Capital Structure Determinants in Pakistan's Textile Industry: Unravelling the Pecking Order vs. Trade-Off Debate
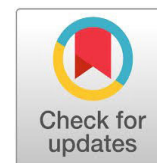
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ABSTRACT

This study investigates the determinants of capital structure in textile sector of Pakistan in context of trade-off theory and Pecking order theory debate. The research utilizes data from 114 textile firms with 22 years of data from 1998 up to 2020. an adjusted measure of leverage is also introduced to refine the debt-to-equity ratio as conventional measure of leverage suffer from issues. Fixed effect model is used to analyse the relationship between leverage and independent variables such as profitability, tangibility, size, and growth using both conventional and adjusted measure of leverage. The adjusted measure of leverage is found unrelated to profitability unlike the conventional measure which always show negative relationship in current as well as previous studies. The positive relation between leverage and size supports pecking order theory, while tangibility was found to be negatively related challenging theoretical interpretations. While no conclusive evidence is found in favour of any theory the study does provide a fresh perspective on the theoretical debate.

1. INTRODUCTION

The capital structure debate started with the pioneering work of Modigliani and Miller (1958) stating that firm's value is independent of its capital structure. The statement can only be true under strict market assumptions where arbitrage cannot exist, and taxes do no not perform any role. The propositions however lead to various debates resulting in more and more competitive theories each trying to explain why financial structure could matter. Trade-off theory which directly stemmed from the Modigliani and Miller debates argues that capital structure is determined by balancing tax-saving benefits of debt against deadweight cost of bankruptcy (Kraus and Litzenberger, 1973). Contrary to their argument Pecking Order theory does not believe in the existence of any optimal capital structure rather considers the financial decision to be hierarchical in nature. Myer and Majluf (1984) argues that firms prefer financing in a specific sequence prioritizing retained earnings first, followed by debt financing and lastly issuing equity. This hierarchy is based on information asymmetry where firms protect its crucial business information from going public. Few other theories were also developed such as Agency cost theory and Signalling theory. Agency cost theory is an extension of the static trade-off theory but here firm try to balance the conflict of interest between shareholder and managers or shareholder and debtholders. Jensen and Meckling (1976) discuss the agency problem which arises when agents (firm managers) do not work in the best interest of the principal (shareholders). Rajan and Zingales (1995)

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explored the factors affecting capital structure in developed countries that were found to be correlated to leverage in previous research. Soon a number of literatures followed both in developed counties and developing countries trying to explain the relationship of these determinants in light of existing theories. These studies, however, does not seem to reach any consensus.

In Pakistan the work of Shah and Hijazi (2004) is the most popular and perhaps the pioneering work in the country. Since then, numerous publications have been published trying to explain the determinants of capital structure in Pakistan. Shah and Khan (2007), Ahmad et al. (2013), Shahzad et al. (2022), Ali et al. (2021), Shah et al. (2022) have focused on non-financial firms from various industries that are listed on the stock exchange. Others like Rafiq et al. (2008), Afza and Hussain (2011), Murtaza and Azam (2019), Sheikh and Wang (2011), Qureshi et al. (2012), , Hussain et al. (2020), Sheikh et al. (2023), ul Haque and Shaiq (2023), have focused on individual industries such as pharmaceutical, cement, chemical and sugar industries. Again, there are few studies that have focused only on textile sector such as Shiekh and Wang (2010), Chhapra and Asim (2012), Hussain et al. (2021) and Shar et al. (2023). Almost all these studies that have been conducted for Pakistan have explained leverage through its most common determinants such as Profitability of firms, tangibility of assets, size of firms and growth of firms. Studies like that of Hussain et al. (2020), Sheikh et al. (2023), Haque and Shaiq (2023) use additional determinants tailored to their respective studies. Nevertheless, majority of the studies uses seems to have found consensus on defining leverage which is obtained by dividing Total Liabilities on Total Assets. Very few studies like that of Hussain et al. (2020), Haque and Shaiq (2023) used total debt to total equity which is an alternate measure of leverage. Murtaza and Azam (2019) and Shah et al. (2022) have used three measures based on short term debt, long term debt and total debt whereas using the same denominator of total assets.

One of the major issues found in all the studies conducted in Pakistan is regarding the leverage measure. The conventional leverage measure includes retained earnings/loss in its equity portion. This approach leads to distorted results, specifically in those situations where firms experience financial distress. The primary concern arises when the accumulated loss in such situation exceeds the total assets of a firm which results in negative value for leverage. This negative value lacks any meaning in terms of the very definition of leverage. A typical leverage value must fall between the range of zero and one to be meaningful. Therefore, an alternate measure of calculating leverage is required to address the problem. Furthermore, the conventional measure of leverage when use in regression analysis creates more problems. For instance, most of the studies use profitability as dependant variable whereas, Retained Earning is nothing more than accumulated profits. The resultant coefficient for profitability will always be negative regardless of firms' financial decision. Therefore, the results obtained with using the conventional measure are always biased and inaccurate. There is a need for alternate measure of leverage which could address the above-mentioned issue.

Most of the studies conducted for Pakistan have limited itself to the determinants of capital structure and overlooking the theoretical mechanism behind them. By examining the real-world data researchers can evaluate how well these competing theories are able to explain the variation in leverage under different industries, regions, and economic conditions. Furthermore, it also helps in understanding how firms choose its leverage. Therefore, the studies should go beyond the factors influencing capital structure and dive deep into the underlying mechanism by interlinking these determinants with the existing theories. By this practice, researchers may gain deeper understanding of the decision-making processes within firms. it includes understanding why firms might prioritize internal financing over external financing and how the firms balance between the cost and benefits associated with the modes of financing.

We re-modify the traditional leverage measure by removing the effect of retained earnings from equity which will have two advantages. First, the new measure will strictly follow the zero to one range. Secondly, the measure will focus only on the actual debt to shares ratio rather than financing from retained earnings. consequently, the results obtained will be more accurate and better representative of the capital structure decision.

The research objective for the study is First, to examine the factors that influence the capital structure in textile sector of Pakistan and secondly, to understand the trade-off theory and pecking order theory debate in relation with these determinants.

The study aims to explore the relationship between leverage and its determinants considering existing theories on the capital structure. The study is conducted for textile sector of Pakistan. There are two main reasons for limiting this research to textile sector. First and foremost textile sector is the largest manufacturing sector of the Pakistan's economy with more than a hundred listed companies. It accounts for about 60 percent of Pakistan's exports. The country is also fifth largest producer of cotton, making Pakistan the 9th largest exporter of textile products (IFC, 2023). Studying one of the largest sectors enables as to understand its unique characteristics and challenges in relation to its financial strategy. Policy makers will be to devise targeted strategies for the industry to help cope with financial struggles of the industry as the country often go through crises such as exchange rate and foreign exchange reserves. Under such circumstances informed policy making is required. When policymakers understand how pecking order theory and trade-off works under given circumstances for specific industry, they could easily make changes in their banking sectors and capital markets to ensure availability of adequate funds for the sector. In similar fashion, firms' managers can also take advantage of the informed decision. Secondly, restricting our study to textile sector allows us to keep the industry wise variation constant. Some industries like capital intensive industries have more leverage requirement compared to labour intensive companies which are more equity financed. Keeping these variations constant will allow us to understand the trade-off theory and pecking order theory much better and find also find industry specific determinants rather than a generalised

relationship between the variables.

The remaining paper proceeds as follows. Second section is dedicated to literature review, followed by Methodology, and then Results and Discussion and Finally, conclusion to the study is provided.

2. LITERATURE REVIEW

Modigliani and Miller (1958) provided foundation for the modern capital structure theories. They provided the idea that firms have expected cashflows are generated by the assets of the firm. The assets are financed through debt and equity. However, all mixes of debt and equity will end up in the same cashflows for the firm. Consequently, the capital structure choice has no impact on firms' value. The theorem fails in circumstances where taxes, transaction costs and bankruptcy costs are taken into account. Since a number of factors are available which reject the theorem economists have come up with a numerous alternative theory.

The trade-off theory can be considered a direct descendant of the Modigliani and miller propositions. The theory suggest that firms arrive at an optimal capital structure after balancing the costs and benefits of debt financing. As suggested by Kraus and Litzenberger (1973) there is a trade-off between tax benefits of debt and bankruptcy cost of debt which is reflected in the optimal capital structure. Myers (1984) also explains trade-off theory in form of a targeted debt ratio which firms strive to achieve. Myers also argues that firms rank their financing decision based on information asymmetry. Firms prefer retained earnings over debt and then prefers debt over equity. The main idea of Pecking order theory is that firms do not have a target debt ratio rather than a sequence of financing to follow.

The two suggested behaviours by firms are not directly observable in research. Titman and Wessels (1988) applied an extension of factor analytic technique to observe the indirect relationship of several factors that could explain the variation in leverage. The studies did not reach to specific conclusion but suggested that a strong theoretical linkage between the variable was possible and may explain the optimal capital structure of a firm. In another study Rajan and Zingales (1995) used these same determinants for G7 countries and found them to be correlated with leverage across all countries. Wald (1999) did not find similar relationship across countries and argued that institutional difference across countries was responsible for the variation.

The study of Booth et al, (2001) is possibly the first to examine the relationship of firm's characteristics in Developing countries including Pakistan. It followed the main idea of Wald (1999) to see if institutional difference really matters. Contrary to what Wald believed the firm characteristics were similarly related to leverage in both developed and developing countries. Shah and Hijazi (2004) extended the work by including many non-financial firms listed on Karachi Stock Exchange. The study utilized book value of debt to book value of equity measure for leverage and their descriptive statistics shows a value

maximum value of 1.61 which they described due to retained earnings in textile sector. Not surprisingly they obtained a negative relationship between leverage and profitability which was significant as well. In the study to compare financing behaviour of private and public firms, Qureshi and Azid (2006) used total debt to total assets as a leverage measure and found it to be negatively correlated with profitability. They used simple correlation analysis for the purpose. Shah and Khan (2007) is an improvement of their earlier studies where Fixed effects and random effects are utilized. They again found profitability and leverage to be negatively related. Interestingly when the sample was cleaned from negative values of profit and an auxiliary regression was utilized, the relationship was found to be insignificant. Almost all studies that have followed Shah and Khan (2007) such as Rafiq et al. (2008) Butt and Hasan (2009), Sheikh and Wang (2010), Ahmad et al. (2010) Afza and Hussain (2011), Shiekh and Wang (2011), Qureshi et al. (2012), Chhapra and Asim (2012) and Ahmad et al. (2013) have defined leverage in similar fashion and always found leverage and profitability to be negatively related.

3. METHODOLOGY

The study utilizes Panel data Techniques using fixed effect model for the analysis. Data is taken from "Financial Statement Analysis of Non-financial firms" published by State Bank of Pakistan various editions for period of 1999 up to 2020. 114 firms are selected which only includes those companies for which complete data is available for the mentioned duration. Newly added firms and firms defaulting during this period are ignored. Also, firms with incomplete data for a longer period are dropped from the sample.

We use leverage as our dependant variable. Unlike the previous studies we redefine the leverage measure to free it from weaknesses. Earlier studies such Shah and Hijazi (2004) thoroughly discussed various measures of leverage with their merits. These measures distinguish the short-term and long-term debt structures. Another distinction is made on bases of market and book values of equity. These studies prefer to use total debt to total assets as a suitable measure of leverage. The ideal value of leverage ranges between zero to one. However, the leverage measures defined in this way does not strictly follow the range of zero and one. This is true for scenarios where firms are continuously making losses to the point that accumulated losses offset the value of equity. The leverage measure used in previous studies is very sensitive to changes in profitability by definition and not by causation. The results obtained therefore are misleading. To adjust for this problem, we eliminate retained earnings from equity to get a pure debt to equity ratio which strictly follows the range of zero and one and is not affected by changes in profits directly. for comparison purpose we still use both measures so that we can replicate earlier studies and compare our results with them.

The two measures of leverage are defined as

Lvr=TD/TA   (1)

And

ALvr=TD/TA-RE   (2)

Where Lvr shows the conventional leverage taken in previous studies and Alvr is adjusted leverage defined for this study. Total debt is represented by TD and for total assets we have used TA. We have subtracted retained earnings in the adjusted leverage measure shown as RE in the equation.

Our independent variable includes profitability tangibility and size. These variables are based on previous studies and were found to be significantly related. We define profitability as a ratio of net income to total assets.

$$Pr= Ni/Ta \qquad (3)$$

Here Pr indicates profitability whereas Ni represents Net income. The relationship of leverage and profitability is usually explained by Pecking order theory which states that firms that are profitable will prefer internal financing over external financing. When internal funds are not enough firms will finance their assets with debt first and equity later, therefore a negative relationship exist between the two. All the studies have shown this relationship to be negative but as discussed earlier we believe this relationship occurred due to the inbuilt problem in leverage measure. Trade-off theory would suggest a positive relationship between leverage and profitability because profitable firms have lower chances of financial distress.

Tangibility of firm refers to the ratio of fixed assets and total assets. If firms have more fixed assets they can have higher debt ratios because fixed assets can be used as collateral. We write our tangibility ratio as

$$Tn=Fa/Ta \qquad (4)$$

Tn shows tangibility of assets while Fa represents fixed assets. Studies like that of Titman and Wessels (1988) found tangibility to be positively related to leverage. Both pecking order and trade-off theory suggest positive relationship.

Size of firm has been defined in two different ways by researchers. Shah and Hijazi (2004) prefer natural log of sales of a firm as a measure of size. Alternate measures include natural log of Total assets. Most preferable measure is to take number of employs in a firm however, the data on number of employs was not reported for the data range we are covering. A better alternative to these measures is take an index of total assets and sales which cover both aspects of size as done by Saeed and Mehmood (2018). Since our purpose is to compare our results with previous studies, we limit our self to total assets version of size. We define size as

$$Sz=\ln Ta \qquad (5)$$

Where Sz is used for Size and ln Ta is natural log of total assets. Pecking order suggests a negative relationship of size and leverage whereas trade-off theory suggest positive relationship. Growth is obtained by calculating percentage changes in Total Assets, therefore we obtain the measure as follows.

$$Gr=\Delta Ta/Ta \qquad (6)$$

In this research we have used fixed effect model for our analysis. Researcher usually make choice between fixed effect model and random effect model. for this purpose, usually Hausman test is conducted. Hausman test looks for heterogeneity in the data. Since, our data comprise all the textile firms which is a heterogenous mix of weaving firms, linen and bedding firms, and apparel firms we can use Fixed effect model without going for Hausman Test. Our Fixed effect model can be written as,

$$Lvr_{it} = \alpha_i + \beta_1 Tn_{it} + \beta_2 Sz_{it} + \beta_3 Pr_{it} + \mu_{it} \qquad (7)$$

and

$$ALvr_{it} = \alpha_i + \beta_1 Tn_{it} + \beta_2 Sz_{it} + \beta_3 Pr_{it} + \mu_{it} \qquad (8)$$

Whereas,

Lvr =	leverage
ALvr =	Adjusted leverage
Tn =	Tangibility
Sz =	Size
Pr =	Profitability

The research utilizes balanced panel data of 114 firms that reported in "Financial Statement Analysis of non-Financial firms listed on Pakistan Stock Exchange" for a period from 1999 up to 2020. The sampling was based on the availability of data during the period under study. Therefore, only those firms are eliminated from the study which do not have complete data available for these years. In some cases where two to three years data was missing, the researchers used interpolation and 5 years moving average to complete the data.

Results & Discussion

In this section we start by exploring the variables for its properties before moving to the regression analysis. This will help us understand the nature of variables first and gain some valuable information before the in-depth analysis. The study explores the descriptive statistics and histograms of both dependent variables and compare them initially, later moving to the independent variables. Finally, we explore the relationship of dependent and independent variables in light of methodology and theories discussed in Methodology section.

The descriptive Statistics for both our leverage measures are taken into consideration. Total observations for both measure under study are 2508 which are obtained from 114 firms with 22 years of data. The mean value for both measures are almost identical with value of 0.74 and 0.78 for adjusted leverage and leverage having a difference of only 0.04. but mean value of common measure of leverage is relatively on lower side of 0.68 as evident from table.

Descriptive Statistics for Leverage

Table 1.
Descriptive Statistics of Leverage

	Leverage Adjusted for RE	Leverage
Mean	0.74	0.78
Median	0.79	0.68
Maximum	1.00	16.55
Minimum	0.00	-0.07
Std. Dev.	0.21	0.84
Skewness	-1.26	12.27
Kurtosis	1.47	193.97
Observations	2508	2508

The true difference comes in the range of both the variables. The maximum value for common leverage is 16.55 which is way beyond the normal range of zero and one. Furthermore, the minimum value for common leverage is -0.07 which again deems the measure meaningless. That is why we needed the adjustment in our dependant variable. After adjusting for retained earnings our leverage measure now restricted to the true range of zero and one. The after adjustment maximum value of leverage is 0.999 rounded off to 1. Whereas the minimum value is 0.001 rounded off to zero. In both cases the measure is well bounded by zero and one which gives the measure more explanation power.

The distribution of the data can be explored through histograms giving us detailed information about the two measures.
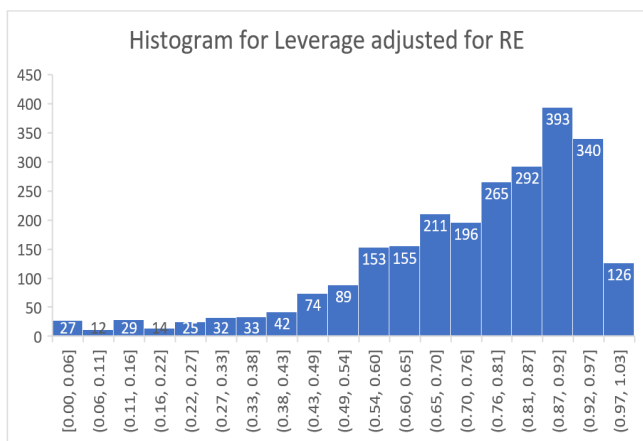

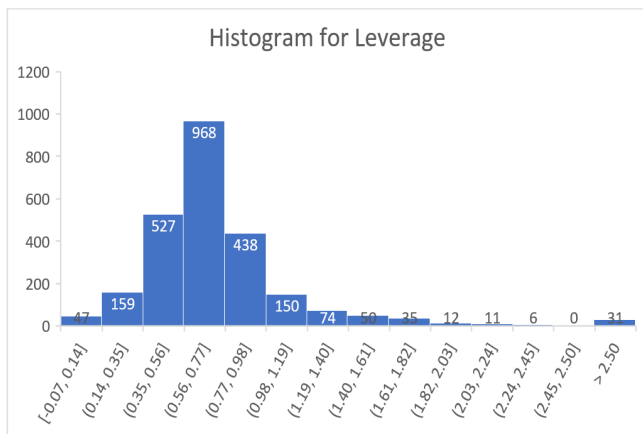**Figure 1.** Histogram for Leverage adjusted for RE

Figure 2. Histogram for Conventional measure of Leverage

Histograms reveals that 339 observations have value greater than one, whereas 6 observations are in the negative range. This means that around 13 percent of the observations do not follow the ideal range of leverage. Again, it shows the importance how the adjustment that has been made in calculating the leverage. On the other hand, the corrected measure of leverage stays restricted to its boundaries of zero and one, making the analysis more reliable.

The descriptive statistics also reveals some important information regarding the nature of the independent variables. Profitability is calculated as Net income to Total Assets. Since it is in ratio form profitability is expected to

have very small values. It is therefore evident from the descriptive statistics that its mean value is very close to zero with maximum value of 5.57 and minimum value of -1.96. However, very few values are in such extreme and kurtosis reveal most of the value are very close to the mean.

Table 2.
Descriptive Statistics of Independent variables

	Profitability	Tangibility	Size	Growth
Mean	0.00	0.56	14.03	0.00
Median	0.01	0.57	13.98	0.00
Maximum	5.57	1.00	18.58	0.37
Minimum	-1.96	0.00	7.61	-0.35
Std. Dev.	0.22	0.21	1.54	0.02
Skewness	8.79	-0.29	-0.28	-0.16
Kurtosis	251.94	2.92	4.28	75.29

Tangibility of Assets have mean value of 0.56 with value touching both the boundaries. These firms are usually under financial distress or near to bankruptcy and are very few in numbers in our sample as most the data is normally distributed. Firm size is measured as log of Total Assets. Maximum value for firm size under observation is 18.5 whereas the minimum value is 7.6, with the observations to be normally distributed around the mean value of 14. Firms' growth is measured as percentage change in total assets. Average growth rate for firms is zero that is because the positive growth rate is offset by negative growth rates. The descriptive statistics hints to a stagnant industry of textile sector of Pakistan as its twenty years of data shows that there are no profits in the industry on average as well as the industry is not showing any growth over time. However, in depth study is required before reaching to any conclusion.

The study analyses correlation between the dependent and independent variables to form an initial opinion about the relationship between the relationship between them. Table 2. Explores these correlations.

Table 3.
Correlation Matrix of Dependant and Independent Variables

Correlation Matrix					
	Leverage	Adjusted leverage	Profita-bility	Tangibility	Size	Growth
Leverage	1.00					
Adjusted leverage	-0.01	1.00				
Profitability	-0.23	0.08	1.00			
Tangibility	-0.03	-0.22	-0.06	1.00		
Size	-0.31	0.46	0.09	-0.26	1.00	
Growth	-0.19	0.19	0.06	-0.02	0.23	1.00
Kurtosis	251.94	2.92	4.28	75.29		

The Results reveals that both measures of leverage are significantly different form each other as there is no correlation between them. Furthermore, the older measure of leverage is highly correlated with Profitability. This is because when profitability is high, greater will be retained earnings, and consequently lower the value of leverage. On the other hand, when the leverage measure is adjusted for retained earnings the correlation between profitability and leverage drops significantly. Thus, the correlation supports the use of adjusted measure of leverage.

The correlation matrix also suggests strong relationship between dependant and independent variables except for profitability the reason for which has already been

discussed above. Furthermore, there is a strong negative correlation between tangibility and size. And growth and Size, however these relationships are not strong enough to cause multicollinearity.

We use fixed effect model for the purpose of this analysis. Although all the firms are from textile sector there is still some heterogeneity in their nature as textile sector, textile sector itself includes amalgam of various categories such as apparels producing readymade clothing, home furnishings that includes products like curtains and bed linens, whereas other firms are specific only to spinning and weaving. These firm specific characters may influence the way independent variables effect leverage. Therefore, using fixed effect models allow us to treat firm specific effects constant in our models. We have also taken both measures of leverage which will enable us to compare our results for both measures. The results of the model are provided in table 3.

Fixed Effect Regression Analysis

Table 4.
Regression Analysis using Fixed Effect Model

Fixed Effect Regression Analysis				
	Adjusted Leverage		Leverage	
	Coefficient	t-statistics	Coefficient	t-statistics
C	0.47	7.97	4.17	16.52
Profitability	0.01	0.5	-0.61	-9.69
Tangibility	-0.08	-4.08	-0.45	-5.41
Size	0.02	5.24	-0.22	-12.59
Growth	0.74	4.96	-3.2	-5.07
R-Squared	0.49		0.43	
N	23944			
Cross-sections	114			
Time periods	21			

Using the earlier measure of leverage the results suggest that profitability is negative related to leverage. The result is coherence with previous work except for Hussain et al. (2020) which suggested mixed results for sugar industry, and Ali et al. (2021) which showed positive results for KSE 100 indexed companies. There are few studies that did not observed significant relationship between profitability and leverage that includes Chhapra and Asim (2012) for textile sector and Haque et al. (2022) for mixed companies including textile sector, but it worth to note that none of their variables were significantly related to leverage.

For the adjusted measure of leverage the regression does not suggest any significant relationship between profitability and leverage. This relationship is contrary to the other studies as most of them used leverage without adjusting for retained earnings. This means that increase in profitability increases retained earnings and consequently, lowers the leverage ratio. This decrease in leverage is only due to reinvestment of profits whereas no new shares are issued. Thus, the actual ratio of debt to shares remains unchanged. Therefore, we can conclude that profitable firms have more access to internal fundings to finance their new projects but that does not motivate the firms to issue more debt.

Pecking order theory suggests that firms choice is hierarchical, preferring internal financing over external financing. Therefore, firms will utilize its retained earnings first. The results slightly support pecking order theory as firms are utilizing its retained earnings. But by using the new measure we did not observed any change in debt-to-equity ratio when firms profitability declines. Contrary to Pecking order theory the trade-off theory suggests a positive relation between the two variables. The theory argues that when firms are profitable, their risk of bankruptcy is low. Therefore, these firms have the advantage of borrowing more which will increase their leverage. The regression does not predict any increase in leverage in both the measures of leverage. Hence, there is no evidence supporting trade-off theory in this case.

Tangibility has been found negatively related to measures of leverage. This indicates that firms with more tangible assets depends more on equity and less on borrowings. The result is counter intuitive to both Pecking order theory and trade-off theory. More tangible assets mean increased capacity of borrowing for firms and low risk of default. Thus, firms leverage is expected to increase as suggested by trade-off theory. On the other hand, Pecking order theory also suggest that firms would prefer debt to equity after their retained earnings are exhausted. Nonetheless, firms have preferred more equity as tangibility of firm increased. Some studies associate the behaviour to agency cost theory however the relationship needs further exploration.

This study obtained a positive relationship between firms' size and leverage. The result is in coherence with most previous studies except for Ahmad et al. (2013) and shar et al. (2023). The study of Shar et al. (2023) was specifically conducted for textile industry but they did used the older measure of leverage for which we obtained a similar negative relationship when using the unadjusted leverage. This negative relationship is associated with retained earnings and not the actual decision of debt vs equity choice. This again shows the importance of the adjustment we have made in this study. Trade-off theory supports the positive relationship between the two variables by arguing that larger firms are more diversified and have more stable cashflows. Consequently, their chances of bankruptcy are low, allowing them to borrow more. Pecking order theory suggest firms prefers internal financing by using retained earnings and then using debt and choosing external financing as last option. Thus. larger firms are expected to have more retained earnings and lesser need for external financing. Therefore, a negative relation is expected. Since the unadjusted measure uses retained earnings a negative relationship might support the pecking order argument.

Firm growth has shown positive relationship with our adjusted measure of leverage. Whereas it is negatively related to the unadjusted leverage. Empirically, the results are found to be mixed in previous studies conducted for Pakistan. Theoretically, pecking order theory predicts a positive relationship between leverage and firms' growth rate. Um (2001) argues that growing firms need more financing as retained earnings are not enough, therefore, growing firms may borrow more. Trade-off theory on the other hand considers growing firm to be at high risk of solvency, thus, having higher weighted average cost of capital. Consequently, growing firms will borrow less and

raise its capital through shares. Our results are in coherence with Pecking order theory explanation since we obtained a positive relationship between the two.

4. CONCLUSION & IMPLICATIONS

The study on Capital structure is not new, rather it stems back to the pioneering work of Modigliani and Miller (1958) arguing that firms value is independent of its capital structure. Their idea back origin for many theories such as Trade-off theory, Pecking Order theory, Signalling theory, Agency Cost theory and some others. Out of all these theories trade-off theory and pecking order theory got significant attention and are often presenting as competing theories. Trade-off theory advocates the presence of an optimal leverage, whereas pecking order theory believes in the presence of hierarchical sequence of financing. While these two theories are not directly observable researchers tried to explain them indirectly through various behavioural patterns observed in capital structure. Some researchers like Rajan and Zingales (1995) observed changes in capital structure through its determinants and then attempted to explain these changes from theoretical perspective. Many researchers in both developed and developing countries followed their work and tested the determinants in various political and financial environments. A number of studies were also conducted in Pakistan to check how capital structure respond to its determinants.

One common problem associated with these studies was of the use of leverage measure. The conventional leverage measure suffers from two flaws. First, by definition leverage ratio is bounded by values of zero and one, but the conventional measure did not follow this range which makes it meaningless. This occurred specifically in cases where retained losses exceeded total assets or the factor used in denominator. Secondly, many studies that are conducted internationally and almost all studies conducted for Pakistan have tested the relationship between profitability and the conventional measure of leverage. Since Retained Earnings is part of the conventional leverage, retained earnings is nothing more than accumulated profits. Therefore, any regression technique will always show a significant negative relationship between the two but in more like a mathematical identity rather than causal relationship. Hence, this research utilizes and adjusted version of the conventional leverage by subtracting the Retained Earnings from its equity. This adjusted measure not only strictly follows its definitional range of zero and one but in addition shows the actual changes in debt-to-equity ratio providing more accurate results.

The second issue that arises in studies conducted in Pakistan is that most of the attention is on the determinants itself and very little discussion is provided on its theoretical backing. We need to understand how the theories behind capital structure work, which will help us in policy making process both at institutional level and firm level. This study focuses not only on the determinants but interpret them in light of the pecking order theory and trade-off theory. To explore the relationship of determinants with leverage

the study utilizes data from 114 firms with 21 years of data from textile sector of Pakistan published in various editions by State Bank of Pakistan. Four determinants are used for the study which were found to be most significant and commonly used in previous studies. These determinants are profitability of firm, tangibility, size and growth of firm. For dependant this research uses both conventional measure of leverage and the adjusted measure for comparison purpose. The study uses fixed effect model as a tool of analysis to find out the relationship between the dependant and independent variables.

The descriptive statistics were analysed which strongly supported our argument as 13 percent of values in conventional measure were beyond its range whereas, the adjusted measure strictly followed the defined range. Regression results also suggested that while using conventional measure leverage and profitability were significantly related with negative coefficient. As argued before this result was due to the nature of variable and not casual relationship. The study did not find any significant relationship of adjusted leverage with profitability. The results suggest negative relationship between tangibility and leverage for both measures of leverage. For size of firm and growth of firm the regression suggested positive relationship with adjusted measure of leverage whereas negative relationship with conventional measure.

This study found mix results relating to Pecking order theory and trade-off theory debate. According to Pecking order theory firms prefer financing from retained earnings first, then debt and lastly equity. It is observed that when profitability increases, retained earnings increase thus the overall equity increases lowering leverage. This behaviour partially explains pecking order theory, but we did not found any evidence where firm would choose debt over shares in case profitability was low. Our adjusted measure did not show significant response to changes in profitability. Furthermore, firms with more collateral are able to borrow more when retained earnings are not sufficient. Contrary to what pecking order theory suggest we obtained negative relationship. Firm size also plays crucial role in determining leverage. Pecking order theory suggests larger firms to have more retained earnings and thus predicts negative relation. The conventional measure is found to be negatively related with firm size which support the theory. Our last variable growth showed positive relationship with the adjusted measure. This result is also in coherence with Pecking order theory as growing firms have insufficient retained earnings, so they rely more on borrowing.

There was little support in favour of trade-off theory. The only relationship that supported trade-off theory was of firm size and leverage. Bigger firms are considered to be more stable and less prone to bankruptcy. The evidence suggest that as firm size increases firms tend to borrow more.

The implications of this study are multifaceted and provides valuable insight for both academic research and practical applications in the field of finance. The study introduces refined measure of leverage that excludes the

retained earnings from equity which provides an accurate and better version of the debt-to-equity ratio which not only adheres to the ideal range of leverage but also becomes more meaningful when used as dependant variable in regression. Researchers and financial analyst may adopt this new measure for further research in the field of finance. Furthermore, this study encourages researchers to study capital structure beyond its determinants and focus on the underlying mechanisms explained by various theories developed overtime. This will enhance decision making for policy makers as well as firm managers.

While the study has significant contributions it has certain limitations as well. Firstly, the investigation is limited to textile sector of Pakistan. These results cannot necessarily be generalised to all other sectors of the country which are equally important for the economy. Similarly, the study is limited to a few determinants identified mostly in previous studies, however a number of important determinants may have been omitted in the research. The study has also ignored the dynamic nature of capital structure which might play important role in determination of leverage. Furthermore, financial decision involves human elements that are of qualitative nature, while our study is only limited to the quantitative variables. Finally, the capital structure debate is a wide topic and can be studies through several dimensions, studying it through determinants is very minute part of a large field of study. Further studies from various dimension are required to understand the debate in more depth.

Conflict interests

The authors has declared that no competing interests exist.

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