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Determinants of Capital Structure: A case from Textile Industry of Pakistan

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Abstract

This study examines the determinants of capital structure in Textile industry of Pakistan on a data for the period of 2004 to 2009. Multiple regression technique is used to analyze the relationship between dependent variable (Leverage) and independent variables (Firm Size, Tangibility of Assets, Profitability, and Sales Growth). It is concluded all independent variables have significant impact on the balance of leverage. It is concludes that firm size, tangibility of assets and profitability having positive relationship with leverage. On the other hand sales growth has negative relationship with leverage. It is recommended that policy makers should focus on these determinants when making any decisions regarding capital structure.

1. Introduction

Pakistan Textile industry is one of the most essential sectors in the country GDP contributions and it is the spine of Pakistan economy. The overall contribution of the Textile industry is more than 60% that approximately 5.2 billion US dollars and it provides 38% employment. Pakistan is the 8th leading exporter of textile products to international market.[1]

Capital structure is very important for the firm particularly textile sector. Because it has an impact on long term corporate profits, firm's valuation and capital budgeting decisions. Capital structure is influenced by many factors like size, growth, profitability and specific industry also plays its role in capital structure decisions. Textile industry is the most important segment of Pakistan which contributes main part in country's exports. Performance of this segment, has a powerful influence on state economy. Investment of this segment mainly depends on Bank loan.

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[1] Economic Pakistan Feb. 2009 (www. textile industry.com.pk)

The study tries to examine the determinants of capital structure in a systematic way and gives appropriate instructions for all those people who are interested to study the subject very closely. Study initiates the major determinants of Capital structure and their different aspects. Generally it covers up all features of the topic but particularly it is associated to textile industries capital structure listed at KSE. This topic investigates many features that affect the capital structure determinants. (Attaullah et. al, 2004)

To maximize the worth, an organization could choose a blend of investment options to finance its assets and it is called as capital structure of an organization. Normally, an organization could select different debts, equity or other financial agreements. Sometimes it could merge with bank loans, bonds, lease financing and other alternatives to enhance the overall worth of the organization. Market worth of an organization is established by its earning power and its assets, illustrated by Miller & Modigliani (1960). According to M&M it is independent of the method it selects for Financing or dividend distribution for finance scholars, capital structure has been one of the main topics.[2]

This approach has generated the basis for developing the different theories of capital structure which tries to emphasis the variation in capital structures of industries in different areas. To accomplish the requirements of stakeholders Capital structure is closely connected to the capacity of organizations. Many new theories on debt to equity ratio have been developed continuously.

Capital structure of an organization is being affected by many features. And an organization must try to decide most favorable blend of investment or funding. To evaluate or decide an accurate capital structure is not very difficult, but after evaluating different features, an organization creates final form of capital structure. This form is considered as best possible or most favorable.

A sort of Trade off is involved between risk and return in capital structure. More debt generally increases the risks in the organization's earning stream. However sometimes it directs to greater estimated rate of return. Normally, stock prices becomes lower as greater risk is involved due to greater debt. Sometimes, financiers attracts due to with greater debt tends to lowers the stock's price, At the same time, however the higher expected rate of return makes the stock more attractive to investors, which, in turn, ultimately increases the socks price. Therefore, optimal capital structure is the one that strikes a balance between risk and return to achieve our ultimate goal of maximizing the stock prices.

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[2] Pakistan financial Review Nov. 04 pp 35

An organization's capital structure consists of long-term common stock, preferred stock and retains earning. Researchers are still not agreed regarding the factors, which influence organization's capital structure, although plenty of research has been carried out which focus on primary determinants of capital structure.

Theoretical Background

2.1 Miller & Modigliani Theory of Irrelevance.
It has been observed that an organization's worth is independent of the capital structure: stated by Miller and Modigliani (1958). According to their opinion if an organization's value depends on capital structure, then arbitrage opportunities would be available in perfect capital market. Moreover, if financier and organization both could borrow at same interest rate, financier could counterbalance any capital structure decision of the organization. Although many impracticable statement are described by this theory, but it gives the initial hypothetical framework for new & advance studies.

2.2 Static Trade off Theory
Current day approach on capital structure is well explained by Myers (1984). He divides the concept into two theories. Static trade off theory (STT) and Pecking order theory. According to STT, an organization obeys a debt to equity ratio and then performs consequently. Advantages and cost of debt set the ratio. It consists of taxes and financial distress cost.

(a) Taxes
According to Static Trade Off, positive correlation is found between leverage and tax rate. It means at high tax rate the organization may at greater debt to increase market value and in this way may enhance their cash flows.

(b) Bankruptcy cost
If liabilities or loans are increases from a certain point, then chances of bankruptcy increases. Due to greater financial disturbance, an organization could have 02 kinds of bankruptcy costs. These include direct and indirect kinds of costs. In direct type, cost is called as administrative or managerial cost used for the process of bankruptcy. If organization is greater in terms of volume or size then the cost comprises very little % for organization. And if organization is smaller, the cost will be greater. If the organization feels for financial disturbance in future, then they may alter their financial strategies and the cost which is required for this change is indirect cost. Organizations trim their expenses on R&D exercises, workers training to keep away from situation of bankruptcy. Moreover in bankruptcy, clients see the quality of services of the organization with suspected eyes. It then causes the plunge or fall down in total sales and ultimately lowers the share value of the organization.

2.3 Pecking order theory (POT)
This theory explains that when organizations are going to create their capital structure, pursue a chain of fiscal conclusions. The most preferable process for an organization for financing their new developments & plans is the in house financing (eg; retained earnings). If the organization

required funds from outside source, then there are two options. I.e. gets the owing from bank or to get the debt from public, or finally, organization goes for equity financing to fulfill its plans. Pecking Order Theory explains that successfully running organizations, for financing new developments don't like to get the loan and normally use in house resources or finances.

Pecking Order theory has significant outcome on organization's capital structure which is run for the interest of equity holder, instead of joint interest of equity & debt holders. Myers and Majluf (1984) propose that most of the organizations feel uncomfortable or hesitant for issuing the equity due to unpleasant problem of selection. Titman (2003) is of the opinion that equity issuing phenomena have reasonable cost of transaction. That's why most of the organizations feel hesitation due to its cost.

In short, Pecking order theory suggests that organizations well understand their financial resources and give priority according to their existing working situation i.e utilization of in house financing is the first priority, when it is useless or exhausted, then go for debt and in case it is not possible, then issue the equity.

2.4 Signaling Theory

A new concept called as signaling theory is given by Ross (1977). According to his approach, in any organization, debt is supposed to be sign of confidence for financiers. If organization debt issues, it gives an indication that the organization is looking forward for cash in the next few days. Greater amount of debt exhibits trust for managers in cash flows. Equity under pricing is also a second subject of this theory, which is already been discussed in Pecking order theory. If any organization, for investing in its new plans or missions, issues the equity rather than debt, financier will consider as negative signal. Managers may issue the equity on overpricing because they are mostly well up to date regarding the information of the company.

2.5 Agency Theory

To select the capital structure of an organization, another explanation is given by Agency theory. In 1976, Jenson & Mechling recognize the approach difference in managers and shareholders. Reason is that part of the manager is less than 100 percent in the organization. Moreover, manager of the organization behaves as shareholder's agent and incur much debt & do the investment in uncertain tasks or projects.

Approach is similar with Myers' working (1997), according to him due to incomplete or irregular knowledge and information; organizations would have low gearing ratios. Instead of the increasing the overall worth of the organization, the manager whose stake is less than 100 percent in the organization, could use the free cash flows in his own benefit, which he could use to enhance the worth of the organization. In 1986 Jenson recommended that this issue could be resolved if we could enhance the share of the manager. As a result of debt financing, cash flows would be lower and resulting in the advantage of the company.

1. Literature Review

Reint & Florian (2009) studied the composition of banks liabilities. Banks have financed balanced sheet growth on aggregate with non deposit liabilities during study period. This has resulted in a significant shift in the structure of banks' total liabilities away from deposits. At the same time, the share of equity remained constant. As the shift is not linked with a contemporaneous decline in deposit insurance coverage, this can be taken as further evidence against banks attempting to maximize this subsidy from incorrectly priced insurance schemes.

Jacelly (et. al, 2008) studied 806 non financial Latin American firms from 1996 to 2005 and test how ownership concentration affects capital structure decisions in Latin America. Their research favors the concept that the relationship between ownership & leverage is positive. It is exactly according to the reasoning that organizations having ownership concentration do not go for financing through equity because in this way they might lose their control. Researchers also analyzed that the variables i.e firm size, firm growth, tangibility of assets are very significant to explain the leverage in the corporations of Latin America. And the organizations which have much more opportunities for growth and profit of these companies is also not so much may acquire debt in their region of Latin America.

Jean (2008) investigated the corporations elated to wine business in France and found the important variables regarding the capital structure determinants. He observed negative relationship among profitability, Non debt tax & age. And positive relationship of asset tangibility and firm growth is seen. Firm size doesn't have any importance in this regard. At the end, it is found that as far as capital structure determinants are concerned, wine business in France is having same features as other businesses.

Rafiq (et. al, 2008) studied the determinants of capital structure in chemical industry of Pakistan. He investigated relationship of leverage with different variables. According to his study Tangibility is positively correlated with Leverage. This is in accordance with Shah and Hijazi (2004) but in contrast with Jensen & Mecklings (1976) and Myers (1977).Growth is positively correlated with Leverage. This is in contrast with shah and Hijazi (2004) which showed negatively correlation between growth and Leverage. Profitability is having the negative correlation with Leverage. This suggest that profitable firms in chemical sector of Pakistan use more debt and less debt. This is in accordance with Tariq and Hijazi (2006). Size is having positive correlation with Leverage. It explains that larger firms in Pakistan borrow more and small firms are fearful of more debt. This confirms the idea about the size of the firm that larger firms will have a higher level of leverage.

Abubakr (2007) study is concerns to test that financial pattern of listed firms in energy sector of Pakistan follow any foremost capital structure theories. The analysis was implemented on a sample of 22 listed firms during the period 2001 to 2005. The results of polled regression model show that both static trade off theory and pecking order theory are pertinent corporate capital structure theories to the firms in Pakistani energy sector.

Muhammad (2007) analyzed the capital structure determinants in banking industry of Ghana. In his research work, variables are found to be regular & constant with well known theories i.e STT and POT. During the research also emphasized on importance of difference between long & short forms of debt. In Ghanaian banks, debt financing of short term period. Relatively higher banks provide the finance to all other industry. In this way, leverage is having negative relationship with assets. Study shows that about 90% banks of Ghana have financed through money owing, and mostly financed through short term debt. It shows the importance of debt for smaller period over longer period in banks of Ghana. Research investigates that profitability of firm, firm growth, Tax and corporate size are significant variables which effect capital structure of banks.

Shah and Khan (2007) attempted for finding the capital structure determinants of non-financial organizations, which are enlisted in Karachi stock exchange. Research is being conducted for the period 1994-2002 (08 years). During research 07 variables were studied and also calculated its outcome on leverage ratio. At the end, greatest leverage ratio is observed in textile industries. It is due to the fact that in textile industry all the organizations are totally controlled by families and they understand the profit margin. They deny from the profit to avoid government taxes and also deprive all investors to provide dividend. On average profit is going to be negative for total years that ultimately enhance the debt in investment. Asset tangibility has also an important relationship with debt.

Ayesha (et. al, 2006) studied the determinants of capital structure in Government owned and private organizations. Firm size and firm growth have positive relationship with Leverage. Analysis of Govt. and private organizations through Spearesman correlation shows that Govt. organizations in Pakistan use much debt then private organizations. Further, tangibility of asset in government corporations has positive relationship with leverage. While it has negative relationship in private firms. Firm growth same trend in Govt. and private organizations. In private firms, firm size has positive relationship with leverage, while negative relationship in government firms. Profitability in government organizations has positive relationship while it has negative relationship in private firms.,

Hijazi (et. al, 2006) analyzed the cement sector and studied the 17 organizations as a sample. Objective of the study is to find out the determinants of capital structure in cement sector. A negative correlation is observed between growth & firm size. Size of the firm is having the negative relationship with leverage. There fore it is advising that if the size of the organization is greater then they would utilize lower debt. And all the conclusions are against the STT (Static Trade Off theory) which shows a positive correlation among leverage and size of the organization. Results also show that tangibility of assets & leverage are having positive relationship. These results are parallel and regular with earlier researches. Fama & French (1999), Rajan & Zingales (1994) & Titman & Wessels (1989) observed that tangibility of assets is a significant determinant of leverage. While growth of the firm and leverage are having positive relationship.

Fakher (et. al, 2005) studied the investment and financial behavior in Libyan organizations. Major concern of his studies is to compare the correlation between short term & long term debt. These 04 variables i.e. firm size, Tangibility of Assets, firm growth and profitability of the firm are studied. Objective of this study is to check that capital structure of Libyan organizations follow which kind of capital structure theories i.e. static Trade off theory & Pecking order theory. Outcome of the study recommend that agency theory and STT theory are relevant & applicable theories. Due to unavailability of secondary market it may create influence on agency cost. And in this way, stock holders may force on top managers for performing according to their own concern.

Shumi (2005) studied local and international organizations working in Australia during the years 1992-2001 to determine the importance of determinants of capital structure. Study shows that degree of leverage has some pattern in local & international organization. Results have taken through Tobit regression. And difference in results in determinants of capital structure between local and multinational companies. In all kind of organizations firm growth, profitability, and size of the firm are important determinant of leverage. It is noticed that assets are important determinants of leverage for local organizations. And as far as multinational organizations are concerned, bankruptcy cost is also an important determinant while this is not important for local organizations.

Patrick Bauer (2004) examined the listed firms in Czeck and studied the capital structure determinants. Generally, listed organizations of Czeck exhibit low leverage value than group seven and emerging countries organizations. In his analysis, 08 important capital structure determinants were studied. These determinants are Firm size, asset tangibility, and growth of the firm, profitability, Tax, Volatility and industry classification. Between volatility & leverage no relation was observed. Conclusions are identical to the results of earlier researches, if focusing on organization's profitability and firm size. In this study, tangibility is found regular in developing and developed countries. Generally the leverage which is studied in the corporations of Czeck is affected by same determinants as effected in group seven and emerging countries.

Shah and Hijazi (2004) analyzed the capital structure determinants in Pakistani non financial organizations which are listed in Karachi Stock exchange (KSE). They studied four Variables and determine their consequence on Leverage. Conclusion of the research shows that tangibility of assets has positive relationship with leverage. This study is almost confirm the earlier researches of Titman & Wessels (1988), Rajan & Zingales (1995). According to which asset tangibility has a significant relationship with Leverage. Powerful correlation is also observed between Leverage and profitability. Profitability has found negative relationship with Leverage. This is exactly according to Pecking Order Theory.

Ignacio (2003) studied the Uraguayon corporations. According to his observation, 40% of Uraguayon Corporations are financed by their own resources. It means that Leverage value go up in an extent of sixty percent. As far as leverage value is concerned, no any witness is observed which assures firm size and tangibility of assets determine higher Leverage point.

Results favor the Pecking Order Theory which shows that inverse effect of profitability with outside financial support. End result of the study is exactly according to results of the advance countries which show that profitability has negative effect on leverage.

Franck (et. al, 2002) analyzed the outcome of the researches conducted in different countries having different lawful environment. Their analysis shows that capital structure determinants are more or less comparable across American & European countries. However this is not 100% similar and some differences are also found across Deutch, French and English countries due to their different legal environment. But Debt & equity planning or strategies are almost more or less same between Deutch & French countries with different lawful system.

2. Methodology:

To find the relationship between the variables we have used multiple regression analysis. In this research we have focused on secondary type of data, all data is collected from the balance sheet analysis of textile companies published by state bank of Pakistan. In this study we have used the data of Leverage, Firm Size, Tangibility of Assets, Profitability and Sales Growth for the period of 2004 to 2009. After selection of the above variables we can describe the Capital structure function of Textile industry of Pakistan in the following way:

$$LEV = f (FS, TA, PFT, SG)$$

Where LEV is the leverage, f represents the function of FS, TA, PFT and SG represent respectively, firm size, Tangibility of Assets, Profitability and Sales Growth. After specifying the capital structure function in linear form with an addition of error term, we can write in following way:

$$LEV = \alpha + \beta_1\ FS + \beta_2\ TA + \beta_3\ PFT + \beta_4\ SG + \varepsilon$$

This research is based on the following hypothesis that clearly defines the research criterion.

H1: Firm Size has no significant impact on Leverage
H2: Tangibility of Assets has no significant impact on Leverage
H3: Profitability has no significant impact on Leverage
H4: Sales Growth has no significant impact on Leverage

4. Data Analysis

Summary Statistics table is used to define the central tendency of the data set. It also explains the total number of observations present in the data, data's deviation (standard deviation), and its minimum and maximum values.

Table 4.1: Descriptive Statistics

	LEV	FS	TA	PFT	SG
Mean	0.023	0.452	2097.356	-0.008	0.028
Maximum	0.343	3.959	7467.710	0.072	2.362
Minimum	-0.381	-4.168	-6985.600	-0.108	-1.593
Std. Dev.	0.129	0.917	1339.430	0.029	0.576
Observations	104	104	104	104	104

Table 4.1 gives the information about the variables used in this research. It shows that 104 numbers of observations are used in data analysis process. For example it gives that minimum value of Leverage is (-.381) and maximum value is (0.343), with the mean value of (0.023) and its Standard Deviation (0.129). Further examinations of this table also give the minimum and maximum values, standard deviation, and mean value of independent variables.

The Table 4.2 reveals the Parameter Estimations of each variable which provide source for developing regression model; it shows value of constant (α), Values of Coefficients (β) along-with its T-Value, P-values, F-value, Durbin Watson value of Adjusted R^2, Model significance . These values of Coefficients (β) indicating the contribution of each Predictor to the model. The parameter estimates are analyzed at 95% confidence interval.

Table 4.2 Result of Ordinary Least Square

Variables	Beta	t-stats	Prob.	VIF
Constant	0.0017	0.34	(0.005)	0
Firm Size	0.0388	2.16	(0.0179)	1.32073
Tangibility of Assets	0.0061	3.58	(0.0017)	1.63938
Profitability	0.1055	2.28	(0.0462)	1.16076
Sales Growth	-0.0821	-3.05	(0.0023)	1.27907
Adjusted R-square 0.4515	**D. W.** 2.1970	**F-stat** 8.90 **Probability** (<.0001)		

The above regression model showing the value of constant is (0.0017), indicating that when Firm Size, tangibility of Assets, Sales Growth, and Profitability values become zero the value of Investment will be Remain (0.1%). Here, P value associated with constant is significant which is witnessed by its P-value is less than 5% significance level.

The value of Adjusted R^2 is 45% describing variance proportion in dependent variable which is Leverage can be explained by predictors which are Firm Size, Tangibility of assets, Profitability and Sales Growth for the model. Firm Size, Profitability and firm Growth are predicting Investment by 45% which reflects the overall strength of association in the Regression model. F-value is 8.90 which is evident by its significance level which reveals that there is no immediate

need of an additional independent variable as Firm Size, Tangibility of Assets, Firm Growth, and Profitability are good enough for explaining the variation in leverage. From the value of F-Statistics it can be seen that model is significant.

The Positive Relationship exists between Firm Size and Leverage is found to be related with the studies conducted by Monica and Abir (2010) and Eriotis et al (2007). The value of beta (β) for Firms' Size is (0.038) which indicates the positive relationship that shows in Pakistan larger firms using more leverage for their investments as compare to the small firms.

The negative relationship exists between Leverage and Sales Growth, This Research study is similar to Monica and Abir (2010)[3] and Eriotis et al (2007),[4] who found the impact of leverage on Sales Growth. They conducted research by taking a sample of 963 firms' level data from Indian economy for the period (2004-2008). The value of Sales Growth is negatively associated with the leverage revealing that as the profitability increases the leverage will be decrease and vice versa which is significant relationship provided by P-value which is less than 5%. So, the alternative hypothesis has been accepted here that there is a significant relationship occurs between Leverage (Dependent) and Firm Growth (independent). This negative relationship shows that firms who are more profitable and have strong liquidity position finances their investments by their available funds rather than leverage. Negative relationship is also in accordance with Shah and Hijazi (2004) which confirms the Pecking Order theory concept.

Table 4.2 indicates value of durbin watson as 2.197 which shows that autocorrelation does not exist in error term. VIF is the test of multicollinearity among the variables (Excessively high correlation among the independent variables). The rule of thumb describe that VIF>10.0 indicates multicollinearity problem among the variables, since the table 4.3 shows that no variable have VIF value >10.0 so therefore multicollinearity does not exist in this model.
Regression model Overall significance has identifies by F-value. It is actually the explained variance divided by unexplained variance (mean error). In table 4.2 F-stat shows the value (8.90) and it's Probability (0.000).

Following is the Regression equation for model.

$$LEV = 0.0017 + 0.0388FS + 0.0061TA + 0.1055PFT - 0.0821SG + \in$$

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[3] Monica Singhania and Abir Seth (2010) "Financial Leverage and Investment Opportunities In India", International Research Journal of Finance and Economics Euro Journals Publishing, Inc.

[4] Eriotis, Vasiliou and Neokosmidi (2007), " How Firms Characteristics Affect Capital Structure", Managerial Finance, Vol. 33. No 5, 2007, pp. 321-331

5. Conclusion and Recommendation:

This study examines the determinants of capital structure in Textile industry of Pakistan on a data for the period of 2004 to 2009. Multiple regression technique is used to analyze the relationship between dependent variable (Leverage) and independent variables (Firm Size, Tangibility of Assets, Profitability, and Sales Growth). It is concluded all independent variables have significant impact on the balance of leverage. It is concludes that firm size, tangibility of assets and profitability having positive relationship with leverage. On the other hand sales growth has negative relationship with leverage.

It is recommend that internally generated funds may not be sufficient for growing firms and debt financing may be the only option for further growth. Tangibility is significantly related to debt. In Pakistan, where court process is slow and accounting profits do not reflect a true picture of firm performance, creditors prefer the security of specific claim on fixed assets high ratio of intangible assets causes hurdle to borrow long term debt because intangible assets cannot be collateralized this reason shows negative relation between growth opportunities and leverage. Size has a positive coefficient it means that firms in the sample do not consider their sizes as an active variable in deciding the leverage level. Size gives a comparative advantage of lower asymmetric information when a large firm makes an IPO. For profitability we attained a positive relation that supports Pecking order theory but opposes to Static trade-off theory. The results suggest that more profitable firms do not often finance their investments by debt source in textile sector of Pakistan. More profitable firms tend to issue more debt and repurchase equity. Less profitable firms tend to do the reverse. Firm size also matters. Larger firms tend to be more active in the debt markets while smaller firms tend to be relatively more active in the equity markets.

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