# Role of Capital structure in financial performance of non-financial sector firms: Evidence from Pakistan Stock Exchange

| Hafiz Abdur Rashid* | Ahmed Raza Bilal† |
|---|---|

**Abstract**    *This paper looks at financial performance of non-financial sectors of Pakistan concerning capital structure. We gathered data from annual audited financial statements of 152 firms listed at PSX during 2010-2017. To analyze data gathered, we have employed descriptive, correlation and regression analyses techniques. The findings show substantial positive contribution of LTDA in EPS and ROA and significant negative role in NPM and ROE which implies prefer long term debt over short term debt because of less financing cost. STDTA has substantial negative contribution in firms' financial performance among all sectors except sugar and communication & technology sectors. TDTA also has negative impact on financial performance of firms among all sectors except automobile sector, which implies that equity financing is preferable over debt financing. These findings validate pecking order theory and recommend preferring internal financing (retained earnings) over external financing.*

**Key Words:** Capital Structure, Financial Performance, Non-Financial Sector

**JEL Classification:** G32, B26

## Introduction

In today's dynamic era, firms have to smooth their cash flows by carefully taking operating, investing and financing decisions. Of these decisions, financing decisions are considered as pivotal for survival of every business. Financing decisions refer to sources from which any firm arrange its finance i.e., debt financing and equity financing. Capital structure (CS) of firms contains debt and equity which proportion varies from sector to sector. However, mixture of debt and equity (Akhtar et al., 2019) is considered as optimal CS (Kanwal et al., 2017). According to pecking order theory, internal financing (retained earnings) is preferred over external financing and debt is given preference over equity when external financing is needed (Zaheer et al., 2011). Thus, to decide percentage of debt and equity is considered as crucial decision which has strong influence over firms' financial performance (FP) ( Akhtar et al., 2019)

As per pecking order theory, debt is preferred because it provides tax shield (Akhtar et al., 2019) as interest on debt is subtracted before tax calculation. However, excessively relaying on debt can create troublesome for firms as it can lead to bankruptcy (Basit & Hassan, 2017). On other side, every firm has limited authorized capital from which shares can be issued to raise equity financing. Excessively relying on equity financing

---

* PhD Scholar, Superior College, Lahore, Punjab, Pakistan. Email: ha.rashid.hcc@gmail.com
† Associate Professor, Department of Business & Management Sciences, Superior College, Lahore, Punjab, Pakistan.

can create liquidity issues in firms (Basit & Hassan, 2017). Therefore, choice of optimal CS is crucial because inappropriate mixture of debt and equity have negative effect on FP  (Akhtar et al., 2019). Thus, financial managers should carefully take decisions related to optimal CS as it can lead to maximizing shareholders' wealth (Abbas et al., 2013).

Generally, CS is defined as various sources through which firms arrange their finances i.e., debt and equity (Nawaz et al., 2011). Equity financing includes common stock, preferred stock, and reserve funds. Whereas, debt financing includes short term liabilities and long term liabilities (Chinaemerem & Anthony, 2012). Review of extant literature reveals that majority studies conducted to study role of CS on FP  are found in developed economies (Abdullah & Tursoy, 2019; Abeywardhana, 2016; Avcı, 2016; Berger & di Patti, 2006; Detthamrong et al., 2017; Margaritis & Psillaki, 2010; Salim & Yadav, 2012; Saputra et al., 2015). Limited empirical evidences are observed in developing economies (Abbas et al., 2013; Akhtar et al., 2019; Basit & Hassan, 2017; Fosu, 2013; Hossain et al., 2019; Kanwal et al., 2017; Nawaz et al., 2011).

Majority of extant empirical evidence has focused on non-financial sector (Chinaemerem & Anthony, 2012; Dada & Ghazali, 2016; Fosu, 2013; Nenu et al., 2018; T. H. Nguyen & Nguyen, 2020a; Pandey & Sahu, 2017). However, some studies have concentrated on a single sector e.g., Information technology (Hossain et al., 2019), textile (Abbas et al., 2013; Akhtar et al., 2019; Ahmed & Siddiqui, 2019; Nawaz et al., 2011; Sachdeva, 2019; Sattar, 2020), engineering (Khan, 2012), sugar (Saeed & Badar, 2013). The findings of studies reveal negative influence of debt financing on firms' FP (Kanwal et al., 2017; Zaheer et al., 2011). Some studies have found positive consequences of debt financing on firms' FP. Thus, extant literature reveals inconclusive findings. Regarding sectoral differences, FP with regard to CS of firms vary from sector to sector (Salim & Yadav 2012). To our knowledge, only Kanwal et al. (2017) gauged FP  of firms concerning CS in Pakistan. Due to dearth of literature on sectoral differences, a study is needed to cover this identified gap.

Non-financial sector is considered as backbone of Pakistan's economy which contributes 13.6% in GDP (Economic Survey 2017-18). SBP reported growth in non-financial sector by 19.23% in terms of sales during 2018. Within non-financial sector, this study has considered six sectors namely; textile, sugar, steel, automobile, petroleum and Communication &Technology sectors. To examine performance of non-financial sector, present study aims to achieve two objectives (1) To examine role of CS in FP of firms and (2) to gauge any sectoral differences in FP of firms based on CS.

## Literature Review

### Theoretical Background

Modigliani and Miller (MM) took initiative to gauge nexus between CS and firms' FP but did not find any relationship between both of them (Kanwal et al., 2017). In 1963, MM applied CS theory to prove variation in CS as favorable for FP of firms due to tax shield associated with debt. Because of debt financing, firms usually pay less tax. Later on, various theories were developed and applied on the construct of CS i.e., pecking order theory, agency theory, and trade off theory. Agency Theory highlights misalignment of interest between shareholders and management which arises when less dividends are paid due to greater percentage of debt in CS (Basit & Hassan, 2017). Pecking order

theory proposed that firms should rely on internal financing and prefer debt over equity when external financing is required due to lesser associated cost.

## Empirical Review

The pertinent literature confirms importance of CS for firms' FP. Nassar (2016), explored CS influence on firm's FP operating in Turkey and collected from 136 firms listed Istanbul stock exchange during 2005 to 2012 and to conduct analysis multiple regression models were applied. The findings show that debt ratio (DR) had a substantial as well as negative influence on firm's EPS, ROE and ROA. Ashraf, Ameen and Shahzadi (2017) explored association among firm's profitability and optimal CS by collecting data from 18 KSE listed firms during 2006-2015. The study showed results that short-term debt ratio has a substantial positive influence on ROE and ROA. However long-term debt ratio and debt ratio showed negative association with ROE and ROA.

Vuong, Vu and Mitra (2017) analyzed influence of CS on United Kingdom firm's FP. Panel data was collected from 739 firms scheduled at London stock exchange during 2006-2015. Their study's results showed that Tobin's Q, ROE and ROA had association with long-term liabilities but had no association found with firm short-term liabilities. Firm leverage (LTL and STL) had no significant influence on EPS. Miko and Para (2019) gauged the influence of various determinants of capital structure on Nigerian firms' profitability. They collected data from audited annual reports of 39 manufacturing firms which were registered on Nigerian stock exchange from 2008 to 2017. The findings extracted through OLS technique show substantial influence of debt financing and equity financing on financial performance of manufacturing firms.

Likewise, Nguyen and Nguyen (2020) studied the nexus between CS and FP of non-financial firms listed at Vietnam's stock market. They gathered data from 448 firms for the period of 2013-2018 and applied GLS technique. The findings show substantial negative influence of CS on FP which supports pecking order theory. Spitsin et al. (2020) analyzed the influence of CS on performance of high-tech firms of Russia. The data was gathered from 1826 firms during 2013-2017. The findings reveal that effective management of CS positively relates to firms' profitability measured in terms of ROA. Meah et al. (2020) also examined the FP of 39 family firms and 39 non-family firms registered at Dhaka Stock Exchange with reference to CS and collected data during 2013-2017. The finding extracted using pooled OLS technique reveals that family firms are substantially influenced by debt financing as compared to non-family firms which favors pecking order theory.

Mujwahuzi and Mbogo (2020) studied the influence of CS on profitability of firms listed on Dar es Salaam Stock Exchange of Tanzania. Data for this study were extracted from annual reports of firms during 2009-2018. The results obtained through OLS technique show week and statistically insignificant nexus between CS and firms' profitability. Nguyen (2020) explored the nexus between CS and FP of 48673 construction firms during 2016. The findings confirm that high proportion of debt in CS favorably influence ROA and ROE of firms.

Basit and Hassan (2017) identified elements of CS and their influence on firms' FP. Data were gathered from 50 non-financial sector firms listed at KSE during 2010-2017. Findings reveal significant influence of Debt to equity ratio on ROA. Kanwal et al. (2017)

examined FP of 213 non-financial sector firms regarding CS. Data were gathered during 1999-2015 from firms listed at KSE. Their findings reveal that short term and long-term debts adversely affect performance of firms. Rahman, Sarker and Uddin (2019) analyzed linkage between profitability of manufacturing firms and CS. Data was collected from 10 Dhaka stock exchange listed firms during 2013-2017. The findings revealed that debt to equity ratio had a substantial but negative association with EPS, ROE and ROA. The equity ratio and debt ratio had significant positive linkage with ROA and had a positive effect on ROE.

The review of extant literature reveals inconclusive relationship between CS and FP. As effect of CS on FP varies from sector to sector. But only Kanwal et al. (2017) explored sectoral differences. Thus, there is pressing need to assess FP concerning CS and sectoral differences as well.

## Conceptual Framework

Based on extensive review of pertinent literature, this study has designed the framework depicted below:
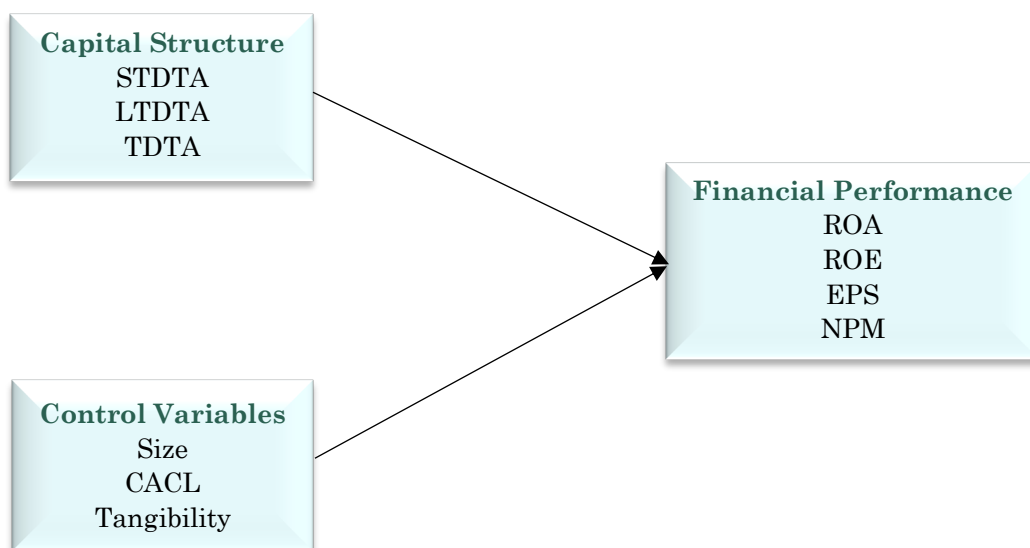


**Figure 1:** Influence of CS on FP of Firms

## Research Methods and Data Collection

The population of current study is consisted of non-financial sector firms scheduled at PSX the choice of listed firms is made owing to their developed and regulated structure. Sample is comprised of 152 firms belonging to six sectors namely: textile sector, steel mills, food and personal care sector, vehicle manufacturing sector, sugar mills, petroleum and chemical sector. Researchers have collected data based on following criteria:

- ✓ Only those firms are selected which are registered at KSE
- ✓ Out of registered firms, their data should be available from 2010 to 2017

Data for this study has been gathered from audited annual reports of selected firms.

**Table 1.** Operational Definition of Variables

| Construct | Proxies | Formula | References |
|---|---|---|---|
| Capital Structure | STDTA | $= \dfrac{Short\ term\ debt}{Total\ Assets}$ | Umar (2012) and Ebaid (2009 ) |
| | LTDTA | $= \dfrac{Long\ Term\ Debt}{Total\ Assets}$ | Abore (2005), Zeitun (2007), Umar, (2012) and Ebaid (2009) |
| | TDTA | $= \dfrac{Total\ Debt}{Total\ Assets}$ | Abore (2005), Zeitun (2007), Umar (2012) |
| Firms' Specific | CACL | $= \dfrac{Current\ Assets}{Current\ Liabilities}$ | Feidakis and Rovolis (2007), Sbeiti (2010), Nor et al. (2011) |
| | Log TA | $= LOG\ (Total\ assets)$ | Salim (2012), and Delcoure (2007) |
| | Tangibility | $= \dfrac{Fixed\ Assets}{Total\ Assets}$ | Kayo and Kimura (2011), Delcoure (2007), Frank and Goyal (2003) |
| Financial Performance | ROA | $= \dfrac{Earning\ Available\ to\ Common\ Stockholders}{Total\ Assets}$ | Ebaid (2009), Salim (2012), and Delcoure (2007 ) |
| | ROE | $= \dfrac{Earning\ Available\ to\ Common\ Stockholders}{Total\ Equity}$ | Salim (2012) and Delcoure (2007) |
| | EPS | $= \dfrac{Earning\ Available\ to\ Common\ Stockholders}{Total\ Number\ of\ Shares\ Outstanding}$ | Umar (2012) and Ebaid (2009) |
| | NPM | $= \dfrac{Earning\ Available\ to\ Common\ Stockholders}{Total\ Sales}$ | Booth et al. (2001) and Pandey (2001) |

## Proposed Regression Model

$$FP_{it} = \beta_{\circ} + \beta_1 STDTA_{it} + \beta_2; LTDTA_{it} + \beta_3 TDTA_{it} + \beta_4 IC_{it} + \mu_{it}$$

In above equation, FP refers to financial performance measured in terms of ROA, ROE, EPS, and NPM. STDTA refers to short term debt to total assets ratio. LTDTA denotes long-term liabilities to total assets and TDTA refers to total debt to total asset ratio. IC refers to internal characteristics of firms such as firms' size, current ratio and tangibility. $\mu$ refers to error term; i denotes firms and t denotes time.

## Findings-Multiple Regression Analysis

This section covers the results of multiple regression analysis and we have applied pooled OLS technique and fixed effect model in accordance with extant literature (Meah et al., 2020; Miko & Para, 2019; Mujwahuzi & Mbogo, 2020). The findings initially

represent the FP of all the sectors (overall) with reference to CS. Then, we have examined sector-wise performance of firms with reference to CS.

**Table 3.** Results of Multiple Regression Analysis of Overall Sample

| Dep_var | | Balanced OLS | Balanced FE |
|---|---|---|---|
| | **Independent Variables** | **Coefficient** | **Coefficient** |
| EPS | Constant | -3.325* | -52.8535*** |
| | LTDTA | 0.4965** | 0.7088** |
| | STDTA | -2.1244* | -0.5374** |
| | TDTA | 0.7756** | -0.8291** |
| | CACL | -0.02892 | -0.0289 |
| | Size | 2.2324*** | 7.3019*** |
| | Tangibility | -6.6422*** | -0.6365 |
| | Adj. R Square | 0.52 | 0.84 |
| | F Statistics | 0.00025 | 0.0000 |
| NPM | Constant | -1.9917 | 1.8619 |
| | LTDTA | 0.0625** | -0.3753** |
| | STDTA | -0.5087* | -0.4428** |
| | TDTA | 0.3424** | -0.1982** |
| | CACL | -0.2327 | -0.2583 |
| | Size | 0.4169 | 0.0397 |
| | Tangibility | -0.5307 | -0.5006* |
| | Adj. R Square | 0.46 | 0.42 |
| | F Statistics | 0.0605 | 0.0165 |
| ROA | Constant | -0.2012 | 2.8222 |
| | LTDTA | 0.1462** | 0.5628** |
| | STDTA | 0.1254 | 0.0305 |
| | TDTA | -0.6152** | 0.6221** |
| | CACL | -0.031 | -0.0308 |
| | Size | 0.0089 | -0.2746* |
| | Tangibility | 0.6089*** | -0.2964** |
| | Adj. R Square | 0.53 | 0.63 |
| | F Statistics | 0.0046 | 0.0001 |
| ROE | Constant | 2.1505* | 9.9562** |
| | LTDTA | 0.1766* | -0.3618*** |
| | STDTA | 0.0276 | -0.2456 |
| | TDTA | -0.6221** | 0.6823** |
| | CACL | -0.1742** | -0.2219** |
| | Size | -0.1994* | -1.0034* |
| | Tangibility | 1.0905*** | 0.5446* |
| | Adj. R Square | 0.48 | 0.59 |
| | F Statistics | 0.0135 | 0.0001 |

*\*\*\*, \*\*, and \* refer to significance at 1%, 5% and 10% respectively.*

Findings of polled OLS reveal that all proxies of CS have significant contribution to EPS. The results of FE model highlight that all dimensions of CS except LTDTA has negative contribution to firms' EPS. The negative coefficient values imply that excess

reliance on short term debt financing increase cost of capital, which reduce firms' EPS. These results are consonant study of Khan (2012) and outcomes confirm expectations of pecking order theory.

The findings of NPM under FE model show significant negative impact of LTDTA, STDTA and TDTA on NPM of firms; consistent with Chiang, Chang and Hui (2002). Excess use of debt financing either with short term or long-term debt is not favorable for firms' NPM. ROA is positively affected by LTDTA and TDTA, which implies that financing from long-term sources e.g., bonds and debentures involves less cost than short term sources of debt. Larger firms benefit from long term financing (e.g., Ramaswamy, 2001). The findings of study suggest that STDTA has found no influence on ROE and is in accordance with Mathur and Mathur (2000).

The results of ROE under balanced FE model show significant negative impact of LTDTA and TDTA on ROE of firms; which imply that long term debt is in compliance with signaling and agency theories and consistent with extant literature (Margaritis and Psillaki, 2010). However, STDTA has no influence on ROE of firms, which supports Mathur and Mathur (2000) and in compliance with pecking order theory Majority of previous studies find negative relationship between CS and FP (Baker & Wurgler, 2002; Fama & French, 2002; Rajan & Zingales, 1995). Table 4 to 10 reports sector wise findings of multiple regression analysis.

## Sector Wise Analysis

This section examines sector-wise FP of non-financial firms with reference to CS. The interpretation of findings is given after results of all the sectors.

**Table 4.** Results of Multiple Regression Analysis of Petroleum Sector

| Dep_var | Independent Variables | Balanced OLS Coefficient | Balanced FE Coefficient |
|---------|----------------------|------------------------|-----------------------|
| EPS | Constant | 16.6888* | -22.5064 |
| | LTDTA | -3.002* | 0.3808* |
| | STDTA | 1.0804* | -4.3273** |
| | TDTA | -8.01* | -1.8552* |
| | CACL | 1.2032* | 0.2555 |
| | Size | 0.364 | 4.5464* |
| | Tangibility | -7.4751** | -0.2645 |
| | Adj. R Square | 0.48 | 0.8 |
| | F Statistics | 0.028 | 0.0000 |
| NPM | Constant | 3.8109** | -12.6577** |
| | LTDTA | 0.0309* | 1.7244*** |
| | STDTA | -0.5709 | -0.6998* |
| | TDTA | 0.8201* | -0.8633** |
| | CACL | -0.1012 | -0.0899 |
| | Size | -0.391** | -0.1812 |
| | Tangibility | -0.0146 | 0.0761 |
| | Adj. R Square | 0.46 | 0.73 |
| | F Statistics | 0.131367 | 0.0000 |
| ROA | Constant | 5.4672* | 9.4284 |
| | LTDTA | -0.1922 | 1.1797** |

| Dep_var | Independent Variables | Balanced OLS Coefficient | Balanced FE Coefficient |
|---|---|---|---|
| | STDTA | -1.1489* | -0.8805* |
| | TDTA | -1.5516 | 2.4012** |
| | CACL | -0.2183 | 0.4055* |
| | Size | -0.4573* | -1.1281 |
| | Tangibility | 0.9628 | -0.1369 |
| | Adj. R Square | 0.4 | 0.5 |
| | F Statistics | 0.7245 | 0.0001 |
| | Constant | 16.4086** | 11.0481 |
| | LTDTA | -0.7969 | 1.3291** |
| | STDTA | -1.6476* | -1.6612* |
| | TDTA | -3.3197* | -0.5068** |
| ROE | CACL | -0.7233 | 0.3468 |
| | Size | -1.3809** | -1.1018 |
| | Tangibility | 1.0884 | -0.4301 |
| | Adj. R Square | 0.45 | 0.6 |
| | F Statistics | 0.3484 | 0.0000 |

**Table 5.** Results of Multiple Regression Analysis of Textile Sector

| Dep_var | Independent Variables | Balanced OLS Coefficient | Balanced FE Coefficient |
|---|---|---|---|
| | Constant | -4.9688 | -12.6639 |
| | LTDTA | -1.2968* | 2.421** |
| | STDTA | -1.7538* | 0.2948 |
| | TDTA | 2.1885** | -3.0135** |
| EPS | CACL | 1.3604* | 0.6552 |
| | Size | 2.2532** | 2.9409 |
| | Tangibility | -3.5633 | -1.8834 |
| | Adj. R Square | 0.42 | 0.73 |
| | F Statistics | 0.0358 | 0.0007 |
| | Constant | -1.8161** | -11.5441*** |
| | LTDTA | -0.0185 | 0.045 |
| | STDTA | -0.3697*** | -0.1191** |
| | TDTA | 0.2287*** | 0.1498*** |
| NPM | CACL | -0.1046* | -0.3222*** |
| | Size | 0.2115** | 1.3438*** |
| | Tangibility | 0.105 | -0.2867 |
| | Adj. R Square | 0.26 | |
| | F Statistics | 0.00003 | |
| | Constant | 0.609*** | 3.4349*** |
| | LTDTA | 0.4213** | 0.304** |
| | STDTA | 0.0556* | 0.145 |
| ROA | TDTA | 0.0603* | 0.112* |
| | CACL | 0.0001 | -0.006 |
| | Size | -0.0599* | -0.37*** |
| | Tangibility | -0.0224 | -0.0529 |

| Dep_var | Independent Variables | Balanced OLS | Balanced FE |
|---|---|---|---|
| | | Coefficient | Coefficient |
| | Adj. R Square | 0.39 | 0.19 |
| | F Statistics | 0.04981 | 0.0358 |
| | Constant | 1.4606** | 18.9066*** |
| | LTDTA | 0.1271* | 0.1375* |
| | STDTA | -0.1941* | -0.5365*** |
| | TDTA | 0.0052 | 0.1432* |
| ROE | CACL | -0.0632 | -0.1879*** |
| | Size | -0.142* | -2.0603*** |
| | Tangibility | 0.5697*** | 0.8259*** |
| | Adj. R Square | 0.5 | 0.46 |
| | F Statistics | 0.0132 | 0.0002 |

**Table 6.** Results of Multiple Regression Analysis of Sugar Sector

| Dep_var | Independent Variables | Balanced OLS | Balanced FE |
|---|---|---|---|
| | | Coefficient | Coefficient |
| | Constant | -59.0385 | 31.1316 |
| | LTDTA | 5.4667 | 2.3282 |
| | STDTA | 10.7904** | 1.3714** |
| | TDTA | -3.9233** | -1.8353* |
| EPS | CACL | 1.9685 | 3.15 |
| | Size | 7.5186* | -2.2746 |
| | Tangibility | -25.3205** | -14.694 |
| | Adj. R Square | 0.38 | 0.76 |
| | F Statistics | 0.02564 | 0.000008 |
| | Constant | -0.5848 | 1.8634 |
| | LTDTA | -0.1354 | 0.5844** |
| | STDTA | 0.5386*** | 0.8598*** |
| | TDTA | 0.004 | 0.6106** |
| NPM | CACL | 0.1003** | 0.07543* |
| | Size | 0.0281 | -0.2689 |
| | Tangibility | -0.0106 | 0.0594 |
| | Adj. R Square | 0.66 | 0.87 |
| | F Statistics | 0.0001 | 0.000001 |
| | Constant | 0.0329 | -0.1311 |
| | LTDTA | 0.0344 | -0.1452* |
| | STDTA | 0.1902*** | 0.1842** |
| | TDTA | 0.1345** | 0.1628* |
| ROA | CACL | 0.0609*** | 0.0364* |
| | Size | -0.0098 | 0.0203 |
| | Tangibility | -0.0938 | -0.0349 |
| | Adj. R Square | 0.51 | 0.76 |
| | F Statistics | 0.000004 | 0.000007 |
| | Constant | -5.4105 | 13.9509 |
| ROE | LTDTA | -1.8548* | -1.6068* |
| | STDTA | 0.3824 | -1.1871* |

| Dep_var | Independent Variables | Balanced OLS | Balanced FE |
|---------|----------------------|--------------|-------------|
|         |                      | Coefficient  | Coefficient |
|         | TDTA        | -0.3974* | -1.1307* |
|         | CACL        | -0.0738  | 0.0624   |
|         | Size        | 0.4836   | -1.335   |
|         | Tangibility | 2.6213*  | 0.2579   |
|         | Adj. R Square | 0.36   | 0.38     |
|         | F Statistics  | 0.1057 | 0.0513   |

**Table 7.** Results of Multiple Regression Analysis of Steel Mills Sector

| Dep_var | Independent Variables | Balanced OLS | Balanced FE |
|---------|----------------------|--------------|-------------|
|         |                      | Coefficient  | Coefficient |
| EPS | Constant      | -139.465** | -132.565* |
|     | LTDTA         | -20.9484*  | -35.3663** |
|     | STDTA         | -5.4948    | -4.1867*  |
|     | TDTA          | 20.6674*   | 23.7587** |
|     | CACL          | 2.9353**   | 8.4839**  |
|     | Size          | 14.9756**  | 17.4131   |
|     | Tangibility   | -10.4008*  | 20.7356   |
|     | Adj. R Square | 0.44       | 0.83      |
|     | F Statistics  | 0.0258     | 0.00337   |
| NPM | Constant      | -1.3563*   | 1.458     |
|     | LTDTA         | -0.4411*   | 1.9257*   |
|     | STDTA         | -0.3507*   | -0.0465*  |
|     | TDTA          | 0.347      | -0.5071** |
|     | CACL          | 0.0745     | -0.0408   |
|     | Size          | 0.1498*    | -0.0907   |
|     | Tangibility   | -0.2422*   | -1.2393*  |
|     | Adj. R Square | 0.53       | 0.71      |
|     | F Statistics  | 0.0048     | 0.0705    |
| ROA | Constant      | -0.0674    | 2.8881    |
|     | LTDTA         | -0.2635    | 1.4499    |
|     | STDTA         | -0.4402*   | -0.1291*  |
|     | TDTA          | 0.3717*    | -0.7862*  |
|     | CACL          | 0.0144     | -0.1305*  |
|     | Size          | 0.0889     | -0.206    |
|     | Tangibility   | -0.3558*   | -1.1677   |
|     | Adj. R Square | 0.52       | 0.46      |
|     | F Statistics  | 0.049      | 0.0741    |
| ROE | Constant      | -2.3898**  | -5.376    |
|     | LTDTA         | -0.6198*   | 1.8686*   |
|     | STDTA         | -0.021     | 0.4151*   |
|     | TDTA          | 2.4244**   | -0.2781** |
|     | CACL          | 0.136*     | 0.1478*   |
|     | Size          | 0.2365**   | 0.57      |
|     | Tangibility   | -0.1094    | -0.7986   |
|     | Adj. R Square | 0.37       | 0.7       |
|     | F Statistics  | 0.0716     | 0.0759    |

**Table 8.** Results of Multiple Regression Analysis of Automobile Sector

| Dep_var | Independent Variables | Balanced OLS Coefficient | Balanced FE Coefficient |
|---|---|---|---|
| | Constant | 8.6191 | -22.2965 |
| | LTDTA | 0.6684 | 0.9437** |
| | STDTA | 21.3238* | -6.7038** |
| | TDTA | 6.0759** | -6.5216* |
| EPS | CACL | -0.4825 | 0.0074 |
| | Size | 3.3613*** | 5.1582* |
| | Tangibility | -70.3968*** | -3.2491 |
| | Adj. R Square | 0.35 | 0.75 |
| | F Statistics | 0.0003 | 0.0007 |
| | Constant | 1.3226 | 0.4598 |
| | LTDTA | 0.1274*** | 0.1128** |
| | STDTA | -1.001* | -0.2577* |
| | TDTA | 1.7216** | 0.2087* |
| NPM | CACL | 0.0141 | -0.0097 |
| | Size | -0.0354 | -0.037 |
| | Tangibility | -2.4023*** | -0.1913** |
| | Adj. R Square | 0.23 | 0.42 |
| | F Statistics | 0.0145 | 0.0005 |
| | Constant | 2.0915*** | 6.1744** |
| | LTDTA | 0.1767*** | 0.063*** |
| | STDTA | -0.2821 | -.4992* |
| | TDTA | -0.3832* | 1.144** |
| ROA | CACL | -0.0947** | -0.0624* |
| | Size | -0.1258** | -0.7129*** |
| | Tangibility | -0.6799* | 0.3286 |
| | Adj. R Square | 0.48 | 0.74 |
| | F Statistics | 0.0871 | 0.0006 |
| | Constant | 10.4102** | 7.2535 |
| | LTDTA | 0.2029* | -0.4725*** |
| | STDTA | -2.6434 | 1.579 |
| | TDTA | -0.3673* | 1.937** |
| ROE | CACL | -0.3019 | -0.0443 |
| | Size | -0.7368* | -0.8384* |
| | Tangibility | -2.3895 | 0.2473 |
| | Adj. R Square | 0.4 | 0.47 |
| | F Statistics | 0.0206 | 0.000017 |

**Table 9.** Results of Multiple Regression Analysis of Communication &Technology Sector

| Dep_var | Independent Variables | Balanced OLS Coefficient | Balanced FE Coefficient |
|---|---|---|---|
| | Constant | -54.2449* | -87.8966** |
| EPS | LTDTA | 3.8305 | -2.3406 |
| | STDTA | -58.7491** | -49.4246** |

| Dep_var | Independent Variables | Balanced OLS Coefficient | Balanced FE Coefficient |
|---|---|---|---|
| | TDTA | 4.1709*** | 1.4622** |
| | CACL | -3.8975* | -1.6362* |
| | Size | 19.6975*** | 19.8907*** |
| | Tangibility | -83.0846*** | -29.3276** |
| | Adj. R Square | 0.49 | 0.95 |
| | F Statistics | 0.000008 | 0.0001 |
| | Constant | -1.4054*** | -0.4884 |
| | LTDTA | 0.0228 | 0.004 |
| | STDTA | 1.1537*** | 0.6257** |
| | TDTA | -0.1173* | -0.0329* |
| NPM | CACL | 0.0407* | 0.001 |
| | Size | 0.1006** | 0.0296 |
| | Tangibility | 0.2587 | 0.3849 |
| | Adj. R Square | 0.35 | 0.6 |
| | F Statistics | 0.00029 | 0.000041 |
| | Constant | -14.338*** | 0.4973 |
| | LTDTA | 0.4432* | 0.0263* |
| | STDTA | 13.8463*** | 1.5069**** |
| | TDTA | 0.5652* | -0.082*** |
| ROA | CACL | 0.3505** | -0.0108 |
| | Size | 0.9368*** | 0.0134 |
| | Tangibility | 1.2276 | 0.6067 |
| | Adj. R Square | 0.61 | 0.98 |
| | F Statistics | 0.00001 | 0.0001 |
| | Constant | -16.9753*** | 508291* |
| | LTDTA | 0.3344 | -0.2139* |
| | STDTA | 16.1578*** | 3.2218** |
| | TDTA | 0.1385** | 0.2472** |
| ROE | CACL | 0.39** | -0.0087 |
| | Size | 1.1711*** | -0.2902* |
| | Tangibility | 0.7731 | 0.0786 |
| | Adj. R Square | 0.61 | 0.97 |
| | F Statistics | 0.0001 | 0.00001 |

*\*\*\*, \*\*, and \* refer to significance at 1%, 5% and 10% respectively.*

The findings suggest that STDTA has a significant negative influence on FP of all sectors except communication and technology sector where positive effect of STDTA on FP of firms is found. LTDTA has positive effect on FP of automobile and communication & technology sectors. However, negative effect of LTDTA is found in steel mill, sugar, textile and petroleum sectors' firms. TDTA has positive effect on FP of all sectors except automobile and petroleum sectors. In nutshell, sector wise analysis confirms that selection of appropriate CS is necessary for optimal FP of firms.

## Conclusion

Optimal CS is crucial for firms' profitability. For this, management of firms choose such

CS that is consistent with shareholders' wealth maximization. Review of extant literature reveals that majority of studies were found in developed and emerging economies e.g., China, UK, and Turkey. However, dearth of empirical evidence is found regarding developing countries especially in Pakistan. Of these studies, majority of scholars have examined effect of CS on firms' performance in Pakistan without considering comprehensive sample. Thus, to fill identified gap, this study aims to provide a deep insight into association between CS firms' FP, by comparing six sectors. Thus, this study focuses on highlighting differences across industrial sectors regarding effect of CS on Firms' performance. This study has gathered data from annual audited financial statements of 152 firms listed at PSX during 2010-2017.

To analyze data gathered, descriptive statistics, correlation and multiple regression analysis techniques have been opted. The findings show substantial positive impact of LTDA on EPS and ROA and adverse effects on NPM and ROE. Sector wise regression analysis reveals that LTDTA has positive role in FP of firms, which infers that long-term debt should be preferred over short term debt because of less cost of financing. STDTA has substantial negative impact on firms' FP among all sectors except sugar and communication & technology sectors which implies that short term financing involves higher cost of financing thus put unfavorable influence on firms' profitability. TDTA also has negative influence on firms' FP among all sectors except automobile, which implies prefer equity financing over debt financing. These findings validate pecking order theory and recommend internal financing (retained earnings) over external financing.

## Limitations and Future Research Directions

This study has collected data from 152 firms listed firms at PSX and ignored non-listed firms. Thus, findings may not be generalizable to non-listed firms because of non-availability of data. Another limitation is prime focus on accounting-based measures (e.g., ROA, and ROE) of FP; thus, ignored market-based perspective (measured by Tobin Q) and its inter-relationship with CS of firms. This paper focuses on role of CS in FP; potential researchers can add moderators e.g., firms' size, age, free cash flows. This study measures CS in terms of LTDTA, STDTA and TDTA, it is recommended to add more proxies of CS e.g., debt to equity ratio and short-term debt to total debt ratio Moreover, this paper examines unidirectional connection between CS and FP; it is recommended to investigate bidirectional relationships.

# References

Abbas, A., Bashir, Z., Manzoor, S., & Akram, M. N. (2013). Determinants of firm's financial performance: An empirical study on textile sector of Pakistan. *Business and Economic Research*, *3*(2), 76-86. https://doi.org/10.5296/ber.v3i2.3958

Abdullah, H., & Tursoy, T. (2019). Capital structure and firm performance: Evidence of Germany under IFRS adoption. *Review of Managerial Science*. Advance Online Publication. https://doi.org/10.1007/s11846-019-00344-5

Abeywardhana, D. K. Y. (2016). Impact of capital structure on firm performance: Evidence from manufacturing sector SMEs in UK. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2816499

Ahmed, F., & Siddiqui, D. A. (2019). Impact of debt financing on performance: Evidence from textile sector of Pakistan. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3384213

Akhtar, A., Bakhsh, A., Ali, M., & Kousar, S. (2019). Impact of capital structure on the performance of textile sector in Pakistan: Examining the moderating effect of liquidity. *Journal of Accounting and Finance in Emerging Economies*, *5*(1), 1–12. https://doi.org/10.26710/jafee.v5i1.718

Asad, M., Iftikhar, M. K., & Jafary, A. Y. (2019). Relationship between capital structure and financial performance of textile sector companies. *Kashmir Economic Review*, *28*(1), 39–52.

Avcı, E. (2016). Capital structure and firm performance: An application on manufacturing industry. *İktisadi ve İdari Bilimler Dergisi*, *38*(1), 15-30. https://doi.org/10.14780/iibd.81334

Basit, A., & Hassan, Z. (2017). Impact of capital structure on firm's performance: A study on Karachi Stock Exchange (KSE) listed firms in Pakistan. *4*(2), 118-135.

Berger, A. N., & di Patti, E. B. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance*, *30*, 1065–1102.

Chinaemerem, O. C., & Anthony, O. (2012). Impact of capital structure on the financial performance of Nigerian Firms. *Oman Chapter of Arabian Journal of Business and Management Review*, *1*(12), 43–61. https://doi.org/10.12816/0002231

Dada, A. O., & Ghazali, Z. B. (2016). The impact of capital structure on firm performance: Empirical evidence from Nigeria. *IOSR Journal of Economics and Finance*, *7*(4), 23–30. https://doi.org/10.9790/5933-0704032330

Detthamrong, U., Chancharat, N., & Vithessonthi, C. (2017). Corporate governance, capital structure and firm performance: Evidence from Thailand. *Research in International Business and Finance*, *42*, 689–709. https://doi.org/10.1016/j.ribaf.2017.07.011

Fosu, S. (2013). Capital structure, product market competition and firm performance: Evidence from South Africa. *The Quarterly Review of Economics and Finance*, *53*(2), 140–151. https://doi.org/10.1016/j.qref.2013.02.004

Hossain, A., Khan, A. A. Y., & Khalid, M. S. (2019). An empirical analysis of capital structure and firm's financial performance in a developing country. *Global Journal of Management and Business Research*, 19(3), 9-16.

Kanwal, M., Shahzad, S. J. H., Rehman, M. U, & Zakaria, M. (2017). Impact of capital structure on performance of non-financial listed companies in pakistan. *Pakistan Business Review, 19(2),* 339-353.

Khan, A. G. (2012). The relationship of capital structure decisions with firm performance: A study of the engineering sector of Pakistan. *International Journal of Accounting and Financial Reporting*, *2*(1), 245.

Margaritis, D., & Psillaki, M. (2010). Capital structure, equity ownership and firm performance. *Journal of Banking & Finance*, *34*(3), 621–632. https://doi.org/10.1016/j.jbankfin.2009.08.023

Meah, M. R., Chaudhory, N. U., & Khalil, Md. I. (2020). Does capital structure affect the profitability of listed family and non-family firms? Evidence from Bangladesh. *International Journal of Business, Economics and Management*, *7*(3), 131–145. https://doi.org/10.18488/journal.62.2020.73.131.145

Miko, N. U., & Para, I. (2019). Capital structure and profitability of listed manufacturing firms in Nigeria. *Journal of Accounting and Management*, *2*(2), 134–140.

Mujwahuzi, G. V., & Mbogo, C. J. (2020). Effects of capital structure on business profitability of processing enterprises listed on the Dar es Salaam Stock Exchange, Tanzania. *Journal of Finance and Accounting*, *8*(4), 165–171.

Nawaz, A., Ali, R., & Naseem, M. A. (2011). Relationship between Capital Structure and Firms Performance: A Case of Textile Sector in Pakistan. *Global Business and Management Research: An International Journal, 3*, 270-278.

Nenu, E., Vintilă, G., & Gherghina, Ş. (2018). The impact of capital structure on risk and firm performance: Empirical evidence for the Bucharest Stock Exchange listed companies. *International Journal of Financial Studies*, *6*(2), 1-29. https://doi.org/10.3390/ijfs6020041--

Nguyen, V. C. (2020). Human capital, capital structure choice and firm profitability in developing countries: An empirical study in Vietnam. *Accounting*, *6,* 127–136. https://doi.org/10.5267/j.ac.2019.11.003

Nguyen, T. H., & Nguyen, H. A. (2020). Capital structure and firm performance of non-financial listed companies: Cross-sector empirical evidences from Vietnam. *Accounting*, *6*, 137–150. https://doi.org/10.5267/j.ac.2019.11.002

Pandey, K. D., & Sahu, T. N. (2017). An empirical analysis on capital structure, ownership structure and firm performance: Evidence from India. *Indian Journal of Commerce & Management Studies*, *8*(2), 63–72. https://doi.org/10.18843/ijcms/v8i2/09

Sachdeva, N. (2019). Factors affecting the profitability of selected public limited textile mills – A study of textile hub of India (Surat). *International Journal of Research in Engineering, Science and Management*, *2*(12), 586–591.

Saeed, R. B. A., & Badar, R. (2013). Impact of capital structure on performance empirical evidence from sugar sector of Pakistan. *European Journal of Business and Management*, *5*(5), 78–86.

Salim, M., & Yadav, R. (2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia - Social and Behavioral Sciences*, *65*, 156–166. https://doi.org/10.1016/j.sbspro.2012.11.105

Saputra, T., Achsani, N. A., & Anggraeni, L. (2015). The effect of capital structure on firm performance: Empirical evidence from the Indonesian financial industry. *International Journal of Business and Management Invention*, *4*(8), 57–66.

Sattar, A. R. (2020). Impact of liquidity on profitability: A case of comparison in textile sector in Pakistan between 2014 and 2015. *European Online Journal of Natural and Social Sciences*, *9*(1), 13–19.

Spitsin, V., Vukovic, D., Anokhin, S., & Spitsina, L. (2020). Company performance and optimal capital structure: Evidence of transition economy (Russia). *Journal of Economic Studies*, Advance Online Publication. https://doi.org/10.1108/JES-09-2019-0444

Sutomo, S., Wahyudi, S., Rini Demi Pangestuti, I., & Muharam, H. (2020). The determinants of capital structure in coal mining industry on the Indonesia Stock Exchange. *Investment Management and Financial Innovations*, *17*(1), 165–174. https://doi.org/10.21511/imfi.17(1).2020.15

Zaheer, Z., Saeed, A., & Mir, A. S. (2011). Determinants of capital structure: *international journal of academic research*, *3*(5), 38-43.