DETERMINANTS OF CAPITAL STRUCTURE OF PAKISTANI LISTED COMPANIES: THEORY VS. PRACTICE

Muhammad Ahsan Iqbal[1] and Shamila Nabi Khan[2]

Abstract

Capital structure is a major element for any company as it has an important role in capital budgeting decisions, firms valuation and corporate profit. Pakistan has multiple national as well as multinational companies working at its full pace. This study was aimed to explore the determinants of capital structure using firm level data of multiple companies operating in Pakistan. Fifty companies including national and multinational companies were selected from Pakistan region. Different variables were tested with capital structure. These variables included tax implications, asset tangibility, operating and profitability performance, cost of capital and firm size. The results of this study showed that multiple companies' wishes to enhance firm value for which they tend to preserve financing hierarchy. Pecking order strategy is followed instead of target capital strategy so that control dilution is avoided. Variables directly related to leverage includes profitability and debt and equity cost. However, size of the firm, tax, operating performance and asset tangibility were found to be inversely related. Study revealed that size of the company and asset tangibility is negatively and significantly related to firm's gearing although theories of capital structure suggested it to be positively related. Major impact was noted on capital structure by all the variables included in this research.

Keywords: Debt, Equity, Capital Structure, Financing Hierarchy.

JEL Classification: Z000

Introduction

Capital structure has a major role in a firm as any change in this impacts firm's value. Investors can get significant data from the changes in equity and debt. However, the question still arises regarding choice of firm on equity and debt. Capital structure'sdifferent approaches were selected and analysed in this study. Pecking order theory and static trade – off theory of capital structure was selected and explored.

[1] Senior Software Engineer, Maqta Gateway, Abu Dhabi Ports, Abu Dhabi, United Arab Amirates.
Email: ahsan.iqbal@hotmail.com
[2] Ph.D, Assistant Professor, Lahore School of Economics, Barki Road Campus, Lahore, Pakistan.
Email: nnks113@gmail.com

According to Antoniou et al. (2008) in the static trade – off approach, a company sets a target "debt to equity ratio" and then achieve it gradually. This shows that firm value can be increased by the presence of capital structure that is adequately optimized while reducing outside claims to cash flow stream including bankruptcy cost, taxes as well as agency cost.

In pecking-order theory, debt is favoured over equity and internal to external finances if the firm has to issue securities or bonds. The firm that adopts this type of approach does not follow any specific capital structure. Pecking order is best explained in a way that it is experimented under high taxes, agency costs and transaction costs. Moreover, in this approach, there is more information with the people working inside firm than people outside firm (Shyam-Sunder & Myers, 1999). Managers generally prefer to use pecking order to generate funds so that they do not have to face any under pricing issues.

This research explores financing behaviour of different national and multinational companies in Pakistan that whether they follow static trade-off or pecking order theory framework.Another observation has been made that majority of the smaller firms avoids targeted capital structure.This study explores principles and factors that affect financial decisions in a firm. This will also help in testing differences in financial inclinations among firms, if any. For this exploration, target capital structure and financing hierarchy were chosen.

Capital Structure Theories

Modigliani and Miller (MM) (1958) provided the base for analyzing financial structure effects on the value of firms in equilibrium. They mentioned that the choice between debt and equity financing has no substantial effect on the cost or availability of capital. According to Kim (1978), MM and work of some other authors show that firms increase the use of debt financing if they get reasonable economic benefit by a proportional corporate income tax. The key missing element can be represented by bankruptcy costs as considering these costs in MM's work may back-up the notion of optimal capital structure (Hirshleifer, 1970; Robicheck & Myers, 1966).

The MM capital structure irrelevance proposition does not incorporate any bankruptcy costs and taxes as they assume perfect and frictionless capital markets (Carpenter & Petersen, 2002). In this simplistic scenario, changes in the capital structure of the company do not affect weighted average cost of capital (WACC) and it remains constant.Moreover, as the increase in debt becomes irrelevant, company stock price is not affected by the capital structure and hence capital structure becomes extraneous to valuation of the company from investor's view point.

Static Trade-off Model

Firms set a target debt-to-equity ratio which enhances value of the company to the highest level possible. It does so by reducing overheads of existing market deficiencies including taxes, agency and

bankruptcy costs.This approach present different models that help in stabilizing disadvantages of cost of bankruptcy against tax advantages of debt. Both debt and equity are issued to increase firm value when total agency cost and total external equity is decreased (Jensen & Meckling, 1976).

As per static trade – off theory, book value debt ratios are positively related to return on assets before taxes and interest. It can be assumed that when a firm is in more profit, more income it must have so that bankruptcy is avoided and eventually it can have high leverage ratio. However, the analysis of the industry shows that highly cost effective companies does not make use of leverage although they make huge profits.

Pecking Order Theories

According to this approach, internal financing is given first priority. Outside debt comes on second while equity comes as the last priority. Preference of debt over equity gives the tax advantage of debt to the firm. Firms usually avoid outside fund sources. It is because, this external debt increases unnecessary checking. Moreover, external equity also increases control dilution as well as unwanted screening. However, if the funds are generated internally, these problems are not encountered.

According to Krasker (1986) financier faces worst signal by bugger stock issue and therefore, the company faces decline in the stock price. Miller and Rock (1985) mentioned that internal funding dominates over external funding however if we see as a whole, it is a static trade-off model rather than the pecking order.

Method

Sampling and Collection of Data

Different companies mentioned on Karachi Stock Exchange (KSE) were selected and their financial statements were explored. Annual financial reports were utilized for the collection of financial data. The sampling and collection of data in this study followed the format used in the study presented by Chen (2004) and Kjellman and Hansen (1995).

50 companies were selected for this study. These companies were listed on KSE and had highest market capitalization. Major industrial force was represented by the selected companies; it was assumed that it may be helpful in the assessment of overall leverage in the country.

Companies including banks, investment trusts and insurance companies were not included in this study. It is due to the remarkable differences between the balance sheets of financial versus non - financial companies.

Variables Included in the Study

Variables selected for this study were all quantifiable. Variables including asset tangibility, profitability, operating performance and size of the company vary from firm to firm. Financial reports of different companies were used to collect data which was then measured on a specific scale.

Market data was used for variables like cost of equity & debt, and tax rate. Wide range of variables was selected from the literature as it aids in the identification of similarities and differences while analyzing different capital structure determinants (Chen, 2004). Table 1 shows dependent and independent variables.

Table 1
Independent and dependent variables' measurement

Variables	Measurement
Dependent Variable	
Capital structure (CS)	Ratio of debt to equity (leverage ratio)
Independent Variables	
Firm size (SIZE)	Total assets (debt + equity)
Cost of debt (COD)	Interest rate
Cost of equity (COE)	Dividend yield ratio **Formula:** Annual dividends per share/price per share
Taxes (TAX)	Average tax rate Formula: Total tax liability/taxable income
Asset tangibility (TANG)	Ratio of tangible to total assets **Formula:** (total assets - total liabilities - intangible assets – preferred shares)/total assets
Operating performance (FAT)	Fixed asset turnover ratio (revenue/fixed assets)
Profitability (PROF)	Return on capital employed (ROCE) ratio **Formula:** EBIT/capital employed

Model of Research

This research utilized cross-sectional model of data collection. The sample consisted of data from different companies over a specific time period (Chen, 2004). Quantitative research method is adopted for this study. Financial data of the selected companies were observed and evaluated quantitatively. Collected data was then evaluated using AMOS (Analysis of Moment Structures) and SPSS (Statistical Package for Social Sciences) (Khan & Zafar, 2013).Variables was analyzed using ANOVA, regression and Pearson's correlation.

Analysis of Data

Relationship between independent as well as dependent variables was analyzed using multiple linear regression model (Khan & Zafar, 2013).Standard 5% critical level is considered significant for this model (Kjellman & Hansen, 1995).

Regression Equation

$$\text{Leverage} = \alpha + \beta 1\ (\text{Firm\_Size}) + \beta 2\ (\text{Debt\_Cost}) + \beta 3\ (\text{Equity\_Cost}) + \beta 4\ (\text{Taxes}) + \beta 5\ (\text{Asset\_Tangibility}) + \beta 6\ (\text{Operating\_Performance}) + \beta 7\ (\text{Profitability}) + \varepsilon$$

Results and Discussion

Table 2, table 3 and table 4 shows findings of this study. The results showed that dependent variable in capital structure have R-square of 45.9%. This is the level of variance that is in relation with seven independent variables.

Results from ANOVA showed zero percent insignificance between independent and dependent variables. This result showed that the hypothesis can be tested at p-value of <0.01. Means were also calculated for the selected companies. Scores of 3 to 1 for rank 1 to 3 were assigned. Preference for financial hierarchy in generating new funds was indicated by these rankings. Correlation coefficients revealed that every independent variable contributes significant variation in the capital structure either directly or inversely. Means were also claculated for the seleted companies. Scores of 3 to 1 for rank 1 to 3 were assigned. Preference for financial hierarchy in generating new funds was indicated by these rankings.

.

Capital structure's dependent variable's descriptive analysis revealed that majority of the companies prefers internal financing over debt and also they prefer debt over external equity. Results also revealed that US practices are being followed by Pakistani banks, companies and also by government. Banks do not have significant influence in Pakistan and companies opt to raise funds

internally before selecting the option of external loans. This is in parallel to Pecking order theory. On the contrary, there is an inverse relation of average tax rate with leverage ratio. This also validatesthat companies are not following target capital strategy presented in static trade-off model. Rather, firms are trying to avoid the risk in business which increases with increased gearing.

Table 2:
Summary

Model.	R	R Square	Adjusted R Square	Std. Error of the Estimate
1.	0.677(a)	0.459	0.368	1.226

Table 3:
ANOVA

Model		Sum of Squares	Df	Mean Square	F-value	Sig.
1	Regression	53.470	7	7.639	5.084	0.000
	Residual	63.110	42	1.503		
	Total	116.580	49			

Table 4:
Preference rankings of financing sources among Pakistani firms

Financing Source	Mean
Internal funds	2.63
Debt	1.98
Equity	0.55

Path Analysis

No latent variables are used in this study. Variables are observed in relation between dependent and independent variables. This study did not consider correlations among independent variables. However, this study maintained focus on relation between dependent and independent variable.

Estimates

Beta values of this research are shown in table 5. Capital structure and firm size are inversely related. It is best explained as if size of firm goes up by one standard deviation, ratio of debt to equity decreases by 0.159 standarddeviation. Conversely, capital structure and debtcost are directly related. Independent variables are shown with their relationship strength and direction.

Table 5:
Standardized Regression Weights

Dependent Variable	Independent Variable	Estimate
CapitalStructure	<--- FirmSize	-0.159
CapitalStructure	<---CostOfDebt	0.048
CapitalStructure	<--- Tax	-0.281
CapitalStructure	<--- OperatingPerformance	-0.113
CapitalStructure	<---Profitability	0.079
CapitalStructure	<---CostOfEquity	0.051
CapitalStructure	<---AssetTangibility	-0.569

Table 6 presents independent variables' estimates of mean, standard error, and critical ratios. P-value is less than 0.001.

Table 6:
Mean Values

Independent Variables	Estimate	S.E.	C.R.	P
Firm Size	1.940	0.170	11.411	***
Cost Of Debt	2.760	0.173	15.976	***
Cost Of Equity	1.660	0.145	11.481	***
Tax	2.400	0.164	14.623	***
Asset Tangibility	3.080	0.219	14.053	***
Operating Performance	2.500	0.188	13.305	***
Profitability	2.680	0.190	14.071	***

Findings of the Study

Firm size (total assets) of majority of selected firms was between 20 billion to 50 billion rupees. Only 18% of sample has more than 100 billion rupees worth of total assets.

Most of the selected companies in this study had interest rate between 9-10%. Less than 9% interest was shown by 14% of the selected firms while more than 14% interest was shown by 12% of selected firms. Less than 5% equity cost was shown by most of the selected firms. More than 13% of dividend yield ratio was shown by only two percent of the selected firms.

Majority of the firms were paying tax at an average rate of 31-35%. However, less than 20% rate was paid by 30% of the selected firms. Moreover, more than 60% tangible to total asset ratio was noted of a majority of firms. However, other firms showed this ratio to be less than 30-50%.Some of the companies also showed fixed asset turnover rate to be less than one percent. Capital return was found to be between 10-20% for 34% of the selected companies while others (16%) were generating more than 40% of capital return. Significant debt was noted in comparison to equity for most of the companies when “debt to equity” ratio was evaluated. This revealed that most of the Pakistani companies are following financing hierarchy.

Discussion

This research revealed that profitability and capital cost have a direct relation with capital structure.

Moreover, operating performance and asset tangibility was inversely related to capital structure. The study revealed that no specific theory of capital structure is followed by companies operating in Pakistan. However, majority of the firms showed preference towards financing hierarchy mentioned in "Pecking order theory".

Findings in Accordance with the Theories

Our research showed that equity and cost of debt are significantly and directly related to capital structure. This is also in parallel to the theories of capital structure. These theories mention that advantage from continuous increase in debt actually decreases with debt increase. However, there is also a slight increase in the cost. Hence, a company that is opting for such kind of strategy would emphasize on this trade-off when deciding about equity and debt level to be used so that the funds are generated (Hsu & Hsu, 2011).

According to the results, leverage and profitability were positively related. High profitability is generally related with a low level of leverage but it is also related to increased chances of taking debt in comparison to taking equity which is in alignment with dynamic trade-off models (Leland, 1994).

Debt and operating performance were found to be inversely related. This is in parallel to the theories present. According to Fama and French (2002) negative effect of productivity on debt is in parallel to pecking-order theory. Findings of this research revealed that majority of the selected companies prefer financing hierarchy.

Debt and taxes are found to be inversely related. This is also in parallel to the given theories. According Titman and Wessels (1988) in capital structure theory there are substitutes of debt financing with tax advantages.Consequently, the firms have less debt where non-debt tax shieldsarehuge in comparison to their expected flow of cash.

Findings Inconsistent with the Theories

In this study, size of the company was negatively affecting gearing. However, according to Harris and Raviv (1991) firm size, investment prospects and asset tangibility are directly related to debt and negatively related to firm distinctiveness, R&D expense, advertising expense, non-debt tax shields and risk ofbankruptcy.

In this study, leverage was inverselyrelated to asset tangibility while theory mentions that more debt can be gained by presenting solid property of the firm as a guarantee (Titman & Wessels, 1988).

Managerial Implications

Capital structure effective utilization is a key to the success of the organization. Companies

should maintain their focus in keeping the capital cost as low as possible. Moreover, companies should analyze all the available possible ways to generate required capital when they are starting a new project. Every country has some differentiating factors in their business culture, banks influence in the market, investor preferences, behaviour and attitude of human resource, industry standards, government policies and regulations and the demographics. It is the responsibility of the managers to consider all the factors when they tend to raise capital for any of their projects. These factors are termed as "capital structuredeterminants". These include asset tangibility, size of company, profitability and performance of other companies in same industry, debt and equity cost and interest and tax implications of the country.

Managers usually follow certain theories regarding capital structure when making decisions in raising equity or debt. Researchers have included different countries in their research including China, USA, South Korea and Finland. These studies evaluated the patterns that their managers follow in the company.

Some developing countries have also conducted similar research. A study conducted in Ghana showed that financial decisions were affected by capital theories. The results in this research showed an inclination towards equity financing (Doku et al., 2011). Another study included the developing countries where they analyzed the determinants of decisions related to formulation of capital structure. The importance of firm level variables is confirmed in accordance with capital structure theories as per the drawn conclusions (Bas et al., 2009). Our study was hence conducted to explore capital structure determinants in Pakistani companies and to uncover the trend of managers in Pakistan in following theories of capital structure in making their choices regarding capital.

Results from our study may help managers in Pakistan to have a better understanding of practices of making decisions on capital structure. It will also help the managers to learn about the theories mostly prevailing in Pakistani market. Our study also introduced some new variables that will positively aid in analyzing new dimensions of capital structure while making important decisions. Moreover, this study may help the State Bank of Pakistan and also the government in forming regulations to assistcompanies according to their requirements of capital. Furthermore, theorists and educationists in Pakistanmay get help in understanding the practicality of already established theories as well as managers' attitude about these theories.

Future Research Recommendations

1. Determinants like operating performance and profitability and asset tangibility were not included in previous researches. These could be included in future research conducted in any other region of the world.
2. Our study, like other similar studies, excluded banks as well as financial institutions as their capital

structure is not the same as of general businesses. Research can be conducted on banks and financial companies to explore their capital structure and to uncover what theories these firms and banks usually follow.

3. Small Over the Counter listed Pakistani companies can also be selected for future researches. Also, this research was conducted on firms listed on KSE. Firms listed on Islamabad as well as Lahore Stock Exchange can also be selected for such research to gain a better understanding of the capital structure determinants of overall industry operating in Pakistan.

4. Asset tangibility and firm size showed results opposite unlike the ones present in given theories. These determinants can be explored in more detail so that the cause of this opposite and negative relationship to debt can be understood and discussed in detail in Pakistani firms.

Conclusions

Debt–to–equity ratio of most of the Pakistani companies is less than the standard ratio of 60:40. This shows that firms are not following target debt–to–equity ratio. Moreover, when the size of the company is huge, its leverage would be small. As the equity cost increases, firm raises more debt so that equity cost is reduced. Furthermore, when the debt cost increases, tax shield benefit also increases and consequently the firms increase their debt further. Firms prefer debt more over equity because when the profit increases, companies can comply with obligations of debt with more ease.

Average tax rate, asset tangibility and operating performance were found to be inversely related to gearing ratio. It is justified by the fact that revenue generation and operating performance was markedly improved when interest payments were reduced.

Also, it was found that Pakistani firms prefer non-debt tax shields more which hence decreases leverage and increases average tax rate. Surprisingly, firms that have more tangible assets issued lesser debt. The key reason behind this finding could be the preference of internal debt and avoidance of bankruptcy cost.

References

Antoniou, A.,Guney, Y.&Paudyal, K.(2008).The Determinants of Capital Structure: Capital Market Oriented versus Bank Oriented Institutions. *Journal of Financial and Quantitative Analysis,* 1-43.

Bas, T., Muradoglu, G., &Phylaktis, K. (2009). Determinants of Capital Structure in Emerging Markets. *In European Financial Management Symposium, First draft, Cass Business School,London, UK http://www. oppapers.com/essays/Determinants-Of-Capital-Structure-Ineveloping/545468.*

Carpenter, E., R. & Petersen, C., B.(2002).Capital Market Imperfections, High-Tech Investment, and New Equity Financing. *Working paper.*

Chen, J. J. (2004). Determinants of capital structure of Chinese-listed companies. J*ournal of Business research, 57*(12), 1341-1351.

Doku, J., N., Adjasi, C., K., D., Sarpong-Kumankuma, E. (2011). Financial Market Development and Capital Structure of Listed Firms – Empirical Evidence from Ghana. *Serbian Journal of Management,* 155-168.

Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *The review of financial studies, 15*(1), 1-33.

Harris, M. &Raviv, A. (1991).The theory of capital structure.*The Journal of Finance, 46*(1), 297-355

Hirshleifer, J. (1970). *Investment, interest, and capital.*

Hsu, K. & Hsu, C.(2011).Capital structure and financing decision – Evidence from the four Asian Tigers and Japan. *African Journal of Business Management, 5*(15), 6527-6540.

Jensen., C., M. &Meckling, H., W. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics,3,* 305-360.

Khan., S., N. &Zafar, S. (2013). Exploring the causes and consequences of job burnout in a developing country.*Journal of Basic and Applied Scientific Research, 3*(5), 212-227

Kim, E. H. (1978). A mean-variance theory of optimal capital structure and corporate debt capacity. *The Journal of Finance, 33*(1), 45-63.

Kjellman, A. &Hansen, S. (1995). Determinants of capital structure: Theory vs. Practice. *Scandinavian Journal of Management,* 11, 91-102

Krasker, W. S. (1986). Stock price movements in response to stock issues under asymmetric information. *The journal of Finance, 41*(1), 93-105.

Leland, H. E. (1994). Corporate debt value, bond covenants, and optimal capital structure. *The journal of finance, 49*(4), 1213-1252.

Miller, M. H., & Rock, K. (1985). Dividend policy under asymmetric information. *The Journal of finance, 40*(4), 1031-1051.

Modigliani, F.; Miller, M. (1958). "The Cost of Capital, Corporation Finance and the Theory of Investment". *American Economic Review. 48* (3): 261–297.

Robichek, A. A., & Myers, S. C. (1966). Problems in the theory of optimal capital structure. J*ournal of Financial and Quantitative Analysis, 1*(2), 1-35.

Shyam-Sunder., L. &Myers, C., S. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics, 51*, 219-244

Titman, S. &Wessels, R.(1988). The determinants of capital structure choice.*The Journal of Finance, 43*(1), 1-19