CAPITAL STRUCTURE THEORIES AND LEVERAGE BEHAVIOUR OF PAKISTANI FIRMS

Saqib Sharif[*]

Muhammad Nadeem Khan[†]

Abstract

This study examines the applicability of two competing capital structure theories; i.e., Pecking Order Theory (POT) and Trade-Off Theory (TOT). An extensive panel dataset of 293 non-financial firms listed on the Pakistan Stock Exchange (PSX) for the period 2001 to 2013 is analyzed in three phases. First, we check the leverage behavior of all listed non-financial firms of Pakistan. Second, we test the applicability of capital structure theories for manufacturing and non-manufacturing firms; and third, the data is segregated into large and small firms based on asset size. Two different models are applied to investigate the corporate leverage behavior. First model suggests negative relationship of profitability, size, and growth with the firm's leverage, which confirms that, on average, Pakistani firms follow pecking order theory (POT). In the second model leverage has positive and significant relationship with last year dividend, which shows firms with higher dividend payout ratios borrow more in subsequent year/(s). Overall, the financing behavior is in favor of POT for the non-financial Pakistani firms. Lastly, this study contributes to the existing literature by testing the applicability of two traditional theories on two major sectors, i.e., manufacturing and services sector; and also on small and large firms.

JEL Classification: G00, G30, G32

Keywords: Capital structure; corporate finance, pecking order theory; trade off theory; Pakistan stock exchange.

[*] Corresponding author at Institute of Business Administration (IBA) Karachi. Address: University Road, Main Campus, Karachi-75270. E-mail: ssharif@iba.edu.pk; Tel: *+92 21 3810 4700 (Ext: 2617).*

[†] Assistant Professor at Iqra University, Karachi. Address: Abid Town, Gulshan Campus-I, Karachi. E-mail: khan.n@iuk.edu.pk; Ph: *+92-333-363-5417*

1. Introduction

Financing decision involves the selection of the blend of liability and equity. The choice of the proportion of sources to finance the firms' investment decision is the capital structure or financing decision. Every firm desires the optimal capital structure or a mixture of debt, hybrid securities, and equity; where the cost of capital should be minimized. Modigliani and Miller (1958; 1963) provided the theory of capital structure, in which they suggested that the value of the firm is unaffected by capital structure. However, Modigliani and Miller (MM) theory was given under certain set of assumptions.

Many theories have been advocated by researchers related to financing decision of a business. Specifically, two theories have been discussed widely in the field of finance, one is the Pecking Order Theory (POT), and the other one is the Trade-Off Theory (TOT). POT was first coined in 1961 by Donaldson and it was popularized by Myers & Majluf (1984), in which the basic concept is that companies obtain finances from one of the available sources. POT focuses on the utilization of internal funds at first place for investment projects. In this hypothesis, businesses prefer that part of financing which can be made available with little effort, especially net profit available for distribution.

The Trade-Off Theory articulates that the company may choose between the debt and equity to keep the cost of capital at minimum. The theory states that debt is one of the cheapest forms of financing as compared to other sources, and at the same time risk is shared due to collateralized nature of funding, whereas equity holder's claim is residual. Preference of firms towards debt financing can be one of the main reasons to reduce the weighted average cost of capital. Therefore, the trade-off theory strikes a balance between cost of capital and the financial risk. The core objective of financial management is to maximize the value of the company. This objective can be achieved through the mix of debt and equity in such a way which ultimately enhances the shareholders' wealth. This mix of debt and equity is also called the optimal capital structure, at which the cost of capital should be the minimized that resultantly increases the stock price. Further, the two competing capital structure models have totally diverse set of arguments and envisage different corporate fund raising behavior of the firms, but it is challenging to adequately differentiate between the two (Fama & French, 2002). Serrasqueiro & Caetano (2015) suggest that both hypotheses are not mutually exclusive. Hence, there is a debate on the aforesaid

discussion, for example, does an ideal capital structure truly exists? However, this question is not the focus of this paper.

In 1980s, different analyses were conducted by researchers to test the capital structure theories by comparing and contrasting the variables, and most of the available evidence belongs to developed economies. A major shift is observed in recent years to test capital structure theories in the context of developing and emerging economies. Often, mixed or sometimes inconsistent results are documented for the different countries.

Many researchers, such as Frank and Goyal (2008), Psillaki and Daskalakis (2009), Serrasqueiro, Armada, and Nunes (2011) provide evidence in support of POT, that suggests that the source of finance selected by most of the firms is retained earnings, if retained earnings are not sufficient, then such firms may go for debt financing and as the last resort equity financing is used. There are number of arguments in relation to these two theories. Fama and French (2002) argued against the pecking order theory by saying that equity is issued by the growing companies most of the time. Köksal and Orman (2014) point out determinants of capital structure of Turkish non- financial firms. They used macroeconomic variable in the model to check the effect on capital structure and used inflation, GDP growth rate and capital inflows. Their results show GDP has positive relationship with leverage, whereas inflation and cash flows have no relationship with leverage. Staking and Babbel (1995) also test the relationship between leverage and interest rate sensitivity in property-liability insurance industry. Result shows that insurance industry manage macroeconomic factor with the leverage to maximize the value.

Qureshi (2009) investigated about pecking order theory which shows the firms' behavior towards leverage in Pakistan. Their research provides the empirical support to the pecking order theory in relation to the Pakistani companies. Qureshi (2009) only tested POT to describe the leverage behavior of Pakistani firms. Recently a paper by Qureshi, Sheikh and Khan (2015) have looked at both competing theories in case of Pakistan by taking extensive dataset from 1972 till 2010. They find a reasonable support for POT. However, as mentioned earlier, the distinctive feature of our study is that we have not only examined at two major sectors of economy, i.e., manufacturing and services sector; but also segregated the data based on size of assets to confirm how the financial decisions are impacted due to variation in the type and size of business.

The contribution of our study is many fold within the context of capital structure of non-financial firms listed in Pakistan Stock Exchange (PSX). First we check the financing behavior of all listed non-financial firms in Pakistan. Secondly, we carry out the investigation on manufacturing and non-manufacturing firms separately and check the validity of two capital structure models on those kind of firms. Finally, we divide our complete dataset into large and small size firms and tested the financing behavior of those firms based on size of assets. Large size firms' classification is on the basis of total book value of assets; the firms are sorted in descending order, top 25% firms in the sample are categorized as large firms. Whereas, bottom 25% firms are categorized as small-size firms based on total book value of assets. The idea behind slicing and dicing our dataset is to confirm how firms' financing behavior is influenced by certain distinguishing characteristics.

Based on the analysis of data, our first model finds negative relationship of profitability, size, and growth with the firm's leverage, which confirms that, on average, Pakistani listed firms follow pecking order theory. In the second model, leverage has positive and significant relationship with last year dividend; this finding suggest that external shareholders pressure the firm to pay dividends and firms have to fuel their future investment opportunities by raising funds from debt markets, consistent with Baskin (1989). Lending rate has a positive impact on leverage, whereas,inflation, and market capitalization to GDP have insignificant impact on firms' leverage. The influence of macro-economic variables on firm financing behavior is minimal; that also indicate that firms in Pakistan focus more on their target capital structures. Overall, the non-financial firms'financing behavior is in favor of Pecking Order Theory.

The rest of the paper is structured as follows: Section 2 reviews the theoretical background and empirical literature on the relationship among variables used in capital structure / financial decisions. Section 3 discusses the data and modeling framework; Section 4 shows estimations and results and Section 5 concludes the study and provides some policy implications.

2. Theoretical background and review of related literature

Modigliani and Miller (1958; 1963) provided the theory of capital structure, in which the value of the firm is unaffected by her capital structure. Assumptions of their approach are as follows: Corporate tax is not applicable; there is always 100% payout of dividend; transactions

costs are not involved; and there is fixed earnings in each time period. There are two propositions related to capital structure of MM approach without tax and with tax. The 1st proposition defines, by using the arbitrage process; shareholders reduce their risk by selling the overvalued shares and purchase the undervalued shares at the same time. Whereas, MM 2nd proposition specifies that financial leverage is irrelevant in the context of overall cost of capital. All these theories try to identify the relationship between cost of capital and leverage.

Prior literature has provided different results and corporate leverage behavior viz-a-viz the two theories. Empirical studies have provided very much conflicting results. Literature related to financing decision suggests negative impact of profitability and risk, whereas, firm size has a positive relationship with leverage. Köksal and Orman, (2014) compare the two capital structure theories in terms of firm specific, tax related and macroeconomic variables. Their findings confirm that firms follow TOT. Elsas, Flannery, and Garfinkel (2014) provide support for POT for large firms that issue debt and equity for raising capital. Sometimes, these financing decisions show the mangers' foresightedness towards the leverage behavior. Mateev, Poutziouris and Ivanov (2013) discuss the particular characteristics that affect the small and medium enterprises' capital structure. They conclude that the cash flow has a significant negative impact in the firms leverage not only for medium sized firms but also in the case of large and older firms.

Charalambakis and Psychoyios (2012) find out the firms' size, tangibility, profitability and growth have direct relationship with capital structure decisions. Charalambakis and Psychoyios (2012) is contributing the literature in dual aspect; first, large sample size of dataset has been used covering period between 1950–2002 and 1980–2002 for the UK and the US firms than that of Rajan and Zingales (1995) and secondly at the same time they used advanced econometric methods for analyses. Sbeti and Moosa (2012) discovered the determinants of capital structure in case of specific firms in tax free economic system. Existence of tax element in capital structure decision has significant impact, because payment of interest has tax advantage for the firm. Sbeti and Moosa (2012) study explored whether there would be an impact on capital structure decision in a tax free environment. In the absence of taxes, decision of capital structure financing may have different results. Support is provided for POT behavior as the profitability has negative relationship with the leverage and growth has positive impact on leverage.

Bartholdy, Mateus and Olson (2012) examine the Portuguese firms' financing behavior and used break point method among the variables. Portuguese firms often use the source of financing which have lower cost and then to higher cost capital. It is suggested that medium-sized Portuguese organizations may follow a loose pecking order built on cost of funding, but they also try to sustain some flexibility in terms of financing. Atiyet (2012) provided the alternative comparison of pecking order theory and static trade off theory of French firms. Shyam-Sunder and Myers (1999) focus on the term financing deficit and financial gap which is filled by issuance of new securities. Similarly, debt financing cost is less compared to equity financing. Financing pattern of French firms also favor the POT. Gonzalez and Gonzalez (2011) describe the leverage behavior of Spanish firms, and Noulas and Genimakis (2011) work on Greek registered firms' data and both countries leverage behavior support the POT.

Ahsan et al. (2016) examined the relationship of non-financial firms' capital structure of Pakistan at a firm, industry and country level. Data is obtained for 13,375 firm-level yearly observations from 1972 to 2010. Evidence suggests significant impact on leverage at firm level, as well as industry level. Firms use retained earnings for financing their capital intensive investment. However, Ahsan et al. (2016) results are mixed, that is the overall evidence neither support the POT nor the TOT. It is also documented that manufacturing firms of Pakistan monitor their capital structure on the basis of the industry in which they are operating. For example,Khan, Jan, and Khan (2015) discussed the capital structure behavior of cement sector of Pakistan by taking 20 firms from 2006-2011, following the model of Rajan and Zingales (1995). They find a negative relationship between the firm size and leverage which is against the trade-off theory. Similarly, Sheikh and Wang (2011) investigated the behavior of 160 manufacturing firms of Pakistan from 2003 to 2007. Debt ratio used as a measure of leverage by taking both short and long term debt. Findings extend negative relationship of profitability and liquidity with the debt ratio. This result is consistent with the pecking order theory. Lastly, Shah and Khan (2007) explored the capital structure decision of non-financial firms listed in the Karachi Stock Exchange (KSE) for the period of 1994 to 2002. Fixed effect model is employed to test the relationship of six independent variables (tangibility, earnings volatility, depreciation, growth, profitability and size) on leverage behavior. Results support both TOT, POT, and also agency theories.

Qureshi (2009) focusses on the selected manufacturing firms' leverage behavior in Pakistan; Tong and Green (2005) employed three equations model to test corporate leverage behavior in China. Results showed a negative relationship of leverage with different years' profitability and at the same time positive relationship with previous dividends. Their finding was in support of somewhat pecking order theory, which describes that choice of internal funds for investment projects is the better option.

Tong and Green (2005) describes three different models approach following Baskin (1989) and Adedeji (1998) to predict about the two capital structure theories. Results show some main findings related to capital structure theories. First, profitability and leverage has significant but negative relationship; second past dividend and leverage has significant and positive relationship, third, there is an insignificant and negative relationship between the past dividend and asset growth model. Demirgüç-Kunt and Maksimovic (1996) also discussed relationship between the financial markets and financial choice and pointed out that the stock market is the key indicator of overall development of any country. They focus on market capitalization and GDP to measure the financial development of a country. Results show a significant negative relationship between the GDP and stock market development. Findings suggest that only large firms' financial policies may be affected due to development of stock market. Whereas, small firms might not have direct link with the stock market development. The next section describes the data characteristics and methodology adopted in this study.

3. Data and Methodology

This study examines the validity of two competing capital structure theories on leverage behavior of Pakistan's listed firms. Annual data of 293 non-financial firms listed on the PSX during the period from 2001 to 2013 is obtained from the website of PSX to investigate the relationship. We exclude the financial sector firms, since such firms are heavily regulated. Quantitative research approach is used to accomplish the objective of this study. Correlational research design has been used to find the relationship between the dependent variable and explanatory variables. This study uses two-model framework following the methodology of Tong and Green (2005) to test the applicability of capital structure theories on financial decisions of Pakistani firms. The supposed

relationship of explanatory variables with dependent variable under two capital structure models is shown in the Table 1.

<< TABLE 1 HERE >>

3.1. Modeling Framework

Fama and French (2002) point out the common variables that can be used in both pecking order and trade off theories to establish the leverage behavior of the firm. On the other hand, Tong and Green (2005) in their first model, establish the relationship of leverage with profitability, size and growth of the organization. There is a positive relationship between the profitability and leverage due to tax advantage, whereas agency cost and bankruptcy costs also indicate tendency towards more debt financing. Increased profitability encourages debt financing by providing tax shield. A large number of papers have suggested that firm size is positively related to the leverage ratio. The rationale underlying this belief is the evidence provided by Elsas, Flannery, and Garfinkel (2014); Charalambakis and Psychoyios (2012); and Gruber and Warner (1977) that the relevance of direct bankruptcy costs decreases as firm value increases. There is a negative relationship between growth and leverage due to the conflict of interest between debt and equity holders (Myers 1977; Sbeti, & Moosa, 2012). Prasad, Green, and Murinde (2001) controlled for growth rate of the invested capital (as a proxy of conflict of interest) to examine the relationship on leverage. Similarly, Baskin (1989) finds negative relationship between growth and leverage, consistent with Trade-off Theory (TOT).

Thus model 1 tests the TOT as compared to POT as follows:

$$LEV_{t,j} = \alpha + \beta_1 ROA_{t,j} + \beta_2 ROA_{t-1,j} + \beta_3 SIZE_{t-1,j} + \beta 4 GR_{t,j} + \beta_5 LR_t + \beta_6 INF_t + \beta_7 MCAP\_GDP_t + \varepsilon_j \quad (1)$$

Where:

LEV = Leverage of firm *j* at the end of year *t*

ROA = Profitability of the firm *j* in year *t* and *t-1*

SIZE = Size of the firm *j* at the end of year *t-1*

GR = Growth rate of the firm *j* during the year *t*

LR = Lending Rate in year *t*

INF = Inflation in year *t*

MCAP_GDP = Ratio of Market Capitalization to GDP in year *t*

POT is related with internal sources of financing (or retained earnings) which has direct effect on the dividend payment behavior of the firms. Lintner (1956) envisages some arguments to forecast the effect of dividend on leverage. Linter discussed that most of the time firms' payout depends on level of earnings in the long run, whereas in short run payout should be smooth from one year to another year. Consequently, increasing trend in past years' dividend will lead to finance the profitable projects with the external sources. Thus, Baskin (1989) support the Lintner (1956) argument and conclude that past year dividends have significant impact on leverage.

Hence, equation 2 is formed by adding the lagged dividend rate DIV_{t-1}:

$$LEV_{t,j} = \alpha + \beta_1 ROA_{t,j} + \beta_2 ROA_{t-1,j} + \beta_3 SIZE_{t-1,j} + \beta 4 GR_{t,j} + \beta_5 DIV_{t-1,j} + \beta_6 LR_t + \beta_7 INF_t + \beta_8 MCAP\_GDP_t + \varepsilon_j \quad (2)$$

The definition of all the variables is provided at Appendix – I. Moreover, in the above equation lagged ROA and size are included to control for factors that might affect the financial decisions of firms.

<< APPENDIX 1 HERE >>

4. Data Analysis and Results

This section provides the analysis of data that were gathered from secondary sources. The data for this study is obtained from financial statements of 293 companies listed in Stock Exchange of Pakistan. Data analysis section is divided in two parts, in first part descriptive analysis provides a snap shot of all companies analyzed for the period from year 2001 to 2013. In later part, complete exploratory research is conducted by using the panel regression techniques to verify the applicability of two competing capital structure theories.

4.1 Parameter Estimation

Table 2 provides descriptive statistics of the variables for Pakistani listed firms. All the variables are reported with respect to their mean, median, maximum, and minimum values. The median leverage rate is 0.736 or 73.6% during our sample period. The higher median value comes because we have divided total liabilities (less taxes) with total assets to arrive at leverage variable.

<<TABLE 2 HERE>>

Table 3 describes the correlation among variables used in the regression analyses. It measures the relative co-movement among the variables. Results indicate that, correlation among the variables is very low. Hence the problem of multicollinearity does not exist.

<<TABLE 3 HERE>>

In this study, we try to identify whether financing behavior of the Pakistani firms supports POT or TOT. Two different regression techniques are used to check the applicability of these two theories. First technique use the panel regression with industry fixed effects for controlling each industry leverage ratio within the sample firms. Second technique is the heteroskedasticity and autocorrelation (HAC) consistent standard error regression which identifies that each firm is different from another firm.

Table 4 shows the results of model 1 and 2 for the whole data set of 293 companies listed on PSX during the period of 2001-2013. *ROA* has negative and significant relationship with leverage, similarly *lag ROA* has also the same results. Whereas firm *SIZE* has negative but significant relationship with the leverage. The evidence suggests that on average firms utilize their retained earnings or internal funds to invest in the positive NPV projects, which ultimately reduces the level of debt financing. This phenomenon confirms the pecking order theory, which specifies retention of profit and use it as the source of financing for future investments. Growth (*GR*) also have significant and negative association, which again strongly supporting the POT. Overall, the results are consistent with broad literature. Further, macroeconomic variables, on average, do not significantly influence the leverage behavior of Pakistani firms except lending rate. This result might indicate that even if the borrowing cost is high, then also firms prefer debt financing because of the tax shield benefit (i.e., debt facilitates firms to reduce their tax liability). The other interpretation of this result could be that, on average, listed firms in Pakistan focus more on their target capital structure to optimize the cost of doing business.

<<TABLE 4 HERE>>

Table 5 shows the results of model 1 for manufacturing and non-manufacturing firms. Manufacturing firms' results identify that profitability and size have negative significant relationship with leverage, whereas growth and macroeconomic variables have insignificant impact with leverage. Non-manufacturing firms' results in model 1 comes out differently from manufacturing firms. Profitability has negative but insignificant impact on leverage, on the other hand, size and growth have significant but positive impact on leverage. Macroeconomic variables again are not significant with leverage. Results of Table 5 suggest that financing decisions of manufacturing and non-manufacturing firms are slightly different. This could be due to the different nature of business between the two sectors and hence the preference for raising the funds from alternate sources also differ.

<<TABLE 5 HERE>>

Table 6 shows the results of model 2 for manufacturing and non-manufacturing firms. This equation includes lag dividend to identify which capital structure theory is more appropriate. Fixed effects model of manufacturing firms show that profitability has negative and significant impact on leverage, and size, growth and macroeconomic variables have insignificant relationship with leverage. Heteroskedasticity and autocorrelation consistent standard error regression results shows that profitability, size, and growth variables are negative but significant with the leverage; lag dividend also have positive significant impact on financial leverage for manufacturing firms. Macroeconomic variables are insignificant. Model 2 results for non-manufacturing firms with fixed effects model shows significant impact of lag profitability, lag size, lag dividend and market capitalization to GDP ratio with leverage. Market capitalization to GDP has negative relationship with firm's leverage, it means that with the development of stock exchanges, businesses prefer equity financing compared to debt financing.

<<TABLE 6 HERE>>

Table 7 shows the results of model 1 of small firms (bottom 25%) and large firms (top 25%) in terms of total value of the assets. Small firms' profitability, size, and growth has negative but significant impact on leverage. Large firms' growth variable has positive significant impact on leverage, which highlights the role of financial intermediaries in supporting the growth of firms.

Small firms' negative relationship between leverage and growth of the firm again indicate small firm's preference for use of internal sources of financing and / or lack of access to formal sources of financing. A recent paper on Pakistan by Khan (2015) also find that SMEs face various impediments while accessing funds from financial intermediaries.

<<TABLE 7 HERE>>

Lastly, Table 8 provides the results of model 2 for small firms (bottom 25%) and large firms (top 25%). Small firms' profitability, size, and growth all has significant negative relationship with the leverage, which shows again use of internal sources of financing and thus less weight of debt in the capital structure. Similarly, large firms' also have the same behavior with leverage, which indicates that large-capitalized firms with their sheer size can finance their capital expenditures / projects through transactional sources. Lagged dividends have significant positive effect on leverage for large firms. However, for smaller firm's dividend estimate appear to be insignificant suggesting that past dividends do not matter significantly in small firms' capital financing behavior.

<<TABLE 8 HERE>>

5. Conclusion

This study is conducted to test the applicability of the two competing capital structure theories on the corporate leverage behavior of Pakistani firms; i.e., POT and TOT. An extensive panel data set of 293 non-financial firms' is obtained from PSX for the period 2001 to 2013. First, we examined the financing behavior (i.e., leverage behavior) of all non-financial listed firms of Pakistan. We find that, on average, firms in Pakistan follow pecking order theory consistent with Sheikh and Wang (2011) and Quershi (2009). Next, we carry out our investigation to demonstrate the applicability of two capital structure theories by dividing the sample into manufacturing and non-manufacturing firms; and lastly by segregating the dataset into top 25% large-size and bottom 25% small-size firms. Tong and Green (2005) framework is followed in this study along with the inclusion of few macroeconomic variables, that might affect the financing behavior of firms.

Two different models are applied to investigate the relationship of firm specific variables on financial leverage. Moreover, two types of regressions are used to demonstrate the robustness

of our evidence. First technique is the panel regression with industry fixed effects controlling for each industry leverage ratio within the sample firms. Second technique is the heteroskedasticity and autocorrelation (HAC) consistent standard error regression which identifies that each firm is different from another firm. Based on the two-models, evidence from the first model suggests negative relationship of profitability, size, and growth on the financial leverage, which confirms that firms follow pecking order theory. That is, firms with better earnings, bigger size, and higher assets growth rates utilize their internal funds more frequently for future investments. In the second model, leverage has positive and significant relationship with last year (i.e., lag) dividend. This indicates that firms that pay dividends to shareholders on a regular basis, have to raise debts in subsequent years. The evidence is consistent with the studies of Lintner (1956) and Baskin (1989).

Macroeconomic variable, that is lending rate, has a positive impact on leverage; suggesting that firms focus more on their target capital structure, that may optimize the cost of borrowing; next, market capitalization to GDP has significant negative impact on leverage for non-manufacturing (i.e., services sector) firms. Hence, the development of stock exchange in Pakistan encourages services-sector firms to issue additional securities for capital. Overall, these results are inclined towards POT, that firms' top finance team, on average, follow the pecking order theory to achieve target capital structure.

Policy implications:

The listed firms of Pakistan generally prefer to avail debt financing through bank borrowing. Since bond market in Pakistan is still at its embryonic stage; and imperfections of capital markets hinder firms to go for equity issuance. Hence Pakistan's capital market regulator/(s) should support reforms: 1) that encourage more and more businesses to raise funds through primary and secondary offerings / listing on stock market; and 2) by mitigating the information asymmetric risk that would pave the way for individuals to invest in equity markets.

References:

Adedeji, A. (1998). Does the pecking order hypothesis explain the dividend payout ratios of firms in the UK? *Journal of Business Finance & Accounting*, *25*(9-10), 1127-1155.

Ahmed Sheikh, N., & Wang, Z. (2011). Determinants of capital structure: An empirical study of firms in manufacturing industry of Pakistan. *Managerial Finance*, *37*(2), 117-133.

Ahsan, T., Ahsan, T., Wang, M., Wang, M., Qureshi, M. A., & Qureshi, M. A. (2016). Firm, industry, and country level determinants of capital structure: evidence from Pakistan. *South Asian Journal of Global Business Research*, *5*(3), 362-384.

Atiyet, A. B. (2012). The pecking order theory and the static trade off theory: Comparison of the alternative explanatory power in French firms, *Journal of Business Studies*, 4, 1-14.

Bartholdy, J. Mateus, G., & Olson, D. (2012). Do Portuguese private firms follow pecking order financing? *The European Journal of Finance*, 1, 1-19.

Baskin, J. (1989). An empirical investigation of the pecking order hypothesis. *Financial Management*, 26-35.

Charalambakis, E.C. & Psychoyios, D. (2012). What do we know about capital structure? Revisiting the impact of debt ratios on some firm-specific factors. *Applied Financial Economics*, 22, 1727-1742.

Demirgüç-Kunt, A., & Maksimovic, V. (1996). Stock market development and financing choices of firms. *The World Bank Economic Review*, *10*(2), 341-369.

Donaldson, C., 1961, Donaldson, Gordon, 1961, Corporate Debt Capacity (Division of Research Graduate School of Business, Harvard University, Boston, Mass.).

Elsas, R., Flannery, M. J., & Garfinkel, J. A. (2014). Financing major investments: Information about capital structure decisions. *Review of Finance*, *18*(4), 1341-1386.

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

Frank, M. Z., & Goyal, V. K. (2008, March). Profits and capital structure. In *American Finance Association 2009 San Francisco Meetings Paper*.

Gonzalez, V. M., & Gonzalez, F. (2011). Firm size and capital structure: Evidence using dynamic panel data, *Applied Economics*, 44, 4745-4754.

Gruber, M. J., & Warner, J. B. (1977). Bankruptcy costs: Some evidence. *The Journal of Finance*, *32*(2), 337-347.

Khan, S. (2015). Impact of sources of finance on the growth of SMEs: evidence from Pakistan. *Decision*, *42*(1), 3-10.

Khan, I., Jan, S. U., & Khan, M. (2015). Determinant of Capital Structure: An Empirical Study of Cement Sector of Pakistan. *Asian Journal of Management Sciences & Education, 4*(3), 50-60.

Köksal, B., & Orman, C. (2014). Determinants of capital structure: evidence from a major developing economy. *Small Business Economics*, 1-28.

Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *The American Economic Review, 46*(2), 97-113.

Mateev, M., Poutziouris, P., & Ivanov, K. (2013). On the determinants of SME capital structure in Central and Eastern Europe: A dynamic panel analysis. *Research in International Business and Finance*, *27*(1), 28-51.

Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. The American Economic Review, 48(3), 261-297.

Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a Correction. The American Economic Review, 53(3), 433-443.

Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of financial economics*, *5*(2), 147-175.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. Journal of Financial Economics, 13(2), 187-221.

Noulas, A., & Genimakis, G. (2011). The determinants of capital structure choice: Evidence from Greek listed companies, *Applied Financial Economics*, 21, 379-387.

Prasad, S., Green, C. J., & Murinde, V. (2001). Company financing, capital structure and ownership: a survey and implications for developing countries.

Psillaki, M., & Daskalakis, N. (2009). Are the determinants of capital structure country or firm specific?, *Small Business Economics*, *33*(3), 319-333.

Qureshi, M. A. (2009). Does pecking order theory explain leverage behavior in Pakistan? *Applied Financial Economics*, 19, 1365-1370.

Qureshi, M. A., Sheikh, N. A., & Khan, A. A. (2015). A Revisit of Pecking Order Theory versus Trade-off Theory: Evidence from Pakistan. *Pakistan Journal of Commerce & Social Sciences, 9*(2), 344-356.

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The journal of Finance*, *50*(5), 1421-1460.

Sbeti, W. M., & Moosa, I. (2012). Firm- specific factors as determinants of capital structure in the absence of taxes, *Applied Financial Economics*, 22, 209-213.

Serrasqueiro, Z. S., Armada, M. R., & Nunes, P. M. (2011). Pecking order theory versus trade-off theory: Are service SMEs' capital structure decisions different? *Service Business*, *5*(4), 381-409.

Serrasqueiro, Z., & Caetano, A. (2015). Trade-Off Theory versus Pecking Order Theory: capital structure decisions in a peripheral region of Portugal. *Journal of Business Economics and Management*, *16*(2), 445-466.

Shah, A., & Khan, S. (2007). Determinants of capital structure: Evidence from Pakistani panel data. *International review of business research papers*, *3*(4), 265-282.

Shyam-Sunder and Myers S.C. (1999). "Testing Tradeoff against Pecking Order Models of Capital Structure", *Journal of Financial Economies*, 51, 219-244.

Staking, K. B., & Babbel, D. F. (1995). The relation between capital structure, interest rate sensitivity, and market value in the property-liability insurance industry. *Journal of Risk and Insurance*, 690-718.

Tong, G., & Green, C. J. (2005). Pecking order or trade-off hypothesis? Evidence on the capital structure of Chinese companies, *Applied Economics*, 37, 2179–89.

Table-1
Explanatory variables' predicted relationship with financial leverage based on POT and TOT

This table classifies the explanatory variables assumed relationship with firm financing decision based on Pecking Order Theory (POT) and Trade-off Theory (TOT). All variables are defined in Appendix-1.

Variables	POT	TOT
Profitability	Negative	Positive
Growth	Positive	Negative
Size	Negative	Positive
Last year dividend	Positive	Negative

Table 2
Descriptive statistics of variables for Pakistani listed firms

This table classifies the summary statistics of variables analyzed in the study. The mean, median, minimum and maximum values are presented. All variables are defined in Appendix-1.

Variables	Mean	Median	Maximum	Minimum
LEV	1.7912	0.736	425.3197	0.0005
ROA	0.0027	0.0025	3.8107	-1.2828
GR	1.0042	1.0028	1.1409	0.8098
DIV	30.044	0.0027	1350	0.00
SIZE	21.0259	20.9923	26.5738	9.2103
Lending Rate	11.75	12.49	14.25	7.28
Inflation	7.97	7.80	20.80	2.91
Mkt Cap to GDP (%age)	23.74	19.92	46.11	6.84

Table 3
Correlations Matrix

This table classifies the correlation coefficients of explanatory variables with each other. Correlation table presents the degree of co-movement between two financial variables. All variables are defined in Appendix-1.

	LEV	Lag Size	GR	ROA	Lag ROA	Lending Rate	Inflation	Mkt Cap to GDP	Lag Div
LEV	1.000								
Lag Size	-0.222	1.000							
GR	-0.069	0.0835	1.000						
ROA	-0.103	0.0127	0.102	1.000					
Lag ROA	-0.068	-0.0275	0.022	0.0308	1.000				
Lending Rate	0.011	0.1265	-0.129	-0.0438	-0.031	1.000			
Inflation	0.007	0.0897	-0.0506	-0.0164	-0.005	0.395	1.000		
Mkt Cap to GDP	-0.003	-0.0293	0.0646	0.0146	0.0353	-0.542	-0.001	1.000	
Lag Div	-0.026	0.2463	0.0515	0.0426	0.0477	0.031	0.013	-0.002	1.000

Table 4

Regression Results of Model 1 and 2 - Listed non-financial firms

This tables classifies the multivariate regression analysis for the whole sample of non-financial listed firms on the Pakistan Stock Exchange (PSX). Column 2 and 4 presents regression result of fixed-effects with robust standard errors. Column 3 and 5 presents regression result of heteroskedasticity and autocorrelation consistent standard errors. All variables are defined in Appendix-1. The values in parenthesis presents *t*-statistics. ***, **, and * presents significance at 1%, 5%, and 10% level respectively.

Dependent variable	LEV	LEV	LEV	LEV
	1#	2!	1#	2!
CONSTANT	61.80	127.68	62.5370	131.014
	(5.26)***	(5.83)***	(5.31)***	(5.98)***
ROA	-13.386	-22.004	-13.388	-22.355
	(-8.12)***	(-5.51)***	(-8.12)***	(-5.59)***
Lag ROA	-6.291	-18.211	-6.314	-18.769
	(-3.54)***	(-4.27)***	(-3.56)***	(-4.40)***
Lag SIZE	-1.4129	-2.195	-1.437	-2.2930
	(-5.74)***	(-13.35)***	(-5.79)***	(-13.55)***
GR	-33.091	-82.795	-33.353	-84.2250
	(-3.44)***	(-3.85)***	(-3.47)***	(-3.92)***
Lending Rate	0.2041	0.2263	0.2033	0.2202
	(2.52)***	(1.21)	(2.51)***	(1.17)
Inflation	0.0287	0.04027	0.0292	0.04227
	(1.07)	(0.61)	(1.08)	(0.64)
Mkt Cap to GDP	0.0157	0.02212	0.0155	0.0213
	(1.11)	(0.64)	(1.10)	(0.62)
Lag Div			0.00188	0.008416
			(0.74)	(2.40)***
No. of Observations	3504	3504	3504	3504
R-Square / Wald Chi^2	0.0761	261.49	0.0772	267.68

Fixed effects model with robust standard error.

! Heteroskedasticity and Autocorrelation (HAC) consistent standard error regression.

Table 5

Regression Results of Model 1 - Manufacturing and Service-sector firms

This tables classifies the multivariate regression analysis for the sample of non-financial listed firms on the Pakistan Stock Exchange (PSX). Column 2 and 3 present results for manufacturing firms and column 4 and 5 present results for services-sector firms Column 2 and 4 present regression result of fixed-effects with robust standard errors. Column 3 and 5 presents regression result of heteroskedasticity and autocorrelation consistent standard errors. All variables are defined in Appendix-1. The values in parenthesis presents *t*-statistics. ***, **, and * presents significance at 1%, 5%, and 10% level respectively.

Dependent variable	LEV	LEV	LEV	LEV
	Manufacturing		Non-Manufacturing	
	1#	2!	1#	2!
CONSTANT	65.98	135.91	-4.1260	-6.26700
	1.62	5.86	(-0.97)	(-4.31)***
ROA	-13.451	-22.077	-1.602	-1.376
	(-3.85)***	(-5.34)***	(-1.68)	(-1.73)**
Lag ROA	-6.283	-18.283	-163.540	-14.570
	(-7.04)***	(-4.15)***	(-4.73)***	(-7.67)***
Lag SIZE	-1.521	-2.487	0.114600	0.1085
	(-1.25)	(-13.66)***	(2.04)**	(15.42)***
GR	-35.250	-85.495	2.2360	4.6040
	(-0.99)	(-3.75)***	0.75	(3.19)***
Lending Rate	0.2191	0.261	-0.0087	-0.0078
	(0.92)	(1.30)	(-1.29)	(-0.82)
Inflation	0.03057	0.0441	-0.0013	-0.00175
	(0.99)	(0.63)	(-0.61)	(-0.52)
Mkt Cap to GDP	0.0169	0.0246	-0.00125	-0.00145
	(1.10)	(0.67)	(-1.46)	(-0.82)
No. of observations	3265	3265	251	251
R^2 / Wald Chi^2	0.0757	267.50	0.5781	343.91

Fixed effect model with robust standard error.

! Heteroskedasticity and Autocorrelation (HAC) consistent standard error regression.

Table 6

Regression Results of Model 2 - Manufacturing and Service-sector firms

This tables classifies the multivariate regression analysis for the sample of non-financial listed firms on the Pakistan Stock Exchange (PSX). Column 2 and 3 present results for manufacturing firms and column 4 and 5 present results for services-sector firms Column 2 and 4 present regression result of fixed-effects with robust standard errors. Column 3 and 5 presents regression result of heteroskedasticity and autocorrelation consistent standard errors. All variables are defined in Appendix-1. The values in parenthesis presents *t*-statistics. ***, **, and * presents significance at 1%, 5%, and 10% level respectively.

Dependent variable	LEV	LEV	LEV	LEV
	Manufacturing		Non-Manufacturing	
	1#	2!	1#	2!
CONSTANT	66.87	139.98	-4.2440	-6.263
	1.63	(6.03)***	(-0.99)	(-4.31)***
ROA	-13.453	-22.467	-1.603	-1.376
	(-3.84)***	(-5.43)***	(-1.69)	(-1.73)*
Lag ROA	-6.309	-18.921	-14.388	-14.619
	(-6.85)***	(-4.29)***	(-4.89)***	(-7.11)***
Lag SIZE	-1.5517	-2.629	0.1180	0.1083
	(-1.26)	(-13.91)***	(2.10)**	(14.77)***
GR	-35.555	-87.018	2.385	4.6034
	(-1.00)	(-3.82)***	0.76	(3.19)***
Lending Rate	0.21812	0.2538	-0.00932	-0.00788
	(0.92)	(1.26)	(-1.37)	(-0.82)
Inflation	0.03131	0.0475	-0.00211	-0.00178
	(1.00)	(0.68)	(-0.90)	(-0.52)
Mkt Cap to GDP	0.01677	0.02395	-0.001526	-0.00146
	(1.10)	(0.65)	(-1.75)**	(-0.82)
Lag Div	0.00212	0.01002	0.0004829	0.0000147
	(1.34)	(2.70)***	(2.31)**	(0.06)
No. of Observations	3265	3265	251	251
R^2 / Wald Chi^2	0.0859	275.41	0.6304	343.92

Fixed effect model with robust standard error.

! Heteroskedasticity and Autocorrelation (HAC) consistent standard error regression.

Table 7

Regression Results of Model 1 – Small and Large Firms

This tables classifies the multivariate regression analysis for the sample of non-financial listed firms on the Pakistan Stock Exchange (PSX). Column 2 and 3 present results for small-size firms and column 4 and 5 present results for large-size firms Column 2 and 4 present regression result of fixed-effects with robust standard errors. Column 3 and 5 presents regression result of heteroskedasticity and autocorrelation consistent standard errors. All variables are defined in Appendix-1. The values in parenthesis presents *t*-statistics. ***, **, and * presents significance at 1%, 5%, and 10% level respectively.

Dependent variable	LEV	LEV	LEV	LEV
	Small Firms (Bottom 25%)		Large Firms (Top 25%)	
	1#	2!	1#	2!
CONSTANT	220.65	327.43	-1.5470	-3.42200
	(1.67)*	(5.32)***	(-1.51)	(-4.87)***
ROA	-11.929	-24.167	-8.792	-11.830
	(-3.73)***	(-3.10)***	(-8.65)***	(-14.79)***
Lag ROA	-6.311	-26.245	-8.747	-11.114
	(-6.14)***	(-3.15)***	(-8.39)***	(-13.35)***
Lag SIZE	-7.0288	-9.129	-0.0074	0.0134
	(-1.21)	(-11.62)***	(-0.40)	(1.93)**
GR	-87.662	-150.76	2.4550	3.8858
	(-1.28)	(-2.57)**	(3.49)***	(6.08)***
Lending Rate	0.2794	-0.0198	0.00116	-0.000936
	(0.73)	(-0.03)	(0.29)	(-0.21)
Inflation	0.1056	0.07258	-0.00054	-0.00106
	(0.92)	(0.27)	(-0.76)	(-0.78)
Mkt Cap to GDP	0.0415	0.0259	-0.000321	0.000169
	(0.033)	(0.19)	(-0.74)	(0.21)
No. of Observations	843	843	914	914
R^2 / Wald Chi^2	0.1627	158.33	0.6395	1115.42

Fixed effect model with robust standard error.

! Heteroskedasticity and Autocorrelation (HAC) consistent standard error regression.

Table 8

Regression Results of Model 2 – Small and Large Firms

This tables classifies the multivariate regression analysis for the sample of non-financial listed firms on the Pakistan Stock Exchange (PSX). Column 2 and 3 present results for small-size firms and column 4 and 5 present results for large-size firms Column 2 and 4 present regression result of fixed-effects with robust standard errors. Column 3 and 5 presents regression result of heteroskedasticity and autocorrelation consistent standard errors. All variables are defined in Appendix-1. The values in parenthesis presents *t*-statistics. ***, **, and * presents significance at 1%, 5%, and 10% level respectively.

Dependent variable	LEV	LEV	LEV	LEV
	Small Firms (Bottom 25%)		Large Firms (Top 25%)	
	1#	2!	1#	2!
CONSTANT	220.89	327.60	-1.4973	-3.46320
	(1.67)*	(5.30)***	(-1.44)	(-4.97)***
ROA	-11.927	-24.170	-8.828	-12.296
	(-3.73)***	(-3.10)***	(-8.67)***	(-15.39)***
Lag ROA	-6.319	-26.252	-8.880	-12.062
	(-6.08)***	(-3.15)***	(-8.52)***	(-14.16)***
Lag SIZE	-7.0441	-9.131	-0.0096	0.0107
	(-1.21)	(-11.57)***	(-0.50)	1.55
GR	-87.711	-150.914	2.4502	3.9950
	(-1.28)	(-2.57)***	(3.47)***	(6.31)***
Lending Rate	0.28165	-0.0190	0.001067	-0.00191
	(0.73)	(-0.03)	(0.27)	(-0.43)
Inflation	0.10554	0.073078	-0.000489	-0.0011
	(0.92)	(0.27)	(-0.69)	(-0.82)
Mkt Cap to GDP	0.04168	0.02599	-0.000334	0.0001792
	(1.25)	(0.19)	(-0.77)	(0.23)
Lag Div	0.010	0.001711	0.0000819	0.000201
	(0.87)	(0.04)	(1.68)*	(4.38)***
No. of Observations	843	843	914	914
R^2 / Wald Chi^2	0.1626	158.33	0.6493	1158.04

Fixed effect model with robust standard error.

! Heteroskedasticity and Autocorrelation (HAC) consistent standard error regression.

Appendix 1: Definitions of variables analyzed in the study

Variable	Description
LEV	*total assets - equity - taxations / total assets*
ROA / Profitability	*net income / total assets*
SIZE	*ln (total assets at year-end)*
GR / Growth	*total assets in year (t) / total assets in year (t-1)*
DIV	*Dividends paid / total equity*
LR	*weighted average rate of return on advances (year t)*
INF	*Consumer Prices – Annual percent*
MCAP_GDP	*market capitalization of all stocks / GDP at current factor cost*
Last-year Dividend	*Lag Dividend (i.e., Dividend$_{t-1}$)*

Note: Variables are measured at the end of each firm's financial year end.