

Determinants of Capital Structure: A Comparative Analysis of Textile, Chemical & Fuel and Energy Sectors of Pakistan (2001-2006)

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Abstract

Using panel data for the period 2001-2006 for the Textile, Fuel and Energy and Chemical sectors from KSE a Fixed Effect model was applied in the study. It has selected six independent variables, which include Size, Profitability, and Growth, Non debt tax shield, Tangibility and earning volatility in order to measure their effect on the leverage ratio. In all the three sectors tangibility variable is highly significant, which favors the Trade-off theory. Size variable does not favor the Trade-off theory. Profitability fails to confirm the pecking order theory and Trade-off theory. Growth variable does not conform to the Agency cost theory in all the three sectors. Earning volatility does not support Bankruptcy theory and Agency cost theory.

Key Words: *Debt, Equity, Textile, Chemical, Fuel & Energy and KSE.*

Introduction

The capital structure is basically the combination of two different types of financing sources, i.e. debt and equity. Various firms formulate their capital structure differently not only to finance their assets but also their business operations. According to Ilyas (2008) Capital structures consist of long term permanent sources of financing, including long term loans preferred stocks, common stock, and retain earnings. Shah and Hijazi (2004) suggests that capital structure consists of different options a company utilizes in order to finance its assets.

Though the capital structure of a firm may change from time to time, but at any given time period the firm has a specific debt equity ratio in mind. The individual decisions should be consistent with this target ratio. If it is below this target level than new funds will have to be raised by issuing debt, whereas, if the actual proportion is above the target ratio than stock will be issued to bring the firm in line with the target debt ratio. The firms have to analyze a number of factors before it can determine their optimal capital structure which is then used to raise funds in the future.

Decisions about the capital structure involve a trade off between risk and return. When more debt is utilized fixed obligation of the firm increases which will then increase the risk in the earning stream of a firm, but at the same time it may increase the expected future returns.

Moreover, using higher debt shows the confidence of the firm about their future earnings making the stock more attractive for the investors. Thus we can say that an optimal capital structure balance risk and return.

To increase its value, the firm can finance its assets issuing bonds, long term loans, and short term loans from banks, other financial institutions and leasing finance to combine with equity. According to Horne and James (2002) the risk and profitability of the investment determine the firm value.

There are various theories in corporate finance, which discuss the effect of capital structure decisions on the valuation of the firm.

Modigliani and Miller (1958) states that in an efficient market when there are no taxes, no transaction cost, bankruptcy costs, and asymmetric information the value of a firm is not determined by the financing decision, but it is determined by the investment decision of the firm. Modigliani and Miller (1963) incorporated the tax benefits of the debt and suggested that there is a cost benefit of using debt as the government indirectly subsidizes interest with expenses. Myers and Majluf (1984) showed that the corporate tax benefits of debt are reduced due to personal taxation.

Pecking Order Theory (POT) proposed by Myers and Majluf (1984) suggests that managers try to generate funds internally and prefer to issue debt over stocks and only issue stocks when it is impossible to issue debt. There are many other theories related to the formulation of capital structure which includes Agency Cost Theory (ACT), Signaling Theory (ST) and Trade off Theories (TOT) etc, which help finance managers to optimize their firm's value.

Rajan and Zingales (1995) worked in G-7 countries and found that variables which were found to be correlated in the United States were correlated with leverage in G-7 countries. Booth, Aivazian, Kunt and Maksimovic (2001) studied developing countries, including Pakistan used data from KSE-100 Index from 1980 to 1987, provided a detailed empirical study and found that variables which were correlated with leverage ratios in developed countries were correlated with leverage in developing countries.

The above studies suggested that there are some variables, which are common in the capital structure of different countries, but due to many factors each country should be analyzed separately, in order to have a better understanding of the unique features of their capital structure.

The available detailed research in Pakistan by Shah and Hijazi (2004) used four independent variables with six year data and performed a combine analysis of all the sectors in the KSE. Rafiq, Iqbal and Atiq (2008) also used data from KSE and analyze the Cement sector. They used four variables to analyze their effect on the leverage ratio of the cement industry after that, Rafiq, Iqbal and Atiq (2008) presented their paper in which they selected Chemical industry from the KSE.

All the above research was conducted only on a single sector or on a combine analysis of all the sectors separate analysis of each sector was required, which was, then done by Ilyas (2008) in which he utilized latest data set, increased number of variables and also separate sector wise analysis. The study was a great attempt to analyze different variables of capital structure in a systematic manner.

The current study shall add to the relatively limited literature on the determinants of the capital structure in Pakistan by examining the dynamics of the relationship between leverage and a set of independent variables, growth and performance indicators which includes Size, Growth, Tangibility, Profitability, Earning Volatility and NDTS from Textile, Fuel and Energy and Chemical industry from KSE, it will analyze whether these results confirm with the predictions drawn by theories of capital structure or not.

The objective is not only to analyze them but to perform comparative analysis of the determinants of capital structure of Textile, Fuel and Energy and Chemical industries and identify their average leverage. Analysis of different industries will help understand and clarify their financing patterns which in turn will help new investors in the industry to formulate their capital structure. This will also help in portfolio diversification for investors and will contribute to the literature in capital structure.

This study is organized as follows: Section 2 provides literature review. Section 3 provides methodology, data, Model Specification and Regression results. Section 4 provides the Conclusion.

Literature Review

The topic of capital structure is being extensively researched and various theories related to the determinants and valuations of the capital structure have been developed. There are a number of theories regarding financial management, which shows the relationship between capital structure and the values of the organization.

The capital structure theories were, firstly, developed by Durand and David (1959) states that increase in debt capital will increase the value of the firm and at the same time it will also decrease the cost of capital, But this approach was rejected by a net operating income approach which suggests that the value of the firm, is not determined by a proper mix of debt and equity in its capital structure Baral and Keshar (2004). These two approaches are the two extremes of capital structure, Apart from these two extreme approaches of capital structure there is also a moderate approach which was developed by Ezra (1963) suggests that the

firm value can be increased to a certain level with the use of debt capital and remains constant if we use a moderate level of debt, but it will decrease its value if a ratio of debt in capital structure is highly increased. According to Keshar (2004) the main issue related to the capital structure is the debate on optimal capital structure. He suggests that there exist two schools of thoughts one in favor of optimal capital structure and the other against it. The Former school argues a proper mix of debt and equity in the capital structure can maximize the firm value by minimizing the overall cost of capital and suggest financing decisions of the firm are relevant to the valuation of the firm while school of thought led by Modigliani and Miller who are said to be the pioneers of modern corporate finance, presented the well known MM Irrelevance theory, claims the value of the firm is independent of its financing decision, this theory was based on different assumptions, which states in the world of perfect market –a world with no taxes, no agency cost, no brokerage and bankruptcy cost- the investment decisions determine the value of the firm and not the financing decisions. The MM theory was a great contribution to by Miller but it was based on many unrealistic assumptions, which are impossible in reality. This was recognized by Modigliani and Miller (1963), he published another paper in which he suggested that in the presence of corporate taxes, interest payments on debt provide a tax shield due to which the value of the firm depends on its capital structure. Appealed that due to personal taxation the tax-deductibility advantage of debt cannot be availed. Myers and Majluf (1984) presented Trade off Theory (TOT) which suggested that the manager will try to find a target debt equity ratio and behave accordingly; these target ratios are set by analyzing the cost and benefits associated with financing with debt or equity. Bufena, Bangassa and Hodgkinson (2005) also suggest that the financing decisions of the firm depend upon the cost, including bankruptcy and financial distress and the benefits such as tax deductibility of the debt financing in order to obtain the optimal capital structure, so this suggests that a firm's target leverage is driven by three competing forces: taxes, costs of financial distress and agency costs and when a firm uses more debt it will get tax benefit but at the same time bankruptcy cost also increases, which suggests the positive relationship of debt shield and value of the firm and large firms with more tangible assets and having more growth opportunities use more debt.

Agency Cost Theory developed by Jensen (1986) also suggests the concept of optimal capital structure, which can be attained by minimizing the agency costs, which may arise due to the conflicts between managers and stakeholders of the business. There exist three types of agency costs. Firstly, The asset substitution effect: the debt to equity ratio increases the incentive of the management to undertake risky investment even with the negative NPV, because in case of success of a project all the upside will be given to the shareholders and if the project is unsuccessful all the downside will be given to the debt holders.

Secondly, the problem of underinvestment: in case of risky debt, all the gains from the project will be transferred to the debt holders rather than shareholders of the firm. Therefore, the management can reject the project, even if they have positive NPV and have potential to increase the firm value

Thirdly, Problem of free cash flow: this suggests that idle cash should be promptly invested because if not the management may destroy the firm value by empire building and when the leverage increases it will impose discipline on the management. The other agency problem may be that the manager may take various financing decisions, which have no effect on the firm value. In order to achieve an optimal capital structure these agency costs should be minimized, which can be achieved by increasing the stake or ownership of managers in the business or using more debt in the capital structure (Jensen 1986).

Apart from the optimal capital structure Myers and Majluf (1984) presented POT in which they suggest that information asymmetries exist between investors and managers and there is no target debt ratio. The managers of the firm follow a hierarchy in the financing choices. They prefer to raise funds internally, that is they use retained earnings to fulfill their financial needs, and if they are required to get external finance debt is preferred over equity. The advantages of internally generated funds are that they do not incur any flotation costs and did not require any disclosure of important financial information of the company.

According to Myers and Majluf (1984) the managers are reluctant to issue equity in order to avoid transfer of wealth to the debt holders. The other reason to avoid equity would be the information asymmetries between the management of the firm and the potential investors who may think that whenever the firm issue stocks it is not confident about their future earning and the stock is overpriced, which may cause newly issued stock to be sold at a discount and the wealth would be transferred from the existing investors

to the new investors. This problem can be solved by generating funds internally.

Different signaling theories were also derived due to the asymmetric information problem, Signaling Theory by Ross (1977) suggested that a higher debt ratio signals the investors trust in the business or company and when a company issues the debt the market will interpret that the firm is confident about their future earnings, and is able to pay the interest and principal payments on debt from its earnings. Thus, the higher ratio of debt shows the manager's confidence in their future earnings. Ross (1977) concludes that investors take larger levels of debt as a signal of higher quality and that profitability (as a proxy of quality performance) and leverage is positively related.

According to Myers and Majluf (1984) Market Timing theory suggest that managers issue debt when debt market conditions are favorable and issue equity when the firm's market value relative to book value is high.

Methodology

Measurement of variable

Dependent Variable.

Leverage.

Leverage shows the amount of assets financed by debt. According to Banerjee, Hesmati and Wihlborg (2000) mostly short term loan is used as compared to long term loans in Pakistan. According to Khan (2007) the reason for using more short term finance is that the bond market of Pakistan is in developing stage and most of the companies are small and due to cost and technical difficulties, they have not easy access to the capital. The main issue was to take in the account the total value of debt or long term debt, so this study has used total amount of debt as in Pakistan mostly short term debt is used.

The other consideration was to select the market value or the book value of debt. The book value of the debt is used for analysis in the study because the optimal amount of leverage is determined by analyzing the costs and benefits associated with debt financing. As debt financing provides tax savings and the debt tax shield benefits are not changed by market value once they are issued (Banerjee, Hesmati and Wihlborg 2000). The book value of debt is used in the analysis. Leverage is measured by dividing the value of total liabilities by total assets this measure is also used by Khan (2007) and Teker, Tasseven and Tukel (2009).

Independent Variables.

Size.

Size is an important determinant of capital structure. Myers and Majluf (1984) worked on G-7 countries and found a negative relationship of size with the leverage. They suggest that due to the complex structure of large firms there exists a lack of information, which decreases the chances of undervaluation of the new equity issue which will encourage them to use more equity rather than debt. Contrary to this view BCT suggests that there exists a positive relationship between the leverage ratios and size of a firm because larger firms are more diversified Remmers, Stonehill, Wright, and Beekhuisen (1974) and they also pay low interest due to their higher credit rating and easy access to the capital market (Pinches and Mingo 1973).

According to Keshar (2004) who worked on the Nepalese stock exchange suggested a positive relationship between the size and leverage, their results suggest that the financial institutions explain about 30% variation in the leverage ratio which favors the Bankruptcy Costs theory. Titman and Wessels (1988) also suggests that larger firms use more debt in their capital structure because their overall bankruptcy cost is low and have fewer chances of going into bankruptcy.

Shah and Hijazi (2004) suggests that larger firms utilize a higher ratio of debt, they consider themselves to have fewer chances of falling into financial distress, so they have the capacity to absorb shocks. This implies that these firms have smaller fixed direct bankruptcy costs as a percentage of their total value, so they are not afraid of bankruptcy and use more debt. Bufena, Bangassa, and Hodgkinson (2005) worked on the Libyan market suggests that large and profitable companies maintain a higher debt ratio in order to take the tax deductible advantage of the debt. Ilyas (2008) worked on data from KSE also found a positive

relation between the leverage ratio and the size. Rafiq, Iqbal, and Atiq (2008) suggests that larger firms use more debt as compared to the smaller firms in Pakistan. Homaifar, Zietz and Benkato (1994) suggest that due to higher debt capacity larger firms are able to borrow more. Titman and Wessels (1988) also suggest a positive relation between leverage and size of the firm, including both total and long term debt.

In this study size of the firm is measured by taking the natural logs of sales, taking the natural log will smoothen any variations in the data. This measure is also used by Khan (2007) and Rafiq, Iqbal, and Atiq (2008).

The first hypothesis is:

H₁: Leverage is positively related to size of the firms.

NDTS

Non Debt Tax Shield (NDTS) includes both depreciation and investment tax credits. Non-debt tax shields are effective with interest as it is helpful in the deduction of taxes. Firms with higher non-debt tax shields are expected to have lower leverage, as the tax benefits of leverage are relatively less valuable. Huang and Song (2002) found that Non-debt tax shields are highly negatively related with the total leverage.

NDTS substitutes the tax benefits to the firm so the firm with larger NDTS uses less debt this shows that there is a negative relationship between NDTS and leverage. This variable is measured by dividing the annual depreciation expense by total assets. This measure is also used by Khan (2007) and Rafiq, Iqbal, and Atiq (2008).

Second hypothesis is

H₂: Leverage is negatively related to Non-debt tax shield

Growth.

The ACT suggests that growth variable is negatively related with because companies which are in their growth stage have usually higher agency cost and they are more flexible in making their financing choices. Titman (1998) suggested that managers as an agent to share holders want to increase the shareholders' wealth. They accept risky projects in order to increase the return to shareholders and pay a high interest rate charged by creditors to these growing firms. Growing firms wants to minimize their overall cost. Therefore, they avoid debt financing. In addition they also have more risk of project failure, In order to avoid additional financial risk the growing firms use lower debt ratios. Qiu (2008) found that risky firms having better growth opportunities use less debt. According to Shah and Hijazi (2004) leverage and growth variable have a negative relationship because growing firms have more options to choose between safe and risky sources of finance. This view is supported by Bufena, Bangassa, and Hodgkinson (2005) and suggests that as growing firms are riskier, so they prefer to use less debt to finance their new investment.

The paper by Carl (1986) proposed positive relationship of growth with leverage which favors POT. The POT suggests that as the growth rate increases the need of funds also increases but as the internally generated funds are not sufficient to fulfill these needs, so they will use debt to generate funds.

Paper by Rafiq, Iqbal, and Atiq (2008) suggests that funds generated internally are not sufficient for the financing needs of the growing company, so they use debt, which favors the extended version of POT. Qiu (2008) also support a positive relation between growth and leverage. This study has used growth by taking the annual percentage change in the value of the total asset. This measure is also used by Khan (2007) and Rafiq, Iqbal, and Atiq (2008).

Therefore, third hypothesis is

H₃ : Leverage is positively related to the growth of the firm

Earning Volatility.

Earning volatility refers to the unstable earning of the firm. According to BCT more volatility in the firm's earning lead to a greater chance of its failure and increased weight of bankruptcy cost of the financing decision of the firm. ACT also suggests that increase income volatility increases agency cost, both theories suggest a negative relationship of earnings volatility with leverage. Paper by Shanmugasundaram (2009)

also suggests a negative relationship of earnings volatility with leverage that in case of MNC's risk is negatively related with leverage, which supports the TOT. The TOT suggests that risky firms use low level of debt capital Myers and Majluf (1984).

Earning volatility was measured by subtracting the annual value of net income before taxes from average value of net income before taxes and divided by the number of years. The same measure was also used by Khan (2007) and Rafiq, Iqbal, and Atiq (2008).

The forth hypothesis developed.

H₄ = Leverage negatively related to the Earning Volatility.

Profitability.

The firms which are more profitable have more capability of repaying debt and are able to pay regular installments of debt so debt holders consider them less risky. This suggests that more firms with higher profits have high leverage ratios. This view is not supported by The POT which suggests that there is negative relationship between leverage and profitability because as the profitable firms have enough funds to meet their financing needs, so they prefer to use internal fund rather than taking debt.

According to POT Firms with higher profitability use their internal funds to fulfill their financing needs, and rely less on debt financing Titman & Wessels (1988) and Carl (1986) also show the negative relation between the leverage ratio and profitability of the firm.

Yitman (1998) suggests that less debt is being utilized by more profitable firms which supports POT. The paper Huang and Song (2002) worked on Chinese listed companies suggests that leverage in Chinese firm's decreases with profitability. Twite (2001) suggests that the capital structure decisions in Australian firms are mostly dominated by signaling theory so profitable firms should follow POT. Cassar & Holmes (2003) suggests that larger and fast growing companies use more debt but firms which are profitable but having less tangible assets use less debt.

In the Pakistani context Khan (2007) found a negative relationship of Profitability with Leverage and favor the POT. According to them most of the businesses in Pakistan are family controlled and there are few controlling share holders who take profits out of the company other than dividends. They also understate the profits to save taxes. The Profitability is measured by dividing the annual amount of net income before taxes with total assets. This measure is also used by Khan (2007) and Rafiq, Iqbal, and Atiq (2008). The fifth hypothesis developed is:

H₅= Leverage is negatively related to profitability

Tangibility of Assets/ Fixed Assets.

This variable represents the amount of fixed assets owned by an organization. Firms which have a large amount of fixed asset can use more debt because they have the large amount of fixed asset to be used as collateral. They can also get debt at low interest rates; this implies that companies which have more fixed asset have higher leverage ratios. According to Ilyas (2008) Tangibility is positively related to the debt ratio because the companies which have higher numbers of fixed assets can get loans by using them as collateral. Shanmugasundaram (2009) suggests that a higher proportion of fixed assets to the total asset leads to a higher ratio of debt to equity and also a higher growth in the industry.

Shah and Hijazi (2004). suggest that increase in the tangible asset of the firm increases the leverage ratio of the firm which favors the prediction of TO T because fixed assets helps companies to obtain loan or debts as it will ensure an uninterrupted stream of payment except in the case of bankruptcy. Qiu (2008) also find that larger firms with more tangible assets have higher leverage ratios.

This study has used amount of total gross fixed asset divided by total assets to measure the tangibility variable. Khan (2007) have used net amount of fixed assets but this study used gross amount because different methods of depreciation are used by companies which create unevenness in the data. This measure is also used by Rafiq, Iqbal & Atiq (2008) and Teker, Tasseven (2009). The sixth hypothesis is:

H₆: Leverage is positively related to tangibility.

Data

The study is based on the data taken from the State Bank of Pakistan Publication “Balance Sheet Analysis 2001-2006” State bank of Pakistan (2006). Companies from textile, chemical and fuel and energy were selected for analysis. There are almost 181 companies in the Textile sector and other textile sectors, from which 163 were selected, from Chemical sector 31 out of 34 companies were selected and from Fuel and Energy 22 out of 28 companies were selected firms having incomplete data and zero sales were dropped. The panel data was selected for analysis. The panel data studies the individual’s countries or firms over time, so there are lower chances of heteroskedasticity. It will combine the time series and cross sectional data, and therefore, it is more informative and has less variability and Co linearity.

Model Specification

The Fixed Effects Model.

The study had used Fixed Effect Model for the analysis in order to select between Random Effect Model and Fixed Effect Model Hausman’s specification test was used and Fixed Effect Model was preferred. The other justification for using a fixed effect model is the lower values of Akaike information criterion (AIC), Schwarz Bayesian criterion (SBC) and Hannan-Quinn criterion (HQC). By including fixed effect the average differences across variables were controlled in any observable or unobservable predictors. The Fixed Effect Model greatly reduced the threat of omitted variable bias.

The fixed effect model developed was:

$$Y_{it} = X_{it} \beta_1 \dots + \alpha_i + \epsilon_{it}$$

The variables were represented as follows:

Y= leverage

X_{it} = Represents Independent Variable

B₁ =Size

B₂ =Growth

B₃ = Profitability

B₄ = Earning Volatility

B₅ =NDTS

B₆ =Tangibility

α_i = fixed parameters (including a dummy variable for each cross-sectional unit) where i = (1.....n) n is the entity specific intercept.

ε_{it} = an observation -specific error where i = entity and t = time

Regression Results

Table -1				
Fixed effect model regression results : Textile, Chemical Fuel & Energy Sectors				
Variable	β	S _e	t	p
Size	-1.18002	4.01014	-0.2943	0.76862
Growth	-0.0001114	0.0015835	-0.0704	0.94393
Profitability	-6.72395	5.18892	-1.2958	0.19532
Earning volatility	-0.0143153	0.011815	-1.2117	0.22591
NDTS	6.34667	7.90612	0.8028	0.42230
Tangibility	39.1133	3.38629	11.5505	<0.00001
Adjusted R ² = 0.409684				
F-statistic (221, 1055) = 5.00702 (p-value < 0.00001				
Durbin-Watson statistic = 2.07292				

Table-1 shows the regression results of Textile, Chemical and Fuel and Energy sectors. According to the table, the Adjusted R square is 0.40 which shows that almost 40 % variations in these sectors are due to these six explanatory variables. The coefficient for Size variable is -1.18002 and shows a negative relationship between size and leverage. The coefficient for Earning Volatility is -0.0143153 which shows that there is a negative relationship between Earning Volatility and Leverage. The coefficient for growth variable is -0.0001114 and shows a negative relationship with leverage of the firm. The coefficient for Tangibility variable is 39.1133 and shows a positive relationship with Leverage. The coefficient for NDTs variable is 6.34667 and shows a positive relationship with the Leverage. The coefficient for Profitability variable is -6.72395 and shows a negative relationship with leverage. The overall model is statistically significant. T-statistics show that only tangibility variable is statistically significant at 5% significance level. The DW statistics show that problem of Auto Correlation does not present in the data.

Table-2
Correlation between independent variables (Textile, Chemical and Fuel & Energy sectors)

Profitability	Growth	Earning volatility	Size	Tangibility	NDTS	
1.0000	-0.0105	-0.0176	-0.0293	-0.0334	-0.0044	Profitability
	1.0000	0.0192	0.0093	-0.0148	-0.0020	Growth
		1.0000	-0.0657	0.0134	0.0058	Earning volatility
			1.0000	-0.2776	-0.0457	Size
				1.0000	0.0729	Tangibility
					1.0000	NDTS

The Table-2 represents the correlation matrix of explanatory variables which shows that the problem of Multicollinearity is not present in the data.

Table- 3
Mean values of variables in Textile, Chemical and Fuel and Energy sector

	Textile	Chemical	Fuel and Energy
Size	1.36486	6.56	2.47
Growth	57.37	19.74	13.53
Profitability	0.00685	3.098	0.1178
NDTS	0.8164	0.03939	0.0373
Earning volatility	24.8426	147.25	461.11
Leverage	0.65	0.5923	0.56
Tangibility	0.86	0.775	0.84

Table-3 shows the average values of all variable according to which Textile sector has highest leverage ratio of 0.65 against the mean average of 0.57 for both Chemical and Fuel and Energy sector. The average tangibility ratio is also highest for Textile sector which suggest that textile sector is highly capital incentive and to fulfill its financing needs textile sector utilizes its fixed assets to acquire loans by providing them as collateral. The average profitability ratio is the lowest in the textile sector which is due to higher leverage ratio in his sector. Earning volatility is highest for the Fuel and Energy sector.

Discussions of Results

There is a negative relationship between Growth and Leverage in Textile, Chemical and Fuel & Energy sectors, which contradicts POT, which suggests that internally generated funds are not sufficient for the firms to meet their growing need, so they will use more debt. This result is consistent with Rajan and Zingales (1995) and also Shah and Hijazi (2004). This result contradicts Rafiq, Iqbal & Atiq (2008) and Khan (2007). This suggests that growing firms in these sectors prefer to use internally generated funds, which also support the earlier version of POT. The coefficient for the Growth variable with P value 0.9439

is insignificant. Therefore, the hypothesis of the positive relationship of Growth with Leverage cannot be rejected.

NDTS is positively related with leverage which is consistent with the results of Rafiq, Iqbal, and Atiq (2008). The positive relationship also supports Rajan and Zingales (1995). The co-efficient of NDTS variable with P value 0.42230 is not significant in these sectors. Therefore, hypothesis of negative relationship of NDTS with Leverage cannot be rejected. The reason behind this insignificance might be the flat taxation system of Pakistan. In the Pakistan corporate tax rate are not applicable on the different level of incomes, there are three straight rates; one to Public Limited companies the second to Commercial organization in Government ownership and third to the organization in the Financial sector, therefore, firms in these do not consider depreciation and investment tax credits while making leverage related decisions.

Tangibility is positively related with leverage, which is also found by Rafiq, Iqbal & Atiq (2008) and Shah and Hijazi (2004) but their results were not significant but in this study, there is a positive relationship between Tangibility and Leverage and the results with P value 0.0001 are also significant. This suggests that firms in these sectors of Pakistan having a large amount of fixed asset use more debt. This also supports the TOT. The hypothesis of positive relationship of Tangibility with Leverage is accepted.

There is a negative relationship between Profitability and leverage which supports the results of Rafiq, Iqbal & Atiq (2008), Shah & Hijazi (2004) and Khan (2007). The results confirms the POT and suggest that firms which are more profitable use less debt, this finding also supports TOT which states that profitable firms use more debt in order to avoid tax liability. The profitability variable with P value 0.19532 is insignificant which suggests that firms in these sectors do not consider profitability and making leverage related decisions, so the hypothesis of negative relationship of Profitability with Leverage is not accepted.

There is a positive relationship between Size and leverage, which confirms the results of Bufena, Bangassa, & Hodgkinson (2005), Shah & Hijazi (2004), Rafiq, Iqbal & Atiq (2008) and Rajan & Zingales (1995). The coefficient of this variable with P value 0.76862 is insignificant so the hypothesis of positive relationship of Size with Leverage cannot be accepted. This shows that in the Textile sector the companies do not consider their size in making capital structure decisions; the reason might be that in Pakistan court processes are slow and firms are not afraid of bankruptcy. The insignificance of size variable is in line with results of Khan (2007).

Earning volatility is negatively correlated with leverage which favors the ACT, BCT and TOT. The coefficient for Earning Volatility with P value 0.22591 is not statistically significant. Therefore the hypothesis of negative relationship of Earning Volatility with leverage cannot be accepted which suggest that firms in sectors do not consider their earning volatility while making leverage related decisions. The insignificance of earning volatility was also found by Khan (2007). This result is not in line with the results of Qiu (2008) which suggest that firms having more Earning Volatility use more debt.

Conclusions

The study has used data from KSE. Using panel data analysis, this study attempts to find the determinants of capital structure three sectors of the economy namely Textile sector, Fuel and Energy sector and Chemical sector for the period 2001-2006. By using the Fixed Effect Model the study has selected six independent variables in order to see their effect on the leverage ratio. The six independent variables were Growth, Tangibility, Profitability, Size, and NDTS and Earning volatility.

In all the three sectors there is a positive relationship between Tangibility with leverage which suggests that Pakistani firms who have more fixed assets use fixed asset as collateral to generate funds, and creditors also issue funds on the basis of fixed assets provided as collateral for obtaining funds, this result confirms the TOT.

The positive relationship of NDTS with leverage in all the three sectors confirms the result of Rajan & Zingales (1995). This shows that in Pakistan NDTS does not substitute the tax benefits of debt financing. The reason is the corporate tax system of Pakistan which does not vary with the level of income. In all the three sectors Growth shows a positive relationship which contradicts the extended version of POT which suggests that firms in these sectors use less debt when they have more growth opportunities and funds

generated internally are enough to meet their growing needs. The insignificance of Growth shows that growing opportunities does not influence decisions of leverage in Pakistani firms.

There is a negative but insignificant relationship between Earning volatility and leverage, this suggests that in these sectors leverage decisions are not influenced by income variations of the firm. Profitability is negatively correlated with leverage but the results are insignificant, which contradicts the POT which suggests that firms which are more profitable use less debt and does not support TOT which states that companies which are more profitable use more debt in order to avoid tax liability. The size variable is not significant, which suggest that firms in Pakistan are not very afraid of bankruptcy because of the prolonged court process in Pakistan, therefore, they use more debt regardless of their Size and also survive even with negative equity figures.

The results of the study provide a better understanding of financing patterns in different industries of Pakistan. Further research can be done by including more variable such as the dividend payout ratio, age of the company, etc. The results can also be updated by including latest data.

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