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## DETERMINANTS OF CAPITAL STRUCTURE: A CASE OF NON-FINANCIAL SECTOR OF PAKISTAN

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### ABSTRACT

The purpose of this study is to investigate the determinants of the capital structure of the Sugar Industry in Pakistan. This study reviews different theories related to the capital structure to formulate testable propositions concerning the determinants of the capital structure of the sugar industry of Pakistan. Panel data econometric techniques such as fixed effects and random effects are used to investigate the most significant factors that affect the capital structure choice of sugar firms listed on the Pakistan Stock Exchange for the period 2009-2018. The results of the study suggest that variables such as firm size, financial flexibility, asset structure, profitability, liquidity, growth, risk, and affect all measures of the capital structure of Pakistan corporations. Short-term debt is found to represent an important financing source for corporations in Pakistan. Firm size and current ratio have a negative and significant relationship with Capital Structure ratios. Long term debt, Working Capital, Asset Structure, asset utilization, Effective tax rate, Financial Flexibility, Growth opportunity, Risk Volatility have a positive and significant relationship with Capital Structure ratios. Due to the existence of a negative relationship between profitability and capital structure, investors must consider capital structure before making investment decisions.

Keywords: Capital Structure, Asset Structure, Effective Tax Rate, Financial Flexibility



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### INTRODUCTION

Capital structure gives special importance to debt and equity and ratio that has to be used for debt and equity to provide finance to the firm. Financial decisions are very important for every firm; if a wrong decision is taken regarding finance, it will badly affect the firm and might direct firms to the financial suffering or insolvency. So, the administration of every firm must set its capital structure in such a manner that the value of the firm and shareholders' wealth is maximized. There are so many studies that tried to discover the optimal capital structure, but no specific method has been developed

yet for the managers that may determine the optimal level of capital structure (Sheikh & Wang, 2011). (Myers & Majluf, 1984b)also, explain how the managers of the firms are unable to maintain the required level of capital structure. As an alternative, the selection of corporate financing is made by the cost of an adverse selection that may arise due to information asymmetry among better-informed managers and less informed investors (Hovakimian, Hovakimian, & Tehranian, 2004). According to Simerly and Li (2000), to set the right capital structure is a difficult choice for any business association. The basic reason why management wants to find optimal capital structure, i.e., to lessen the cost of capital and amplify firm market value (J. L. Viviani, 2008).

Literature review explains that there are many studies that are conducted on the capital structure of industrialized and developed countries (Hovakimian et al., 2004; Rajan & Zingales, 1995; Shyam-Sunder & Myers, 1999) and developing countries (Booth, Aivazian, Demircug-Kunt, & Maksimovic, 2001). However, the results of these studies do not explain the importance of capital structure. That's maybe a reason that firm uses the short term and long term debts because of their ownership structure or either they are in developing or developed countries. There is no such work has been done that may explain which factors manipulate the capital structure decision, but the research findings may help management to decide the optimal capital structure of a firm. It is moreover vital to determine whether the factors that may have an effect on the capital structure decision of developed countries can also affect the capital structure decision of Pakistani companies and whether the effect of such factors (if any) is different.

The lack of such consensus those are present among the researchers concerning the factors that affect the decision of capital structure, and there is very small research that explains the financing behavior of Pakistani sugar and allied industries are some basis that creates the requirement for such research. Now we hope that the results of this study will not only fill such a hole but also give some foundation on which further thorough assessment could be based. The research problem of my study is to expose the optimal capital structure of Pakistani sugar firms by using the variables and models measured by other researchers in their studies. The main objective of this study is to investigate what determines the capital structure of sugar and allied industries in Pakistan. This study also considers categorizing factors taken by other corporations prior to making any financing decisions. It provides insight check on how such factors can affect a firm's value recognizing the fact of how the capital structure has an effect on shareholder value. This study enhances understanding the consequence of capital structure on the profitability of an organization. It also determines how capital structure imitates the prospect plans of an organization. □

The firm's size has forecasted an optimistic impact on the level of debt. A huge-sized firm is not so much probable just before the turn into 'bankrupt,' and for that reason, draw additional liability. Consistent with "trade of theory," ratios of debt must have an optimistic relation with 'firm size' (Castanias, 1983; Titman & Wessels, 1988). As bigger companies are likely to be further expanded and contain an inferior variation of income, allow standing elevated 'debt ratios.' Marsh (1982) explains "pecking order theory" that, 'large-sized company' provide increase to the better asymmetry of information thus, draw fewer debts, or huge firms contain an extra right of entry to 'equity funding' than little firms According to Deloof and Van Overfelt (2008), the survival of inverse relation among 'firm size' and 'capital structure' might be because of the reason that bigger firms have the aptitude of financing by the issuance of shares other than financing through debt, that is why bigger firms employ fewer debt in their 'capital structure.' Most of the researchers accomplished that "firm size" has a positive relation with 'capital structure' of a firm (Agrawal & Nagarajan, 1990; Al-Fayoumi & Abuzayed, 2009; Andres, Cumming, Karabiber, & Schweizer, 2014; Artikis, Eriotis, Vasiliou, & Ventoura-Neokosmidi, 2007; Bae, 2009; Du & Dai, 2005; Ebeh Ezeoha, 2011; Hovakimian et al., 2004; Huang, 2006; Serrasqueiro, Nunes, & da Silva, 2016; Yu & Aquino, 2009). Additionally, Karadeniz, Yilmaz Kandir, Balcilar, and Beyazit Onal (2009) accomplished that firm size has no major relation with debt ratios and capital structure. As well, the consequences of Rajagopal (2011) exposed that larger firms have less debt. Suto (2003) and Driffield,

Mahambare, and Pal (2007) have used the natural logarithm of total assets to compute firm size. Remaining reliable with the proof from the United States, our studies also have an experience that huge Pakistani firms probably have higher leverage. We also use firm age as a substitute for firm size (Frank & Goyal, 2009). H1: There is a negative relationship between firm size and debt ratios.

Liquidity ratios might have a diverse effect on "capital structure decisions." Consistent with "Trade of Theory," companies must make sure enough liquidity by accepting debt so as to fulfill their obligations and accepting this 'theory,' there has to be optimistic relation among liquidity and debt ratios/. As a contrary, on the basis of "Pecking order theory," "Agency theory" and "Free cash flow theory," there must have inverse relation among liquidity and capital structure, i.e., for according to these theories, firms that have sufficient liquidity have less requisite for external financing and borrowing. Myers and Rajan (1998) disagree that "when agency costs of liquidity are elevated, external creditor's boundary the sum of debt financing accessible to the firm." Current Rationratio (as a measure for assessing liquidity) has a major inverse relation with debt ratios on each level of risk (Eldomiaty & Azim, 2008). H2: There is a negative relationship between liquidity ratios and debt ratios.

Fixed assets' are typically those acquired by debt and are considered as back up for creditors when the firm is liquidating. We can also say that a part of firm debt capacity is taking in with intangible assets, which are referred to as asset structure (Schwartz & Aronson, 1967) According to Titman and Wessels (1988), consistent with "agency cost theory," the shareholders of leveraged corporations contain inducement to spend deficient. On the basis of the "trade-off theory," the tangibility of a company figures out an optimistic influence on the level of debt. Firms are having extra 'tangible assets' that require further 'security assets' to repair debt in case of 'bankruptcy,' thus, having more capacity to draw further debt. Robert and Lloyd Hunter (1995) explains that "tangible assets can have an inverse effect on 'financial leverage' over augment threat because of a boost of operating leverage." Chiang, Cheng, and Lam (2010) accomplished that, "there is a positive relationship among asset structure and long-term debt ratio." Furthermore, many researchers have shown that there is optimistic relation among asset structure and debt ratios (Antoniou, Guney, & Paudyal, 2008; Deloof & Van Overfelt, 2008; El-Masry, Al-Najjar, & Taylor, 2008; Frank & Goyal, 2003; Heshmati, 2001; Mitton, 2008; Teker, Tasseven, & Tukul, 2009; J.-L. Viviani, 2008). Additionally, the results of research on small and average firms point out significant positive relationships among 'asset structure' and long-term "debt ratio" (Sogorb-Mira, 2005). Additionally, some studies have arrived at dichotomist results. 'Asset structure' has a negative relation with 'short-term debt ratio,' but having a positive relationship with 'long-term debt ratio' (Abor & Biekpe, 2009; Amidu, 2007). H3: There is a positive relationship between asset structure and debt ratios.

Using debt in the capital structure makes agency costs (Ahmed Sheikh & Wang, 2011). Make use of assets, and their calculated Rationratio indicates the strategic significance of agency costs. Based on FCFT, the higher this Rationratio, the more will be the efficiency of managers in accepting and utilizing assets (Eldomiaty & Azim, 2008). Based on agency costs, this Rationratio is predictable to be higher, and it highlights a decrease in costs and efficiency of operations (Jermias, 2008). H4: There is a negative relationship between asset utilization and debt ratios.

□

The tax rate has an optimistic forecast effect on debt. Firms in front of elevated effectual 'corporate tax rate' should, or will advantage from, undertake additional debt to make most of the 'tax deduction' of debt interest. Companies have a preference debt on additional 'financing resources' by reason of 'tax deductibility' of interest expenses (Modigliani & Miller, 1963b). According to Antoniou et al. (2008), the gain from acquiring rises along with the tax rate. So, optimistic relation was probable among 'effective tax rate' and debt ratio. Furthermore, DeAngelo and Masulis (1980) explained that on the basis of the "trade-off theory," income tax is optimistically linked by debt. Founded significant optimistic relation among 'effective tax rate' of firms and 'long-term debt ratio'

and that tax affects financing decisions (Graham, 1996; Zimmerman, 1983). H5: There is a positive relationship between effective tax rate and debt ratios.

Predictable maintenance rate (financial flexibility) did influence the target "debt ratio" (Marsh, 1982). Companies having higher profitability have less preference for external financing (Myers & Majluf, 1984a). Also, consistent with the pecking order theory, managers favor internal financing to external financing. Financial flow and power of firms and the successive use or disuse of debt financing depend on the financial flexibility of the firms. Along with Beattie, Goodacre, and Thomson (2006), firms with more financial flexibility have less debt, as these firms prevent the need for external financing by raising their flexibility. Furthermore, other researchers accomplished that "financial flexibility" is a basic "determinant of optimal capital structure," and this issue is reliable with a trade-off theory (Brounen, De Jong, & Koedijk, 2006; Graham & Harvey, 2001). H6: There is a negative relationship between financial flexibility and debt ratios.

Major optimistic relation among 'growth opportunities' of a company and 'debt ratios' and accomplished that, companies have "growth opportunities" go quicker on the way towards 'optimal capital structure' (Cassar & Holmes, 2003). Furthermore, according to Amidu (2007) and Heshmati (2001), results related to some other research studies exposed an important positive relation among 'growth opportunities' and debt ratios. There is an insignificant relation between 'growth opportunities' and 'debt ratios' (Artikis et al., 2007; Karadeniz et al., 2009). Growth entails important 'equity financing' and 'low leverage.' Lastly, there is a negative relation between "growth opportunities" and "debt ratios" (Huang, 2006; Ooi, 1999). Deesomsak, Paudyal, and Pescetto (2004) pointed out that apart from Australia, growth opportunities and leverage has a negative relation. Two measures are taken in this study to find out 'growth opportunities.' The first measure is "sales growth," which is estimated by taking out the present year's sales from the prior year's sales and dividing the end result with the prior year's sales. The other measure is "expected assets growth," which is found out by taking away present year's assets from the prior year and dividing the answer by the prior year's assets. H7: There is a negative relationship between growth opportunities and debt ratios.

Risk plays a very significant role in capital structure (Baranoff, Papadopoulos, & Sager, 2007). The theory of finance trade of theory suggests that risky firms or firms that have a high chance of default should not be highly levered (Titman & Wessels, 1988; Wiwattanakantang, 1999). Therefore, according to the trade-off theory, the risk is negatively linked with 'debt.' The inverse relationship among "operating risk" and "leverage" is predictable from the "pecking order theory" viewpoint. The firm having higher threats of huge instability in earnings is more assuring to become 'bankrupt,' thus, having lower "credit-worthiness" of debt. Among risk and debt's market value, there is a positive relationship when the market has a higher growth (Jordan, Lowe, & Taylor, 1998). This positive relation might be because of bankruptcy risk boost with the firm's debt. In addition, companies having greater risk have greater long-term debt (Omran & Pointon, 2009). Ebeh Ezeoha (2011) showed that business risk has no significant relation with debt ratios. Results of other research studies as well confirm the nonexistence of a relationship between risk and debt ratios (Cassar & Holmes, 2003; J.-L. Viviani, 2008). Additional, many studies have shown that the relation among risk and capital structure is negative, i.e., a firm's debt decreases with increased risk (Abor & Biekpe, 2009; Chung, 1993; El-Masry et al., 2008; Eldomiaty, 2008; Heshmati, 2001; Low & Chen, 2004; Serrasqueiro, 2011). Frank and Goyal (2009), an inverse relation, were reported among the firm's risk and leverage, which hold the "trade-off theory." H8: There is a negative relationship between risk and debt ratios.

Based on the "trade-off theory," companies having higher 'profitability' must contain greater 'leverage' and 'debt ratios,' because firms that are having great profitability have lower 'bankruptcy risk,' and creditors consist of a higher propensity for financing such companies. The amount of 'leverage' of companies is because of asymmetric information have an important optimistic relation with 'profitability' (Brealey, Leland, & Pyle, 1977). Several researchers accomplished that profitability and debt ratios are linked positively

(Chiang et al., 2010; Jordan et al., 1998; Margaritis & Psillaki, 2007; Reinhard & Li, 2010). Based on POT, firms with extra profitability have fewer debt ratios; in fact, firms having higher 'profitability' don't require exterior funding and frequently employ interior funding, for this cause, they possess fewer debt in their capital structure. This proposes that exceedingly money-making companies will be susceptible to funding investments with 'retained earnings' before employing debt. Companies require exterior funds for financing, which receive debt have precedence above equity issuance in 'financing decisions' and that this theory better state the financing behavior of firms (Lemmon & Zender, 2010). Companies are having more 'profitability' having less debt, and 'cash flows' for short-term of companies are spent on paying and clear up debts. Mostly research studies verify this matter (Abor & Biekpe, 2009; Ahmed Sheikh & Wang, 2011; Al-Fayoumi & Abuzayed, 2009; Amidu, 2007; Brav, 2009; Deloof & Van Overfelt, 2008; Ebeh Ezeoha, 2011; Ebel Ezeoha, 2008; El-Masry et al., 2008; Eldomiaty, 2008; Gaud, Jani, Hoesli, & Bender, 2005; Graham, 2000; Hall, Hutchinson, & Michaelas, 2004; Heshmati, 2001; Huang, 2006; Karadeniz et al., 2009; Kim, Heshmati, & Aoun, 2006; Laser, 1999; Lemmon & Zender, 2010; Rajan & Zingales, 1995; Sogorb-Mira, 2005; Strebulaev, 2007; J.-L. Viviani, 2008; Yu & Aquino, 2009). Abor (2005) show that profitability is optimistically linked with a 'short-term debt ratio' and negatively linked with 'long-term debt ratio.' There is no major relation among "long-term debt ratio" and "profitability," while profitability in small firms has an inverse relation with "short-term debt ratio" and "total debt ratio." H9: There is a negative relationship between profitability and debt ratios.

## METHODS

This study investigates the determinants capital structure that is necessary to develop an optimal capital structure by using data of Sugar and Allied industries in Pakistan listed in "Karachi Stock Exchange (KSE)" utilizing data available by "State Bank of Pakistan" (SBP). Those companies who provided their 'annual accounts' with no major gaps for this time are chosen. The information for this investigation is gathered from Sugar and Allied industries for a period 2009-2018. The information distributed by SBP gives helpful data on key records of "financial statements" of every "non-financial firm" listed on the "Karachi Stock Exchange." Furthermore, it permits for computation of several variables that are related to studies of companies in urbanized nations. After taking into account any missing information, the final sample comprises of 34 firms over a seven-year time span. Companies understudy signify powerful manufacturing power in Pakistan, and it is projected that sample might perform sound in confining collective leverage in the country. Our sample ultimately includes 25 firms that include data ending in 2018. In aggregate, we have 175 observations. Every organization with any absent observations regarding every variable throughout the sample time has been dropped. Companies that function in the monetary sector are not incorporated in this study, 29 as their 'balance sheets' having diverse formation from those of 'non-financial firms.' Finally, 25 firm-year observations were investigated within a ten-year period. Our data is an "unbalanced panel" due to absent observations. The sample time, from 2009 to 2018, is due to the accessibility of data and the purpose of keeping a similar time frame to allow for comparability. □

On the basis of accessibility of data, following "determinants of capital structure" are analyzed in our study: effective tax rate, size, liquidity (current ratio and working capital ratios), financial flexibility, assets structure, growth opportunities (sale growth and expected growth), risk (volatility and variability coefficient of profit), profitability, and assets utilization ratio.  $STDit + LTDit + TDit = \beta_0 + \beta_1SIZEit + \beta_2CRit + \beta_3WCRit + \beta_4ASSTit + \beta_5AURit + \beta_6ETAXit + \beta_7FLEXit + \beta_8GROit + \beta_9RVOLit + \epsilon it$  (Pooled Model).  $STDit + LTDit + TDit = \beta_0i + \beta_1SIZEit + \beta_2CRit + \beta_3WCRit + \beta_4ASSTit + \beta_5AURit + \beta_6ETAXit + \beta_7FLEXit + \beta_8GROit + \beta_9RVOLit + \mu it$  (Fixed Effect Model).  $STDit + LTDit + TDit = \beta_0 + \beta_1SIZEit + \beta_2CRit + \beta_3WCRit + \beta_4ASSTit + \beta_5AURit + \beta_6ETAXit + \beta_7FLEXit + \beta_8GROit + \beta_9RVOLit + \epsilon it + \mu it$  (Random Effect Model)



## RESULTS AND DISCUSSION

Table 1 gives the overall review of 'dependent and independent variables.' It shows that the mean (average) value of short term debt is 0.6223429, long term debt is 0.3318857, and long term debt is 0.9528571, whereas standard deviation long term debt is 0.87247, short term debt is 0.51424, and total debt is 1.32817. These values indicate that the most important financing source of Pakistani sugar and allied industries are debts and, in particular short term debts. Size measured by the natural logarithm of a total asset has (9.421486) average value and (0.45103) standard deviation. Whereas is minimum and the maximum value is 7.89 and 10.57, respectively. Liquidity measured by the current ratio, and the working capital ratio has 1.1952 and -0.2164574 mean, respectively. The asset structure has (0.6109143) mean and (0.33356) standard deviation. The asset utilization ratio has (1.399771) mean and (0.92539) standard deviation. The effective tax rate has (-0.0286857) mean and (0.56128) standard deviation. Financial flexibility has (-0.3005714) mean and (1.42661) standard deviation. Growth opportunity has (0.0237162) mean and (0.22958) standard deviation. Risk volatility has (0.1013218) mean and (0.10982) standard deviation. Descriptive statistics of variables show that all the variables' means are greater than their medians (except for WCR), indicating that the distribution is skewed to the right. Maximum and minimum mean the maximum and minimum values in figures that represent the values of variables. In our case, the maximum value is 14.52, which is the value of the current ratio. The minimum value included in data is -12.56; that is the value of financial flexibility. □

**Table 1. Descriptive Statistics**

Variable	N	Mean	SD	Minimum	25%	Median	75%	Maximum
STD	175	0.6223429	0.87247	0.02	0.34	0.46	0.55	8.58
LTD	175	0.3318857	0.51424	0	0.12	0.23	0.33	3.94
TD	175	0.9528571	1.32817	0.12	0.55	0.7	0.81	12.16
SIZE	175	9.421486	0.45103	7.89	9.19	9.49	9.69	10.57
CR	175	1.1952	1.53252	0.06	0.61	0.92	1.12	14.52
WCR	175	-0.216457	0.85778	0	-0.19	-0.03	0.03	0
ASST	175	0.6109143	0.33356	0.12	0.5	0.61	0.69	4.57
AUR	175	1.399771	0.92539	0	0.84	1.17	1.75	5.09
ETAX	175	-0.028685	0.56128	-1.77	-0.21	-0.07	0.08	3.41
FLEX	175	-0.300571	1.42661	-12.56	-0.15	0.04	0.14	0.36
GRO	175	0.0237162	0.22958	0	-0.04	0.03	0.12	0
RVOL	175	0.1013218	0.10982	0.01	0.04	0.07	0.12	0.61

Notes: STD: short term debt ratio, LTD: long term debt ratio, TD: total debt ratio, SIZE: firm size, CR: current ratio, WCR: working capital ratio, ASST: asset structure, AUR: asset utilization ratio, ETAX: effective tax rate, FLEX: financial flexibility, GRO: growth opportunity, RVOL: risk volatility. □

Ahead of "correlation" among "explained and explanatory variables" at times "explanatory variables" correlate with each other. To find out either "explanatory variables" are correlated with one another or not, this study performs a "Multicollinearity test" (which clarifies the correlation among two explanatory variables). The "Multicollinearity" can be tested in two ways that are: "Correlation Matrix" and "VIF (Variance Inflation Factor)." In the 'correlation matrix,' the existence of 'Multicollinearity' is indicated by a high correlation among 'explanatory variables.' Multicollinearity exists if a correlation among explanatory variables falls between 0.80 and 0.90 (Kennedy, 1998). According to Anderson, Sweeney, and William (1999), the multicollinearity exists if correlation surpass 0.70

**Table 2. Correlation Matrix**

	STD	LTD	TD	SIZ E	CR	WC R	ASS T	AUR	ETA X	FLE X	GR O	RV OL
STD	1											
LTD	0.82 14*	1										
TD	0.97 52*	0.92 68*	1									
SIZE	- 0.56 11*	- 0.58 06*	- 0.59 36*	1								
CR	- 0.24 94*	- 0.18 71*	- 0.23 57*	- 0.04 12	1							
WCR	0.06 04	0.03 59	0.05 29	- 0.13 58	0.05 45	1						
ASST	0.07 49	0.07 29	0.07 88	- 0.18 51*	- 0.02 62	- 0.10 13	1					
AUR	0.34 81*	0.30 37*	0.34 68*	- 0.18 15*	- 0.06 67	0.02 08	0.11 38	1				
ETAX	0.01 81	- 0.04 5	- 0.00 56	0.05 4	- 0.08 72	- 0.00 84	0.03 87	0.03 85	1			
FLEX	0.05 34	0.02 94	0.04 56	- 0.13 28	0.02 8	0.95 66*	0.01 28	- 0.07 04	- 0.02 02	1		
GRO	0.01 82	0.01 99	0.02	0.01 62	- 0.05 6	0.23 26*	- 0.01 83	0.31 53*	0.08 24	0.22 53*	1	
RVOL	0.07 52	0.02 38	0.06	0.03 52	- 0.06 81	- 0.54 79*	0.00 67	0.36 95*	0.03 24	- 0.64 04*	- 0.16 82*	1

Table 2 shows a correlation among different explanatory variables. It shows that there is long term debt has a positive and significant relationship with long term debt; it means that there is a direct relationship among them. Total debt has a positive and significant relationship/impact between short term debt and long term debt; it means that the impact on each other. Firm size has a negative but significant impact on short term debt, long term debt, and total debt; it means that they have a significant but inverse effect on each other. Currenratioio has significant but inverse impact/relationship among short term debt, long-term debts, total debt, and firm size. It shows that they have a significant but negative effect on each-others. Working Capital has a positive but insignificant relationship between short term debt, long term debt, and current ratio. On the other side, working capital has an insignificant and inverse relationship with firm size.

The asset structure has a significant and negative relationship with firm size. On the other side, asset structure has a positive but insignificant relationship with short term debt, long term debt, and total debt—assets structure negative and insignificant relationship with current ratio and working capital. Assets utilization has a positive and

significant relationship with short term debt, long term debt, and total debt. There is a significant but negative relationship in firm size and current ratio. Asset utilization has a positive but insignificant relationship with working capital and assets structure. The effective tax rate has a positive but insignificant relationship with short term debt, firm size, and assets structure and assets utilization. Effective Tax Rate has a negative and insignificant relationship with long term debt, total debt, and working capital. □

Financial flexibility has a positive and significant relationship with working capital. Financial flexibility has a positive but insignificant relationship with short term debt, long term debt, total debt, current ratio, and asset structure. Financial flexibility has a negative and insignificant relationship with firm size, assets structure, and effective tax rate. Growth opportunity has a positive and significant relationship with working capital; asset utilization and financial flexibility mean that growth opportunities are positively enhanced/effect the working capital, assets utilization, and financial flexibility of the textile sector of Pakistan. Growth opportunities have a positive but insignificant relationship with short term debt, long term debt, total debt, firm size, and effective tax rate. Growth opportunities have a negative and insignificant impact on the asset structure of the firm. Risk Volatility has a positive and significant impact on asset utilization of the Textile Sector of Pakistan. It means that assets utilization positively affects the risk violently of the firms. Risk volatility has a significant but negative relationship with working capital, financial flexibility, and growth opportunities; it means that these variables inversely affect the risk violently of the Textile Sector of Pakistan. Risk Volatility has a positive and insignificant relationship with short term debt, long term debt, total debt, firm size, asset structure, and effective tax rate. □

**Table 3. Pooled OLS, Fixed & Random Effect Model of STD**

Variables	Pooled OLS	Fixed effect 1	Random effect 1
Intercept	10.98746 0.000*	11.94284 0.000*	10.98746 0.000*
Firm Size	-1.095956 0.000*	-1.188754 0.000*	-1.095956 0.000*
Current Ratio□	-0.2181516 0.000*	-0.2047844 0.000*	-0.2181516 0.000*
Working capital ratio	-0.2179943 0.470	-0.0734517 0.834	-0.2179943 0.468
Assets Structure	-0.2905016 0.132	-0.2231342 0.280	-0.2905016 0.129
Assets Utilization Ratio	0.3046753 0.000*	0.2242645 0.026*	0.3046753 0.000*
Effective Tax Rate	0.0463395 0.649	0.0399121 0.699	0.0463395 0.648
Financial Flexibility	0.1548308 0.425	0.0639806 0.775	0.1548308 0.424
Growth Opportunities	-0.395127 0.166	-0.2697096 0.366	-0.395127 0.164
Risk Volatility & Profitability	-0.2604445 0.765	-0.4862368 0.582	-0.2604445 0.764
R-Squared	0.4663	-	-
Adj. R-Squared	0.4312	-	-
R-Squared Within	-	0.4695	0.4641
Between	-	0.1768	0.5512
Overall	-	0.4578	0.4663
Prob>F-Statistics	0.0000	0.0000	0.0000
Hausman test		5.02	
Prob>chi2		0.8323	



The results of the study suggest that variables such as firm size, financial flexibility, asset structure, profitability, liquidity, growth, risk, and affect all measures of the capital structure of Pakistan corporations. Short-term debt is found to represent an important financing source for corporations in Pakistan. Firm size and current ratio have a negative and significant relationship with Capital Structure ratios. Long term debt, Working Capital, Asset Structure, Effective tax rate, Financial Flexibility, Growth opportunity, Risk Volatility have a positive relationship with capital structure. Assets utilization has a positive and significant relationship with Capital Structure ratios.

□ **Table 4. Pooled OLS, Fixed & Random Effect Model of LTD**

Variables	Pooled OLS	Fixed effect 2	Random effect 2
Intercept	6.623302	6.657065	6.623302
	0.000*	0.000*	0.000*
Firm Size	-0.6602828	-0.6640105	-0.6602828
	0.000*	0.000*	0.000*
Current Ratio□	-0.1060743	-0.1045432	-0.1060743
	0.000*	0.001*	0.000*
Working Capital Ratio	.0740871	0.12928	0.0740871
	0.669	0.528	0.669
Assets Structure	-0.0675445	-0.0484325	-0.0675445
	0.541	0.688	0.540
Assets Utilization Ratio	0.0967112	0.0939372	0.0967112
	0.045*	0.110	0.043*
Effective Tax Rate	-0.0375945	-0.0393367	-0.0375945
	0.522	0.515	0.520
Financial Flexibility	-0.0747562	-0.1079548	-0.0747562
	0.503	0.411	0.502
Growth Opportunities	-0.0904569	-0.0836638	-0.0904569
	0.581	0.631	0.580
Risk Volatility & Profitability	-0.5039435	-0.5628704	-0.5039435
	0.316	0.277	0.314
R-Squared	0.4337	-	-
Adj. R-Squared	0.3965	-	-
R-Squared Within	-	0.4295	0.4291
Between	-	0.7170	0.7567
Overall	-	0.4332	0.4337
Prob>F-Statistics	0.0000	0.0000	0.0000
Hausman test		0.58	
Prob>chi2		0.9999	

The results of the study suggest that variables such as firm size, financial flexibility, asset structure, profitability, liquidity, growth, risk, and affect all measures of the capital structure of Pakistan corporations. Long-term debt is found to represent an important financing source for corporations in Pakistan. Firm size and current ratio have a negative and significant relationship with Capital Structure ratios. Long term debts, Asset Structure, Effective tax rate, Financial Flexibility, Growth opportunity, Risk Volatility have a negative relationship with capital structure. Working Capital, Assets utilization has a positive and significant relationship with Capital Structure ratios. □

**Table 5. Pooled OLS, Fixed & Random Effect Model of TD**

Variables	Pooled OLS	Fixed effect 3	Random effect 3
Intercept	17.6073 0.000*	18.62978 0.000*	17.6073 0.000*
Firm Size	-1.756606 0.000*	-1.856419 0.000*	-1.756606 0.000*
Current Ratio	-0.3238158 0.000*	-0.3083297 0.000*	-0.3238158 0.000*
Working Capital Ratio	-0.1397079 0.755	0.06249 0.905	-0.1397079 0.754
Assets Structure	-0.3505185 0.220	-0.2644924 0.391	-0.3505185 0.218
Assets Utilization Ratio	0.3995865 0.001*	0.3149727 0.037*	0.3995865 0.001*
Effective Tax Rate	0.0085734 0.955	0.0002523 0.999	0.0085734 0.955
Financial Flexibility	0.078017 0.786	-0.0477891 0.886	0.078017 0.786
Growth Opportunities	-0.4781801 0.259	-0.3435542 0.441	-0.4781801 0.257
Risk Volatility & Profitability	-0.7377894 0.568	-1.030063 0.435	-0.7377894 0.567
R-Squared	0.4807	-	-
Adj. R-Squared	0.4466	-	-
R-Squared Within	-	0.4830	0.4800
Between	-	0.2728	0.5447
Overall	-	0.4761	0.4807
Prob>F-Statistics	0.0000	0.0000	0.0000
	Hausman test		2.95
	Prob>chi2		0.9664

The results of the study suggest that variables such as firm size, financial flexibility, asset structure, profitability, liquidity, growth, risk, and affect all measures of the capital structure of Pakistan corporations. Long-term debt is found to represent an important financing source for corporations in Pakistan. Firm size and current ratio have a negative and significant relationship with Capital Structure ratios. Long term debts, Working Capital, Asset Structure, Growth opportunity, Risk Volatility have a negative relationship with capital structure. Effective tax rate, Financial Flexibility has positive and insignificant, while Asset utilization has a positive and significant relationship with Capital Structure ratios.

## CONCLUSION

This study desire to investigate the "capital structure of sugar and allied industries in Pakistan" listed in the Karachi Stock Exchange from the year 2009 to 2015. This study explores that which 'explanatory variables' decide the 'capital structure of the sugar and allied industries.' It also evaluates the "trade-off theory" and "pecking order theory" for the purpose of understanding which theory best describes the financial behavior of Pakistani Sugar and Allied Industries. In order to generate empirical results, we use short-term debt ratio, long-term debt ratio, and total-debt ratio as dependent variables and effective tax rate, size, liquidity (current ratio and working capital ratios), financial flexibility, assets structure, growth opportunities (sale growth and expected growth), risk (volatility and variability coefficient of profit), profitability, and assets utilization ratio. In the "random effect model," we get to know about the following relation among 'short term debt,' 'long term debt,' and 'total debt' with 'explanatory variables.' Assets utilization ratio, Effective tax rate, and financial flexibility positively affect the short term debt in our study. Working capital ratio and Asset utilization ratio positively affect the long term debt in our study, whereas asset utilization ratio, Effective tax rate, and financial flexibility positively affect the total debt in our study. The results entail that (Modigliani & Miller,

1963a)"trade-off, pecking order, agency, and market timing theories of capital structure" partially explain the leverage decisions made by Pakistani sugar and allied industry. In general, the major difference between the capital structure of Pakistani firms is that these industries exhibit higher leverage than firms in developed countries. This suggests that these firms significantly use debt in their capital structure. According to Booth et al. (2001), a huge resemblance survive among developed and developing countries regarding 'determinants of capital structure.' Size demonstrates inverse relation among 'short term, long term, and total debt.' It proposes that bigger companies depend upon 'internal financing' rather than 'external financing' as they have enormous funds of 'retained earnings.' Thus, our results sustain with 'pecking order theory.' Monetarily strong companies like to depend upon their personal funds (retained earnings) before borrowed finance. □

This tells that, negative size relation with 'short term, long term, and total debt.' Huge companies had vast reserves of 'retained earnings.' That is why they had fewer preferences for debt (Frank & Goyal, 2009). Liquidity is measured through the current ratio and working capital ratio. Both ratios show inverse relation with 'short term debt long term debt and total debt.' Such a result supports the "Pecking order theory." According to this theory, companies have additional funds than required, and then the firms like to employ these finances as a substitute for borrowing finance from others. □

These outcomes show that there is a significant inverse relation among asset structure and 'short-term, long term debt, and total debt ratios.' This is not consistent with the trade-off theory, but with the AT. There is a positive relationship among asset utilization ratio and every other measure of 'capital structure' 'short-term, long term debt, and total debt ratios.' The coefficient for effective tax rate suggests only an optimistic relation among short-term debt ratio short term debts and total debts, which favor (Modigliani & Miller, 1963a)theory and trade-off theory. The results indicate that there is inverse relation among firms' financial flexibility and short term and total debts and negative relation among financial flexibility and long term debts.

There is inverse relation among sales growth and 52 assets 'growth ratio' as a measurement for assessing 'growth opportunities' and all measures of capital structure 'short-term, long term debt and total debt ratios' which is statistically significant and is consistent with the trade-off theory. There is an inverse relation among risk volatility and profitability and every other measure of 'capital structure' short-term, long term debt and total debt ratios.' One purpose of this study is to test the "trade-off theory and pecking order, so we end our argument by illuminating the performance of 'explanatory variables' with regards to the above-stated theories. The empirical findings of some variables are in line with the postulation of trade-off theory, whereas others fulfill the assumption of pecking order theory. From the above mention discussion, it can be concluded that neither of both theories totally fits the sugar and allied industries of Pakistan. To a certain extent, they are partly suitable in the case of the sugar sector of Pakistan. □

## REFERENCES

- Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *The journal of risk finance*, 6(5), 438-445.
- Abor, J., & Biekpe, N. (2009). How do we explain the capital structure of SMEs in sub-Saharan Africa? Evidence from Ghana. *Journal of Economic Studies*, 36(1), 83-97.
- Agrawal, A., & Nagarajan, N. J. (1990). Corporate capital structure, agency costs, and ownership control: The case of all-equity firms. *The journal of Finance*, 45(4), 1325-1331.
- 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.
- Al-Fayoumi, N. A., & Abuzayed, B. M. (2009). Ownership structure and corporate financing. *Applied Financial Economics*, 19(24), 1975-1986.

- Amidu, M. (2007). Determinants of capital structure of banks in Ghana: an empirical approach. *Baltic Journal of Management*, 2(1), 67-79.
- Andres, C., Cumming, D., Karabiber, T., & Schweizer, D. (2014). Do markets anticipate capital structure decisions?—Feedback effects in equity liquidity. *Journal of Corporate Finance*, 27, 133-156.
- Antoniou, A., Guney, Y., & Paudyal, K. (2008). The determinants of capital structure: capital market-oriented versus bank-oriented institutions. *Journal of Financial and Quantitative analysis*, 43(01), 59-92.
- Artikis, G. P., Eriotis, N., Vasiliou, D., & Ventoura-Neokosmidi, Z. (2007). How firm characteristics affect capital structure: an empirical study. *Managerial Finance*, 33(5), 321-331.
- Bae, S. C. (2009). On the interactions of financing and investment decisions: Evidence from Chinese industrial companies. *Managerial Finance*, 35, 691-699.
- Baranoff, E. G., Papadopoulos, S., & Sager, T. W. (2007). Capital and risk revisited: A structural equation model approach for life insurers. *Journal of Risk and Insurance*, 74(3), 653-681.
- Beattie, V., Goodacre, A., & Thomson, S. J. (2006). Corporate financing decisions: UK survey evidence. *Journal of Business Finance & Accounting*, 33(9-10), 1402-1434.
- Booth, L., Aivazian, V., Demircuc-Kunt, A., & Maksimovic, V. (2001). Capital structures in developing countries. *The journal of finance*, 56(1), 87-130.
- Brav, O. (2009). Access to capital, capital structure, and the funding of the firm. *The journal of Finance*, 64(1), 263-308.
- Brealey, R., Leland, H. E., & Pyle, D. H. (1977). Informational asymmetries, financial structure, and financial intermediation. *The journal of Finance*, 32(2), 371-387.
- Brounen, D., De Jong, A., & Koedijk, K. (2006). Capital structure policies in Europe: Survey evidence. *Journal of Banking & Finance*, 30(5), 1409-1442.
- Cassar, G., & Holmes, S. (2003). Capital structure and financing of SMEs: Australian evidence. *Accounting & Finance*, 43(2), 123-147.
- Castanias, R. (1983). Bankruptcy risk and optimal capital structure. *The journal of finance*, 38(5), 1617-1635.
- Chiang, Y.-H., Cheng, E. W., & Lam, P. T. (2010). Epistemology of capital structure decisions by building contractors in Hong Kong. *Construction Innovation*, 10(3), 329-345.
- Chung, K. H. (1993). Asset characteristics and corporate debt policy: An empirical test. *Journal of Business Finance & Accounting*, 20(1), 83-98.
- DeAngelo, H., & Masulis, R. W. (1980). Optimal capital structure under corporate and personal taxation. *Journal of financial economics*, 8(1), 3-29.
- Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). The determinants of capital structure: evidence from the Asia Pacific region. *Journal of multinational financial management*, 14(4), 387-405.
- Deloof, M., & Van Overfelt, W. (2008). Were modern capital structure theories valid in Belgium before World War I? *Journal of Business Finance & Accounting*, 35(3-4), 491-515.
- Driffield, N., Mahambare, V., & Pal, S. (2007). How does ownership structure affect capital structure and firm value? Recent evidence from East Asia1. *Economics of Transition*, 15(3), 535-573.
- Du, J., & Dai, Y. (2005). Ultimate corporate ownership structures and capital structures: Evidence from East Asian economies. *Corporate Governance: An International Review*, 13(1), 60-71.
- Ebeh Ezeoha, A. (2011). Firm versus industry financing structures in Nigeria. *African Journal of Economic and Management Studies*, 2(1), 42-55.
- Ebel Ezeoha, A. (2008). Firm size and corporate financial-leverage choice in a developing economy: Evidence from Nigeria. *The journal of risk finance*, 9(4), 351-364.
- El-Masry, A., Al-Najjar, B., & Taylor, P. (2008). The relationship between capital structure and ownership structure: New evidence from Jordanian panel data. *Managerial Finance*, 34(12), 919-933.
- Eldomiaty, T. I. (2008). Determinants of corporate capital structure: evidence from an emerging economy. *International Journal of Commerce and Management*, 17(1/2), 25-43.

- Eldomiaty, T. I., & Azim, M. H. (2008). The dynamics of capital structure and heterogeneous systematic risk classes in Egypt. *International Journal of Emerging Markets*, 3(1), 7-37.
- Frank, M. Z., & Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of financial economics*, 67(2), 217-248.
- Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: which factors are reliably important? *Financial management*, 38(1), 1-37.
- Gaud, P., Jani, E., Hoesli, M., & Bender, A. (2005). The capital structure of Swiss companies: an empirical analysis using dynamic panel data. *European Financial Management*, 11(1), 51-69.
- Graham, J. R. (1996). Debt and the marginal tax rate. *Journal of financial economics*, 41(1), 41-73.
- Graham, J. R. (2000). How big are the tax benefits of debt? *The journal of Finance*, 55(5), 1901-1941.
- 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.
- Hall, G. C., Hutchinson, P. J., & Michaelas, N. (2004). Determinants of the capital structures of European SMEs. *Journal of Business Finance & Accounting*, 31(5-6), 711-728.
- Heshmati, A. (2001). The dynamics of capital structure: Evidence from Swedish micro and small firms. *Research in Banking and Finance*, 2(1), 199-241.
- Hovakimian, A., Hovakimian, G., & Tehranian, H. (2004). Determinants of target capital structure: The case of dual debt and equity issues. *Journal of financial economics*, 71(3), 517-540.
- Huang, G. (2006). The determinants of capital structure: Evidence from China. *China Economic Review*, 17(1), 14-36.
- Jermias, J. (2008). The relative influence of competitive intensity and business strategy on the relationship between financial leverage and performance. *The British Accounting Review*, 40(1), 71-86.
- Jordan, J., Lowe, J., & Taylor, P. (1998). Strategy and financial policy in UK small firms. *Journal of Business Finance & Accounting*, 25(1-2), 1-27.
- Karadeniz, E., Yilmaz Kandir, S., Balçilar, M., & Beyazit Onal, Y. (2009). Determinants of capital structure: evidence from Turkish lodging companies. *International Journal of Contemporary Hospitality Management*, 21(5), 594-609.
- Kim, H., Heshmati, A., & Aoun, D. (2006). Dynamics of capital structure: The case of Korean listed manufacturing companies. *Asian Economic Journal*, 20(3), 275-302.
- Lasfer, M. A. (1999). *Debt structure, agency costs and firm's size: an empirical investigation*: Citeseer.
- Lemmon, M. L., & Zender, J. F. (2010). Debt capacity and tests of capital structure theories.
- Low, P. Y., & Chen, K. H. (2004). Diversification and capital structure: Some international evidence. *Review of Quantitative Finance and Accounting*, 23(1), 55-71.
- Margaritis, D., & Psillaki, M. (2007). Capital structure and firm efficiency. *Journal of Business Finance & Accounting*, 34(9-10), 1447-1469.
- Marsh, P. (1982). The choice between equity and debt: An empirical study. *The journal of Finance*, 37(1), 121-144.
- Mitton, T. (2008). Why have debt ratios increased for firms in emerging markets? *European Financial Management*, 14(1), 127-151.
- Modigliani, F., & Miller, M. H. (1963a). Corporate income taxes and the cost of capital: a correction. *The American economic review*, 433-443.
- Modigliani, F., & Miller, M. H. (1963b). Corporate income taxes and the cost of capital: a correction. *The American economic review*, 53(3), 433-443.
- Myers, S. C., & Majluf, N. S. (1984a). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics*, 13(2), 187-221.
- Myers, S. C., & Majluf, N. S. (1984b). *Corporate financing and investment decisions when firms have information that investors do not have* (0898-2937). Retrieved from
- Myers, S. C., & Rajan, R. G. (1998). The paradox of liquidity. *The Quarterly Journal of Economics*, 113(3), 733-771.



- Omran, M. M., & Pointon, J. (2009). Capital structure and firm characteristics: an empirical analysis from Egypt. *Review of Accounting and Finance*, 8(4), 454-474.
- Ooi, J. (1999). The determinants of capital structure evidence on UK property companies. *Journal of Property Investment & Finance*, 17(5), 464-480.
- Rajagopal, S. (2011). The portability of capital structure theory: Do traditional models fit in an emerging economy? *Journal of Finance and Accountancy*, 5, 1.
- 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.
- Reinhard, L., & Li, S. (2010). A note on capital structure target adjustment-Indonesian evidence. *International Journal of Managerial Finance*, 6(3), 245-259.
- Robert, W. H., & Lloyd Hunter, R. (1995). Determinants of capital structure in the retailing sector in the UK.
- Schwartz, E., & Aronson, J. R. (1967). SOME SURROGATE EVIDENCE IN SUPPORT OF THE CONCEPT OF OPTIMAL FINANCIAL STRUCTURE. *The journal of Finance*, 22(1), 10-18.
- Serrasqueiro, Z. (2011). Are capital structure decisions of service SMEs different? Empirical evidence from Portugal. *Management research review*, 34(1), 34-57.
- Serrasqueiro, Z., Nunes, P. M., & da Silva, J. V. (2016). The Influence of Age and Size on Family-Owned Firms' Financing Decisions: Empirical Evidence Using Panel Data. *Long Range Planning*, 49(6), 723-745.
- Sheikh, N. A., & Wang, Z. (2011). Determinants of capital structure. *Managerial Finance*.
- Shyam-Sunder, L., & Myers, S. C. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of financial economics*, 51(2), 219-244.
- 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.
- Sogorb-Mira, F. (2005). How SME uniqueness affects capital structure: Evidence from a 1994-1998 Spanish data panel. *Small business economics*, 25(5), 447-457.
- Strebulaev, I. A. (2007). Do tests of capital structure theory mean what they say? *The journal of Finance*, 62(4), 1747-1787.
- Suto, M. (2003). Capital structure and investment behaviour of Malaysian firms in the 1990s: A study of corporate governance before the crisis. *Corporate Governance: An International Review*, 11(1), 25-39.
- Teker, D., Tasseven, O., & Tukul, A. (2009). Determinants of capital structure for Turkish firms: A panel data analysis. *International Research Journal of Finance and Economics*, 29, 179-187.
- Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The journal of finance*, 43(1), 1-19.
- Viviani, J.-L. (2008). Capital structure determinants: an empirical study of French companies in the wine industry. *International Journal of Wine Business Research*, 20(2), 171-194.
- Viviani, J. L. (2008). Capital structure determinants: an empirical study of French companies in the wine industry. *International journal of wine business research*.
- Wiwattanakantang, Y. (1999). An empirical study on the determinants of the capital structure of Thai firms. *Pacific-Basin Finance Journal*, 7(3), 371-403.
- Yu, D. D., & Aquino, R. Q. (2009). Testing capital structure models on Philippine listed firms. *Applied Economics*, 41(15), 1973-1990.
- Zimmerman, J. L. (1983). Taxes and firm size. *Journal of accounting and economics*, 5, 119-149.