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The Moderating Role of Debt Financing in the Relationship between Leverage and Performance: An Empirical Analysis of the Textile Industry of Pakistan

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Abstract

The study examines how debt financing affects the leverage and performance relationship of the textile sector of Pakistan. The study also strives to elaborate the determinants of debt financing. Data has been collected from the annual reports of the textile companies listed at Pakistan Stock Exchange (PSE) for the years 2010-2015. Panel data techniques including Pooled OLS, Fixed Effect model, Random Effect model, and Moderated Panel Regression model were used for estimating the relationship between debt ratio, leverage and company-specific variables such as profitability and size. The results depict that the listed textile companies of Pakistan financed more than half of its assets by external borrowing. There is high asset tangibility in the Pakistani textile industry. The tax shield, which is the alternative of depreciation, is limited for the textile firms of Pakistan (Qamar, Farooq, Afzal & Akhtar, 2016). The independent variables' interaction term with debt ratio shows a positive relationship with ROA other than asset tangibility. The trade-off theory suggests to follow a targeted optimal capital structure which is more favorable for a firm. Pakistani textile industry should adopt the model of optimal capital structure for balancing the costs and benefits.
Keywords: leverage, performance, textile sector.

Introduction

In the modern age, capital structure decision is an important task that the management faces (Pouraghajan, Malekian, Emamgholipour, Lotfollahpour & Bagheri, 2012). Capital structure is a "firm's financing through the mixture of debt and equity" (Mujahid & Akhtar, 2014). In order to meet a firm's financing needs capital structure is issued (Brealey & Mayers, 2003). One of the most vital decisions of financial managers is to decide the capital structure to enhance the firm's performance (Bui, 2017). The financing decisions in a firm are imperative due to their close association with its value. One of the most vital aims of any firm is to

grow the shareholders' wealth; where optimally augmenting the long-term value of the firm is emphasized (Nisha & Ghosh, 2018).

The cost of capital is defined by the decision on capital structure and changes in the market value of a company. In short, capital structure affects other features of a company, such as performance and productivity. An important concern in corporate finance and accounting literature is the capital structure theory and its links with the performance of a firm, as discussed in the pivotal work (Modigliani & Miller, 1958). They were the first who presented a broad-spectrum theory of capital structure, known as the 'M & M Propositions'. They argued that "under very restrictive assumptions of perfect capital markets, investors' homogenous expectations, tax-free economy, and no transactions costs, capital structure is irrelevant in determining the firm's value." Conforming to this argument, it is posited here that a firm's significance is not described by the mix of securities it issues but by its real assets.

Nevertheless, in the real world these limiting assumptions do not exist. This reality has provoked numerous academics to present further explanations of this proposition; particularly after the vital work of Jensen and Meckling (1976) demonstrating that "the amount of leverage in a firm's capital structure affects the agency conflicts between managers and shareholders by constraining or encouraging managers to act more in the interest of shareholders and, thus, can alter manager's behaviors and operating decisions." This depicts that the amount of leverage in capital structure affects the performance of a firm (Harris & Raviv, 1990; Graham & Harvey, 2001; Brav, Graham, Harvey & Michaely, 2005). However, empirical evidence shows inconsistent and mixed results.

In the developed countries of the world, the performance effect of capital structure choices is vast. However, little empirical work is done about their implications in emerging nations like Pakistan. In Pakistan, capital market is not much effective and faces the upper level of "information asymmetry" as compared to the capital markets of developed countries. The financing decisions in this market environment are subject to a significant degree of irregularity. Hence, it is essential to inspect the soundness of the effects of the levels of corporate leverage on the performance of the Pakistani companies as an example of developing countries.

Pakistan is a developing country. During the last few decades, the textile industry of Pakistan has exercised an important effect on the economy by backing 57% of the country's exports[1]. In the exceedingly competitive global environment, Pakistani textile industry needs to improve its productivity in order to survive. Since the textile industry contributes the majority share of the country's exports; it is vital to realize the dynamics of the textile industry in Pakistan. Most of the previous researches on developing countries have shown a negative relationship between leverage and performance (Alipour & Pejman, 2015; Hailu, 2015). The mix of capital structure is best when it has the optimal level of leverage. This study explores the association between leverage, performance and debt ratio in order to make some practical suggestions for the Pakistani textile sector. The rest of this research work is ordered as follows. Section 2 provides objectives of the study following the review of literature. Section 3 defines the research methodology. The subsequent section 4 presents the empirical analysis and the last section 5 gives conclusion and recommendations.

1.1 Research Objectives

The main objectives of the study are as follows,

- To investigate the specific determinants of debt financing in the listed textile firms of Pakistan.
- To study the association between debt ratio and leverage of the textile companies of Pakistan.
- To investigate the moderating effect of debt financing on leverage-performance relationship in the textile companies of Pakistan.

The research work has important practical consequences that would let financial managers of the textile industry to identify and adopt the optimal mix of securities and decide when debt borrowing could enhance performance.

2. Review of Literature

Subject to market conditions and competitive strategies, if a firm can choose an optimal capital structure, mutually high and low leverages result in lesser debt cost by enhancing performance (Agnihotri, 2014). Due to

the nihility of the perfect market, Modigliani & Miller's "MM Propositions" have been criticized and consequently relevancy theories have been developed. In this respect, "trade-off theory, agency theory and pecking order are important relevancy theories". It is stated by the agency theory that when the probability of bankruptcy creeps up, an increased debt level confirms an improved management performance (Jensen & Meckling, 1976). But when managers are more aware about their firm in terms of forthcoming outlook than investors, there will be added agency cost in the capital structure (Goh, Tai, Rasli, Tan, & Zakuan, 2018). Meanwhile, the Pecking Order Theory describes the firm's inclination toward internal finance over external finance and debt over equity (Myers & Majluf, 1984). Different theories on capital structure have evolved over time; affecting or affected by performance. Researchers in developed and developing economies have discovered the leverage-performance relationship by employing these theories. Yet, the relationship between leverage and performance becomes more critical due to the irregularities of capital markets in the developing countries (Ebaid, 2009). In these countries, hostile structure is a cause of an inverse leverage-performance relationship (Hailu, 2015; Boadi & Li, 2015; Alipour & Pejman, 2015).

Several researchers have explored the effects of capital structure on the firm's financial performance while taking leverage as an important variable. Different disciplines cover the area of both financial and non-financial sectors (Skopljak & Luo, 2012; Banerjee & De, 2014; Mujahid & Akhtar, 2014) Gabrijelčič, Herman & Lenarčič, 2013). Under different situations, a certain financial ratio can have the same or different relationships with capital structures. Saeedi and Mahmoodi (2011) explored the inverse effect of capital structure on ROA, but found no noteworthy relation between capital structure and ROE. Whereas Ebrati, Emadi, Balasang and Safari (2013) discovered a parallel result for ROA but also found a positive association for ROE. However, empirical vidence shows inconsistent and mixed results. Some of the studies have explored the progressive association between leverage and firm's performance (Roden & Lewellen, 1995; Ghosh & Jain, 2000; Champion, 1999). Further studies have described an inverse association between the level of leverage and the performance of firm (Fama & French, 1998; Gleason, Mathur & Mathur, 2000; Simerly & Li, 2000).

There are numerous papers that analyzed the impact of debt financing,

capital structure and firm's performance separately. Farooq, Ashraf and Ahmad (2014) debated that a number of contingencies and moderating factors affect the direct relationship between leverage and performance. Thus, it is not useful to investigate it alone. For instance, Al-Rdaydeh (2018) analyzed the effect of competitive strategy on the leverage and performance relationship of firms grounded on a sample of industrial firms. Bae, Kim and Oh (2017) explored the role of marketing intensity on financial leverage and firm performance. Qamar et al. (2016) explored the moderating effect of debt financing on leverage-performance relationship covering the entire non-financial sector. Still, a focused study on textile sector is missing, which is required considering the differences in the nature of operations of each sector. This study develops hypotheses to examine the association of debt financing, leverage, and firm performance while using different econometric techniques and within an enlarged time span.

3. Hypotheses

H1: Debt financing has a significant relationship with leverage and size of the textile companies of Pakistan.

H2: Debt financing moderates the relationship between leverage and performance of Pakistani textile companies.

4. Research Method

4.1. Sample and Data

To realize the objectives, all 155 textile firms listed at PSE were selected by using total population sampling that is a type of purposive sampling technique[2]. Assuming the thinness of Pakistani capital market, 98 PSE listed textile firms were selected for the years 2010-2015. The study comprises panel data, which involves both cross sectional and time series data. The time frame of the study is six years (time series data). Total number of observations were 588. Listed firms with zero sales and without any available data were excluded from the sample.

The classification of firms which belong to the textile industry of Pakistan and are listed at PSE is given below.

Table 1
Listed Companies

Sector	No. of listed Companies
Textile Composite	56
Textile Spinning	84
Textile Weaving	15
Total	155

Source: https://www.psx.com.pk/

4.2. Sources of Data

Several sources were used for the purpose of data collection. Financial data was collected by using the annual reports of firms and from the "Financial Statements Analysis of Companies (Non-Financial)" published by the State Bank of Pakistan (SBP).

4.3. Analysis Tools

For the analysis of the data Pooled Regression model, Least Square Dummy Variables (LSDV) model and Random Effect model were employed respectively to explore the determinants of Debt Ratio (DR). Hausman test was adopted for selection between fixed and random effects. To quantify the effect of debt financing on the relationship between leverage and performance Moderated Panel Least Square Regression was used. To check the likelihood of such effects, AT, NDTS (predictor) and Debt Financing (moderator) were multiplied to generate an interaction variable (DR*AT), (DR*NDTS) in order to predict performance (ROA).

4.4. Models for Estimation

To test the above stated hypotheses two models were designed which are as follows,

$$Y = b_o + b_1 X + Z + b_3 XZ + £cross\ section\ effect + £\ period\ effect + \varepsilon \ldots \quad \ldots\ldots (1)$$

Table 2
Variables of the Study

Abbreviation	Variables	Definition
DR	Debt Ratio	Total Liabilities / Total Assets
LNSIZE	Size of Firm	Ln (Sales)
AT	Tangibility	Tangible assets / Total Assets
CR	Current Ratio	Current Assets / Current Liabilities
NDTS	Non-Debt Tax Shield	Depreciation / Total Assets
ROA	Return on Assets	Profit before taxes / Total Assets

where

Y = ROA (Dependent Variable)

X = AT, NDTS, CR (Independent Variable)

Z = DR (Moderator Variable)

XZ = (DR*AT), (DR*NDTS), (DR*CR) (Interaction Terms)

Thus, the moderated equation is as follows,

$$ROA_{it}= \alpha+\beta_1 DR+\beta_2 DR*LNSIZE+\beta_3 DR*CR+\beta_4 \beta 4 DR*AT+\beta_5 DR*NDTS+\varepsilon \quad \ldots\ldots (2)$$

5. Results and Findings

5.1. Descriptive Analysis

Table 3 demonstrates the descriptive statistics summary of the moderating, independent, dependent and control variables for the period of six years (2010-2015). It also expresses the directions of the variables of the model. It depicts that the sampled firms received 322% return if they finance their 67.88% assets by external debt. This proves that the listed textile firms of Pakistan finances more than half of its assets by external

borrowing. The results also show that the firms on average invest more than half (81%) of their assets into tangible assets. This depicts high asset tangibility in the Pakistani textile industry. Furthermore, firms on average have a depreciation expense of only 3.9% of their total assets. This indicates that the tax shield, which is an alternative of depreciation, is limited for the textile firms of Pakistan. The size of the sampled firms on average is 14.8. Subsequently, sampled textile firms hold great debt financing with low NDTS.

Table 3
Descriptive Statistics

	ROA	AT	DR	CR	NDTS	LNSIZE
Observations	588	588	588	588	588	588
Mean	3.222471	0.815153	0.678842	1.098969	0.039075	14.80997
Maximum	32.50000	9.587000	7.962000	5.218000	0.783699	17.81268
Minimum	-74.47000	0.078000	0.031000	0.077000	0.000116	5.921578
Std. Dev.	10.41344	0.408361	0.458901	0.657602	0.047892	1.329567

Source: Author's own calculations

5.2. Correlation Matrix

The overall results of dependent and independent variables reveal that the variables of the study have no correlation with each other since the values of the variables are within the range of -1 to +1 and remain very low.

For testing the determinants of debt financing three different methodologies (Pooled Regression model, LSDV model, and Random Effect model) are shown in table 5, which depicts the regression results of the research models. To detect proper methodology, a statistical test known as Hausman test was executed to test the choice between the

Random Effect model and LSDV (Hausman, 1978).

Table 4
Correlation Matrix

	ROA	AT	DR	CR	NDTS	LNSIZE
ROA	1.000000					
AT	-0.031433	1.000000				
DR	-0.277132	-0.026582	1.000000			
CR	0.411746	-0.063958	-0.312189	1.000000		
NDTS	-0.019726	-0.018872	0.458507	-0.022568	1.000000	
LNSIZE	0.261471	-0.027747	-0.150537	0.175640	-0.018732	1.000000

Source: Author's own calculations

$$H = (\hat{\beta}^{FE} - \hat{\beta}^{RE})'[Var(\hat{\beta}^{FE}) - Var(\hat{\beta}^{RE})]^{-1}(\hat{\beta}^{FE} - \hat{\beta}^{RE}).....x^{2(k)}$$

Table 5
Determinants of Debt Financing

Variables	**Model 1** Pooled Regression Model		**Model 2** Random Effect Model		**Model 3** Fixed Effect Model Hausman Test	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
AT	-.043	0.257	-0.028	0.4528	0.003	0.3914
CR	-0.199***	0.0000	-0.187***	0.0000	-0.090***	0.0000
NDTS	4.315***	0.0000	4.200***	0.0000	2.470***	0.0000
LNSIZE	-0.031**	0.0087	-0.034**	0.0084	-0.037***	0.0000
C	1.199***	0.0000	1.258***	0.0000	1.230***	0.0000

Source: Author's own calculations
Significance level *p < 0.10, **p <0.05 and ***p < 0.01

The results support Fixed Effect model in identifying the determinants of investment decisions as shown in Table 5. The results depict that in the Pooled Regression model, we pool all the observations together by neglecting the cross sectional and time series nature of data. This is tantamount to ignoring the heterogeneity by assuming that all textile companies as same. We can't accept the results of this model because of the different nature of each company. For dealing with this issue, Fixed Effect or Least Square Dummy Variable (LSDV) model is considered, since it allows for heterogeneity and individuality among Pakistani textile companies. In this model, the significant P-value shows that the coefficient values are not equal to zero. In order to check which model is more appropriate, that is, Fixed or Random, Hausman test was applied and Fixed Effect model was selected.

The above mentioned results reveal that in all three models AT has an insignificant relationship with DR, while CR has a negative but significant relationship with DR. NDTS in all models has a positive significant relationship with DR. These results contradict those of the study conducted by Qamar et al. (2016), because their estimations show an insignificant relationship of NDTS with DR. The LNSIZE has a negative but significant

Table 6
Consequences of Debt Financing

Variable	**Coefficient**	**Prob.**
C	-4.182*	0.0521
DR	-2.643**	0.0072
DR*SIZE	0.645**	0.0008
DR*CR	1.975***	0.0000
DR*AT	-2.443***	0.0003
DR*NDTS	0.648	0.6752
R-squared Adjusted	0.725	
R-squared	0.667	

Source: Author's own calculations
Significance level *p < 0.10, **p <0.05 and ***p < 0.01

relationship with DR in all models. Hence, the results contradict (Qamar et al., 2016).

The outcomes of liquidity and size show consistency with the trade-off theory. The negative results of asset tangibility show that the textile firms of Pakistan are not getting debt benefits as they should (Qamar et al., 2016). NDTS shows an insignificant relationship with ROA. This depicts that for Pakistani textile firms, profits of high, low and medium values of NDTS do not change, since NDTS have been found insignificant. For the Pakistani textile industry, as argued by trade-off theory, following a targeted optimal capital structure is more favorable. All the independent variables' interaction terms with DR show a positive relationship with ROA other than AT.

6. Conclusions and Recommendations

The study aims to explain the determinants and consequences of debt financing in the textile sector of Pakistan. The objectives are achieved by studying the determinants of debt borrowings and their moderating role with the leverage-performance relationship in the textile industry of Pakistan for the years 2010-2015. Financial managers of the textile firms of Pakistan should review their financing policy in order to achieve the optimum level of financing. The study provides a direction to the textile industry managers to maintain a good mixture of debt and equity. The end results are successful only when there are less capital market irregularities.

For future research, this study suggests some challenges. Firstly, the variables of the study can be enhanced, such as ownership data can be included into the analysis. Secondly, the time span can be enlarged, along with adding comparison with other sectors of the economy. Future researchers can make a panel of different countries for extended research.

References

Agnihotri, A. (2014). Impact of strategy-capital structure on firms' overall financial performance: Impact of strategy-capital structure. *Strategic Change*, *23*(1–2), 15–20.

Alipour, M., & Pejman, M. E. (2015). The impact of performance measures, leverage and efficiency on market value added: Evidence from Iran. *Global Economics and Management Review*, *20*(1), 6–14.

Al-Rdaydeh, M. (2018). Moderating effect of competitive strategies on the

relation between financial leverage and firm performance: Evidence from Jordan. *Business and Economic Horizons*, *14*(3), 626–641.

Bae, J., Kim, S.-J., & Oh, H. (2017). Taming polysemous signals: The role of marketing intensity on the relationship between financial leverage and firm performance. *Review of Financial Economics*, *33*, 29–40.

Banerjee, A., & De, A. (2014). Determinants of corporate financial performance relating to capital structure decisions in Indian iron and steel industry: An empirical study. *Paradigm*, *18*(1), 35–50.

Boadi, E. K., & Li, Y. (2015). An empirical analysis of leverage and financial performance of listed non-financial firms in Ghana. *International Journal of Economics and Finance*, *7*(9), 120–135.

Brav, A., Graham, J. R., Harvey, C. R., & Michaely, R. (2005). Payout policy in the 21st century. *Journal of Financial Economics*, *77*(3), 483–527.

Brealey, R. A., & Myers, S. C. (2003). *Principles of corporate finance*. New York, NY: McGraw-Hill Higher Education.

Bui, Q. (2017). Evaluating enterprise architecture frameworks using essential elements. *Communications of the Association for Information Systems, 41*(1), 6.

Ebaid, I. E. (2009). The impact of capital-structure choice on firm performance: Empirical evidence from Egypt. *The Journal of Risk Finance*, *10*(5), 477–487.

Ebrati, M. R., Emadi, F., Balasang, R. S., & Safari, G. (2013). The impact of capital structure on firm performance: Evidence from Tehran Stock Exchange. *Australian Journal of Basic and Applied Sciences, 7*(4), 1-8.

Fama, E. F., & French, K. R. (1998). Taxes, financing decisions, and firm value. *The Journal of Finance*, *53*(3), 819–843.

Farooq, U., Ashraf, A. A., & Ahmad, N. (2014). Investigating the moderating role of firm strategy in the relationship between leverage and performance. *Middle-East Journal of Scientific Research*, *21*(2), 341–346.

Gabrijelčič, M., Herman, U., &Lenarčič, A. (2013). Debt financing and firm performance before and during the crisis: Micro-financial evidence from Slovenia. Paper presented at the Scientific Research

Seminar organized by Faculty of Economics, University of Ljubljana, Ljubljana.

Ghosh, A., & Jain, P. C. (2000). Financial leverage changes associated with corporate mergers. *Journal of Corporate Finance*, *6*(4), 377–402.

Gleason, K. C., Mathur, L. K., & Mathur, I. (2000). The interrelationship between culture, capital structure, and performance: Evidence from European retailers. *Journal of Business Research*, *50*(2), 185–191.

Goh, C. F., Tai, W. Y., Rasli, A., Tan, O. K., & Zakuan, N. (2018). The determinants of capital structure: evidence from Malaysian companies. *International Journal of Supply Chain Management*, *7*(3), 225-230–230.

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, *60*(2), 187–243.

Hailu, A. (2015). The impact of capital structure on profitability of commercial banks in Ethiopia (Unpublished doctoral dissertation). University of Addis Ababa, Addis Ababa.

Harris, M., & Raviv, A. (1990). Capital structure and the informational role of debt. *The Journal of Finance*, *45*(2), 321–349.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, *46*(6), 1251–1271.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360.

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.

Mujahid, M., & Akhtar, K. (2014). Impact of capital structure on firms' financial performance and shareholders wealth: Textile sector of Pakistan. *International Journal of Learning and Development*, *4*(2), 27–33.

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.

Nisha, N., & Ghosh, B. (2018). Causal relationship between leverage and

performance: Exploring Dhaka stock exchange. *International Journal of Business and Globalisation*, *20*(1), 31–48.

Pouraghajan, A., Malekian, E., Emamgholipour, M., Lotfollahpour, V., & Bagheri, M. M. (2012). The relationship between capital structure and firm performance evaluation measures: Evidence from the Tehran stock exchange. *International Journal of Business and Commerce*, *1*(9), 166–181.

Qamar, M. A. J., Farooq, U., Afzal, H., & Akhtar, W. (2016). Determinants of debt financing and their moderating role to leverage-performance relation: An emerging market review. *International Journal of Economics and Finance*, *8*(5), 300–311.

Roden, D. M., & Lewellen, W. G. (1995). Corporate capital structure decisions: Evidence from leveraged buyouts. *Financial Management*, *24*(2), 76–87.

Saeedi, A., & Mahmoodi, I. (2011). Capital structure and firm performance: Evidence from Iranian companies. *International Research Journal of Finance and Economics, 70*(11), 20-29.

Simerly, R. L., & Li, M. (2000). Environmental dynamism, capital structure and performance: A theoretical integration and an empirical test. *Strategic Management Journal, 21*(1), 31–49.

Skopljak, V., & Luo, R. (2012). Capital structure and firm performance in the financial sector: Evidence from Australia. *Asian Journal of Finance & Accounting*, *4*(1), 278–298.