to find out the best one like a firm must be attempt to find what is optimal, or best for financing. Value of the firm and profitability can be enhanced by the optimal level of capital structuring and it is therefore, right to say that best chosen level of capital structuring is an important factor for the enhancement of profit margin in firm (Hussain, 2011).

This research paper will put light to the determinants of capital structuring and the impact of capital structuring on the growth and the way of financing of textile sector's firm in Pakistan. Research will use different variables like firm's profitability, size (capital), assets structure (tangibility), earning volatility, and non-debt tax shield to find out the answer of whether or not an optimal capital structure exist in Pakistan's textile sector. What are the potential determinants of such optimal capital structure? Furthermore, the researcher tries to understand that whether specific industry's capital structure exhibits unique attributes which are usually not apparent in the combined analysis of many sectors.

Therefore, the objectives of this research are:
- To determine the impact of capital structure on the growth and financing behavior of Textile firms in Pakistan.
- To analyze the relationship between optimal capital structure and profitability of textile companies in Pakistan.
- A comparative analysis of the textile sub sectors comprised of spinning, composite, and weaving.
- To find out the effect of assets structure on capital structure of textile firms.
- To examine the relationship between earning volatility of textile companies of Pakistan and capital structuring.
- To find out the relationship between non-debt tax shield and optimal capital structure of textile companies.
- To draw conclusion on the main determinants of capital structure and their impact on growth and financing behavior.
- To suggest some measures for improvement in capital structure management in textile sector of Pakistan.

1.1 Conceptual Framework:

In linear equation model the variables are as follows:

$$F/L = \alpha + \beta_1\,(FA) + \beta_2\,(SZ) + \beta_3\,(NP) + \beta_4\,(TX) + \varepsilon_i$$
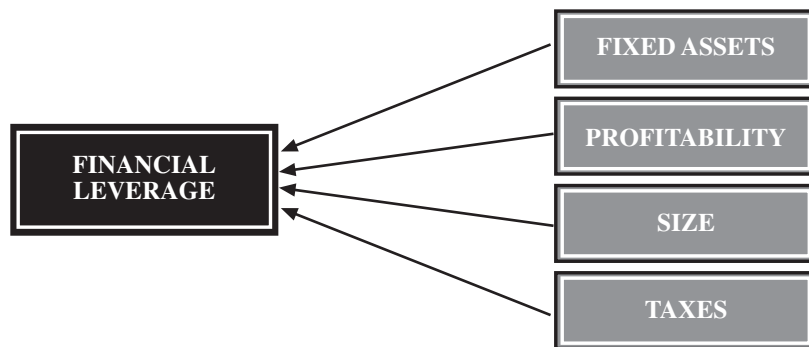
Whereas:
F/L = Financial Leverage   FA = Fixed Assets
SZ = Size   NP = Profitability
TX = Taxes   = the error term

1.2 Hypotheses:

H_{A1}:   There is positive relationship between financial leverage and value of fixed assets.
H_{A2}:   Large firm size has significant impact on the financial leverage of textile companies in Pakistan.
H_{A3}:   Profitability does significantly affect financial leverage of textile firms in Pakistan.
H_{A4}:   A firm taxes has positive correlation on firm debt ratio.

1.3 Limitations of the Study:

Due to the time frame and choice of the subject there were number of limitation faced by the researcher during the thesis.
- The first and the foremost limitation to this research is the shortage of time;
- The study is confined to six years data only, i.e. from 2005 - 2010, therefore, a detailed analysis covering a lengthy period, which may give slightly different results cannot be made due to limitation of time.
- Researcher was unable to find many researches on his topic within the scenario of Pakistan. So, therefore, researcher will be unable to compare its finding with other researches;
- Very few studies have been made in relation to determinants of capital structure especially in the textile sector in Pakistan. Therefore, the present study is a maiden attempt to analyze the determinants of capital structure in the textile sector in Pakistan.
- The study will be based on secondary data collected from State Bank of Pakistan (SBP).Therefore, the quality of the study depends purely upon the accuracy, reliability and quality of the secondary data source. Approximation, and relative measures with respect to the data source might impact the results.

2. LITERATURE REVIEW

Over the last 60 years, capital structuring in business financing decision has been the subject under great consideration. Modigliani and Miller (1958) had said that the capital structure of a firm did not affect the value and performance of the firm although day to day activities show the influence on firm's performance but actually it is not the case. However, after five years in 1963, Modigliani and Miller further explained that in the non-existence of taxes and other assumptions stated in their previous research could disclose the insignificance of the overall value of firm's capital structure. Firm's operation and its size greatly affects the firm's capital structure in developed as well as in developing countries.

Joshua (2008) stated that large size firms as well public sector firms require debt financing while small medium enterprises (SMEs) require equity financing to generate optimal performance and results. Furthermore, he elaborated that equity financing should be encouraged in the initial stages of a firm's existence which will provide a sound base to firm in order to expand by debt financing. In the study related to size and capital structure of the firm Titman and Wessels, (1988) explained that debt financing might be small for large firms and large for small firms. This phenomenon can only be true if debt for short term can be borrowed by small firms thus enabling them to reduce the overall borrowing cost.

Fixed assets structure or assets tangibility was considered as the determinant of capital structuring in many researches by scholars like Ross, (1977); Titman and Wesles, (1988); Harris and Raviv, (1990); Ozkan, (2001) and Khrawish, H.A. & Khrawesh, A.H.A., (2007-08) wherein they concluded that fixed assets structure is directly related to financial leverage of a firm but in case of Pakistan, the study conducted by Shah and Hijazi, (2004) elaborated that fixed assets structure or tangibility has no or negative impact on the capital structuring of firms in Pakistan. Hence, the outcome was in contradiction with the earlier researches carried out by various researches of different countries. Fixed assets structure has a direct relationship with long term debts while a negative relationship with the short term debts (Loof H, 2004).

Financial leverage has a positive relation with profitability because debt financing will provide tax shield to firm and hence improve its profit. However, Myers and Majluf, (1984) contradicted with the above statement and said that firms select internal financing due to asymmetry information and show an inverse relationship between profitability and financial leverage. A study by Rajan and Zingle, (1995) also showed the result similar to the outcome earlier provided by Myers and Majluf, (1984).

According to Teker et al., (2009); Chen, (2003), Capital structuring of the firms in developed countries have been the subject of most research by scholars and very less research has been conducted in developing countries and emerging markets (Sukkari, A. 2003). Those few research works that have been conducted on developing countries showed that firms' capital structure depends on various factors such as interest rate, tangibility, size and inflation (Lima M. et al 2009). According to Myers, (1984), growth of the economy has a positive impact on financial leverage and investment increases for firms with the growth of economy (Huang, S. and Song, F. 2002). Hence, a positive relationship between financial leverage and growth of economy exist.

Asymmetric information has always been the major concern for debt financing as it created hurdles for firms with the potential to grow and succeed by not financing their operations with external debts (Myers, Majluf 1984). The research is mainly based on "Pecking Order Theory" which states that "firms will rely more on internal financing due to information asymmetry" and if enough information will be available then firms can be persuaded to external financing i.e. borrowing. Few policies allow firms to cover debt financing by deducting interest from profit and increasing tax rates also lead to increase

in debt financing. Miller,(1977) also endorsed this view but Modigliani and Miller, (1958) stated that increasing debt level can lead to the increase in bankruptcy risk of a firm as the borrowing cost rises. On one hand, debt financing provide tax shield to firms but on the other hand chances of bankruptcy for a firm increase due greater portion of firm's debt. Hence, the credibility and value of firm reduces making it unattractive for investors to invest in the firm.

For creditors and investors, risk is the main concern in debt financing and according to Kraus and Litzenberger, (1973) if a firm's financial debt is higher than its earning then the firm would probably lose it value in the market and the creditors and investors might lose their confidence in the firm and become reluctant to investment. Hence, the firm will lose major portion of capital structure and will lead to decline in sales, growth and operations of the firm. According to Hussain (2011), Pakistani firms' financial leverage has received very limited attention from scholars and other stakeholders and according to him, in Pakistan discussion on determinants capital structure of Pakistani firms started with the study conducted by Shah and Hijazi (2004) followed by Tariq and Hijazi (2006), Shah and Khan (2007) and Rafiq et al, (2008).

Hussain (2011) further stated that most of the studies on capital structure determinants in Pakistan mainly focus on undertaking specific determinants of firm's financial leverage and ignored completely institutional or macroeconomic factors likely to influence decisions of firms related to capital structuring. Shah and Khan (2007) conveyed in their study that in developing countries like Pakistan, creditors choose low default risk firm over higher returns firms with high default risk and always prefer to invest in firms with high stability. The reason stated by these authors was that once a firm defaults over its debt then creditors lose their confidence and it takes a long time for a firm to repay its debt to creditors or sometimes creditors never get compensation from a defaulting firm as the legal proceedings in developing countries like Pakistan are very slow.

3. RESEARCH METHODOLOGY

This study is based on secondary data of 90 textile firms in Pakistan for the 2005 - 2010 period, which is collected from the State Bank of Pakistan (SBP). Data Eview - 5 software has been used to analyse the data and different statistical tools and methods such Regression and Correlation Analysis have been applied on whole textile sector and its different division i.e. spinning, weaving and composite units separately for the purpose of evaluation and statistical analysis.

4. STATISTICAL DATA ANALYSIS

The statistical analysis given below contain statistics for all three-sub sectors separately and the whole textile sector as well.

4.1 Statistical Analysis of Whole Textile Sector

Table 1:
Statistical Analysis of Whole Textile Sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.663299	0.063430	10.45722	0.0607
FA	6.71E-08	4.54E-08	1.476390	0.3790
CAP	4.59E-08	1.11E-07	0.413602	0.7503
NP	-3.45E-07	2.30E-07	-1.503280	0.3737
T	3.07E-07	2.60E-07	1.181396	0.4472
R-squared	0.948542	Mean dependent var		0.833333
Adjusted R-squared	0.742710	S.D. dependent var		0.059554
S.E. of regression	0.030208	Akaike info criterion		-4.286514
Sum squared resid	0.000913	Schwarz criterion		-4.460048
Log likelihood	17.85954	F-statistic		4.608329
Durbin-Watson stat	3.138295	Prob(F-statistic)		0.334429

4.1.1 Goodness of Fit Test

The results from Table 1 shows that the value of R2 is 0.948542 which elucidate that 94.8% dependent variable financial leverage is explained by independent variables that are fixed assets, capital, net profit and taxes.

4.1.2 Overall Significance

In the above Table 1, the value of F is 4.608 which show that we accept HA1 and conclude that the model is overall significant and the variation explained by this model is not just due to chance.

4.1.3 Individual Significance

H_{A1}: There is positive relationship between financial leverage and value of fixed assets.

In the case of fixed assets, the t-value is 1.476390 in Table 1 which explained that there is negative relationship between financial leverage and value of fixed assets at a given margin of error (level of significance).

H_{A2}: Large firm size (capital) has significant impact on the financial leverage of textile companies in Pakistan.

In case of large firm size (capital) the t-value is 0.413602 in Table 1 which means that there is insignificant impact of large firm size (capital) on financial leverage in the textile sector of Pakistan.

H_{A3}: Profitability does significantly affect financial leverage of textile firms in Pakistan.

The above Table 1 shows that the t-value in the case of profitability is -1.503280 and the researcher concludes that profitability does not significantly affect financial leverage of textile firms in Pakistan at a given margin of error.

H_{A4}: A firm taxes has positive correlation on firm debt ratio.

The above Table 1 results elaborate that the t-value for variable taxes is 1.181396 which means explained that there is negative relationship between firm's taxes and financial leverage in Pakistan textile sector.

4.2 Statistics Analysis of Spinning Unit

Table 2
Statistical Analysis of Spinning Unit

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1354428.	11553900	-0.117227	0.9257
FA	8.216881	15.05717	0.545712	0.6820
CAP	-10.88691	58.65839	0.185598	0.8832
NP	-2.750763	18.81292	-0.146217	0.9076
T	340.2714	1248.486	0.272547	0.8306
R-squared	0.928769	Mean dependent var		5268993.
Adjusted R-squared	0.643845	S.D. dependent var		2706288.
S.E. of regression	1615078.	Akaike info criterion		31.30257
Sum squared resid	2.61E+12	Schwarz criterion		31.12904
Log likelihood	-88.90772	F-statistic		32.59707
Durbin-Watson stat	2.611228	Prob(F-statistic)		0.390832

The statistical analysis results of spinning unit of Pakistan's textile firms show the value of R^2 is 0.928769 in Table 2 which explain that dependent variable i.e. financial leverage is 92.8% explained through independent variables that are fixed assets, capital (size of firm), net profit and taxes.

After analyzing the spinning section of textile sector the results from Table 2 shows that the t-values of independent variables fixed assets, capital(firm size), profitability and taxes are 0.545712, -0.185598, -0.146217 and 0.272547 respectively. So, it can be stated that all the independent variables have negative relationship with financial leverage in the spinning unit of textile sector in Pakistan.

4.3 Statistics Analysis of Weaving Unit

Table 3
Statistical Analysis of Weaving Unit

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.832009	0.019116	43.52433	0.0146
FA	1.32E-07	3.48E-09	37.87059	0.0168
CAP	-9.01E-08	8.16E-09	-11.04481	0.0575
NP	5.49E-07	5.98E-08	9.182452	0.0691
T	1.48E-07	1.24E-08	11.91243	0.0533
R-squared	0.999687	Mean dependent var		1.374814
Adjusted R-squared	0.998434	S.D. dependent var		0.273971
S.E. of regression	0.010840	Akaike info criterion		-6.336154
Sum squared resid	0.000118	Schwarz criterion		-6.509687
Log likelihood	24.00846	F-statistic		798.1560
Durbin-Watson stat	2.980549	Prob(F-statistic)		0.026540

The results of weaving unit of textile firms show the value of R^2 is 0.999687 in Table 3. So, it is concluded that 99.9 % variation in dependent variable i.e. financial leverage is due to independent variables that are fixed assets, capital, net profit and taxes.

Furthermore, the analysis of weaving unit of textile sector show the results in Table 3 that the t-values are 37.87059, -11.04481, 9.182452 and 11.91243. Therefore, it can be stated that all the independent variables fixed assets , capital , net profit and taxes have positive relationship with financial leverages in the weaving unit of Pakistan textile sector.

4.4 Statistics Analysis of Composite Unit

Table 4

Statistical Analysis of Composite Unit

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.679930	0.036998	18.37772	0.0346
FA	1.70E-08	1.11E-08	1.535004	0.3676
CAP	5.84E-08	4.95E-08	1.179577	0.4477
NP	5.43E-08	9.58E-08	0.567422	0.6714
T	-3.38E-06	1.62E-06	-1.088328	0.2843
R-squared	0.926673	Mean dependent var		0.708333
Adjusted R-squared	0.633367	S.D. dependent var		0.018348
S.E. of regression	0.011110	Akaike info criterion		-6.287026
Sum squared resid	0.000123	Schwarz criterion		-6.460560
Log likelihood	23.86108	F-statistic		3.159401
Durbin-Watson stat	3.393828	Prob(F-statistic)		0.396255

Lastly, as per Table 4, the results of composite unit of Pakistan textile sector analysis show that in the above model dependent variable that is financial leverage is explained 92.6 % by independent variables that are fixed assets, capital, net profit and taxes.

However, the t-values in Table 4 are 1.535004, 1.179577, 0.567422 and -1.088328 which helped the researcher to concluded that all the independent variables that are fixed assets, capital, net profit and taxes respectively have negative relationship with dependent variable financial leverage in composite unit of textile sector of Pakistan.

5. CONCLUSION

After critically evaluating the whole textile sector of Pakistan in this study, researcher finds that larger the size of the textile firm (capital) lower will be the long term debts (financial leverage), similar with the finding of Joshua (2008) because large textile firms have enough resources to manage their capital structuring requirements. However, large textile firms point out low risk level and a sound return to its creditors which help firms to borrow more debt when required. As the firm resources increases it can cover the losses to larger extent which enable it to borrow more and more. Thus, increase in resources improves firm's credibility in the market as its chances of default decreases.

On the other hand, financial leverage (debt) significantly decreases the burden of taxes on the firm but a careful analysis is very important and mandatory to evaluate the precise level of debt financing to maximize the performance of the business. Even though if significant resources are also available with the firm, an increase in debt financing over the firm capacity and capabilities can lead to severe financial, legal and reputational consequences. These issues were also highlighted by Kraus and Litzenberger, (1973). Thus, the firms should evaluate its respective situation in the market and then adjust its capital structuring needs accordingly. Therefore, most of the firms hired professional and qualified individuals to conduct analysis and prepare feasibility report before starting any new project or extending an existing project financed by debt.

If the firm can understand how to design their financing structure needs then steady growth and resources would help firm's in optimal performance in short and long run. Shah and Hijazi (2004) also showed positive relationship between firm size and financial leverage. However, Joshua (2008) contradicted with the findings of this research. Net profit, fixed assets structure, and taxes also have a significant impact on financial leverage i.e. long term debt. A negative relationship between all independent variables and dependent variable was also found by Joshua (2008) which is in accordance with the results of overall textile sector, spinning and composite unit but in contradiction with the weaving

unit of textile sector of Pakistan. Established firm has the advantage of an excellent standing while large asset structure means that adequate resources can be allocated at each level in the textile sector.

The objective of the study was to find out the determinants of capital structuring of textile firms in Pakistan depending on the perimeter of its operations. The selection of variables for this research was based on the prevailing conditions that directly affecting the capital structure of textile business in Pakistan. After evaluating and analyzing the outcomes of statistical analysis, the determinants of capital structuring decision were obtained and research results were consistent to the work of Shah and Hijazi (2004), who conducted analysis for stock exchange-listed non-financial firms in Pakistan. Capital (size of the firm) and profitability have been significant in each analysis. The four other analyses included other variables also but size of the firm and fixed asset structure were consistent in each research. Therefore, this research can easily be concluded by quoting that fixed assets, size of the firm, net profit and taxes are the determinants of capital structuring in the textile sector of Pakistan.

Researcher recommends on the basis of his findings that financial leverage in capital structure of textile sector of Pakistan increases with the expansion in firm's business and hence become self sufficient. Furthermore, recommends that Pakistan's economic conditions changes from time to time so the factors that affect the capital structure in different sectors especially the textile sector should be in harmony with the prevailing economic conditions of Pakistan. Outcomes of the study can provide suggestions related to capital structuring decision to firms, investors, policy makers, financial institutions and other stakeholders. Furthermore, it will provide a benchmark to individual textile firm to check it debt equity financing ratio is in line with the whole textile industry or not. There is much research needs to be done about capital structuring in Pakistan not just in textile sector but other sectors of the economy as well in future. Researcher suggests that more researches should be conducted on the same topic with different companies or sector and/or extending the years of the sample size for further understanding of determinants of optimal capital structuring of a firm.

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