Impact of Financial Leverage on Financial Performance

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Abstract

Not only the relevance of the financial leverage but also its magnitude of influence on firm performance is an indispensable piece of information for a corporate manager, whose endeavour is to leave no stone unturned to maximize firm value. In this study, the impact of financial leverage is investigated on the firm value using twenty years financial data from 1998 to 2017. 428 firms from 28 different non-financial sectors are included in the sample. Pooled OLS methodology is employed. The influence of all debt ratios long-term, short-term, and total leverage is found to be negative in Pakistan. Size and industry classification also plays an important role for determining financial performance of the firms. Due to economic instability, high leverage is not recommended for Pakistani firms.

Key words: Debt ratio; firm performance; financial leverage; capital structure; industry effect; Tobin's Q; Short-term debt; Long-term debt

JEL Classification: G32; L25

1. Introduction

Leverage is a notion borrowed from the subject of Physics which means pulling heavier masses by exerting a little pressure. Likewise, financial returns can be bounced by means of fixed cost funds, known as financial leverage in the capital composition of the firm. However, the resultant amplified financial risk, bankruptcy and agency cost and the expense of financial distress due to increase in fixed obligations can harm the firm value. Driving the benefits and avoiding the adversities of financial leverage is very crucial for a firm.

Apart from the factors like business design, good geographical location and seven P's of marketing strategies, a firm's profitability is affected by its capital structure too (Dakua, 2019; Madan, 2007). Financial performance of the company is estimated by calculating ratios like return on assets (ROA), return on equity (ROE), net profit margin, gross profit margin, total asset turnover, earnings per share (EPS), Tobin's Q, market to book value, etc. Good financial performance attracts more investment in the company, and it enjoys favorable interest rates by the creditors.

Numerous debates have been carried out and a variety of hypotheses have been proposed to elucidate the capital structure of firms but no consensus has yet been achieved.The literature related to capital structure research is available for both developed (Brounen, De Jong, & Koedijk,

2006; Elsas, Flannery, & Garfinkel, 2014; Strebulaev, 2007) and developing countries (Abor, 2005; Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001). The empirical evidence on corporate capital structure of developing countries like Pakistan is relatively inadequate. Institutional environment plays a vital role in shaping corporate financial strategies and decisions (Fan, Titman, & Twite, 2012). Every country has its unique legal, political and corporate environment. Thus, capital structure decisions vary greatly amongst different countries. Results of one country are not replicable on another country due to variations in their capital markets.

Since its inception, Pakistan has been suffering through political uncertainty, economic instability, terrorism, sectarianism, natural calamities and security issues. These things have adversely affected the manufacturing sector of Pakistan. Recently, one of the biggest challenges for Pakistan is unemployment that can be resolved by encouraging the manufacturing sector. The capital structure is one of the three major decisions for firms that can influence their profitability. Keeping in view its unique environment, it is important to analyze the impact of financial leverage on financial performance of firms operating in Pakistan. Unfortunately scarce literature is available on the financing decisions of the firms in Pakistan (Sheikh & Wang, 2011). Our study aims to find the impact of financial leverage on performance using all three types of debt: long-term, short-term, and total debt ratios. Though some studies are available on this issue but our study provides largest data set with size, growth opportunities and sector classification as control variables. As per the authors' knowledge none of the existing studies is conducted using such a large dataset with industrial classification as control variables. Some studies are conducted on a single or a few sectors like Sheikh and Wang (2013) conducted their study on eight sectors. Some studies like Shah et al. (2004) used smaller dataset (five years) and used only total leverage while we used total, short term and long term leverage separately as proxies for financial leverage. Wide-ranging research on the area of capital structure is essential for enhancing the profitability of organizations in Pakistan. The current study provides valuable insights to financial managers while deciding about capital structures.

This paper proceeds as follows. It starts with introduction followed by theoretical background. The literature review is presented in the next section. The fourth section is related to the data and methodology. The fifth section is comprised of data analysis, the results and discussion. The conclusion and references are presented at last.

2. Theoretical Background

Modigliani and Miller theorem, the tradeoff theory and the pecking order theory are the most deliberated theories of corporate capital structure. Particularly important is Miller and Modigliani's (MM) irrelevance theory of capital structure of 1958, which demonstrates that, in the perfect capital market with absence of transaction costs and taxes, the choice of capital structure does not have an effect on the value of the company. However, the theory is awfully criticized due to its assumptions which do not prevail in the practical world, because real markets are far different from the so-called "perfect capital markets" on which MM based their work. This theory is

indirectly providing a support for the relevance of capital structure in determining the firm value. Putting it differently, it can be stated that in the absence of any of these assumptions, capital structure preference will influence the value of the company.

Modigliani and Miller based their theorem in the absence of market imperfections. Later on, in 1963, Modigliani and Miller provided a modification to their earlier stance by integrating tax shield benefits of the debt which can substantially enhance the firm value. Subsequently, researchers criticized the assumptions of irrelevance theorem and analyzed the impact of further market limitations on capital structure. The corral of market imperfections like, tax and bankruptcy costs gave rise to Tax Shelter-Bankruptcy Cost (TS-BC) hypothesis (Castanias, 1983). According to this assumption, there exists an inverse association between taxes and bankruptcy cost. An increase in leverage decreases the quantity of taxes to be paid but, on the other hand, it also increases the bankruptcy cost.

Jensen and Meckling (1976), introduce another market imperfection named agency cost. The agency cost crops up due to separation of ownership and management or administration of a firm. This theory suggests that the managers give precedence to their own interest and avoid investing in riskier projects that may enhance the firm returns. The trade-off theory states that three features affect a firm's progression towards an optimal leverage namely agency costs, taxes and costs of financial distress. Optimal capital structure engages a trade-off between the costs of financial distress and the tax benefits of debt.

As per the pecking order theory, firms' first choice is internally generated funds that are followed by debt as a second choice and the use of equity as a last resort. Myers and Majluf (1984) show that a manager would give preference to internal finance over external funds even if he acts in the best interest of the owners. Moreover, they say that external financing is expensive as managers have better knowledge about their companies then outside investors. It foretells that, holding investments fixed, leverage is lower for more profitable firms, and given profitability, is higher for firms with more investments. As compared to the pecking order theory which focuses on internal equity financing, market timing hypothesis give preference to the external equity financing. According to the market timing hypothesis, financial managers endeavor to time equity markets by issuing shares when market prices are high and repurchase shares when market prices of shares are low (M. Baker & Wurgler, 2002). Extant literature offers diverse perspectives about the application of these capital structure theories

3. Literature Review

Optimal capital structure and its role to enhance firm value has been a controversial debate since more than five decades. Despite of extensive studies to discover the best possible capital structure and its relationship with the firm performance, it is still inconclusive. Regression results of the study by Hamada (1972) indicate the validation of MM leverage proposition. Supporters of the pecking order theory like Myers (1984) and, Myers and Majluf (1984) presume external equity finance to be expensive source of finance owing to the factors like the cost of issuing equity, transaction costs

and cost of asymmetric information. García-Teruel and Martínez-Solano (2007) find the intensive application of the pecking order theory in their study on the Spanish SMEs. Miao (2005) considers that all firms have an incentive to issue debt as interest payments are tax deductible. Titman and Wessels (1988) and, Rajan and Zingales (1995) describe the negative relation between leverage and profitability that is contradictory to the trade-off theory. It is observed that low leverage policy makes the firms more flexible and less risky. Thus, the financially conservative firms are more profitable and less risky as compared to high levered firms (Yasmin & Rashid, 2019).

Low leverage brings prudence not only for corporate firms but also for the economy by generating more jobs during financial crisis (Sánchez-Vidal, Hernández-Robles, & Mínguez-Vera, 2020). In a recent study, Haifeng et al. (2021) find that the high leverage ratios decrease firm efficiency. Thus, the debt should not exceed a certain optimal level. Fischer, Heinkel, and Zechner (1989) prove that the optimal dynamic capital structure policy depends upon the tax shield benefit of debt, potential costs of debt financing, underlying asset variability, the risk free interest rate, the costs of recapitalizing and the consequential increase in the cost of bankruptcy due to debt financing. According to their results, firms allow the actual debt ratio to diverge from the target ratio within a certain range. Tsolas et al. (2021) in a sample of Greek pharmaceutical industry find that the more efficient firms tend to choose low debt ratios. Shaikh et al. (2022) use gearing ratio and debt to equity ratios as the proxy for financial leverage. They also find that financial leverage negatively affect financial performance.

De Jong, Kabir, and Nguyen (2008) have the view that leverage levels are affected by country specific factors. Companies use more debt in the countries which are having developed bond markets. Majumdar and Sen (2010) also discuss the country specific factors that affect the leverage ratios. They argue that the manner in which debt affects the firm performance depends on the institutional factors of the economy particularly the legal environment. Due to frail bankruptcy laws and easy exit procedures for firms, arm's length privately owned debt is the most effective to influence firm performance. Since Indians prefer to invest in fixed deposits than volatile equity markets, the results of the study demonstrated a positive relationship of the fixed deposits and profitability. But this result may be because of reverse causality of profitability and debt i.e. individual would only like to invest in the fixed deposits of giant and profitable organizations.

Shah, Hijazi, and Javed (2004) find a significant negative impact of profitability and growth on the leverage of Pakistani firms. The size of firms is found to be positively allied to the leverage. They find that growing firms in Pakistan utilize more equity and less debt to finance the fresh investment opportunities. It supports the description of pecking order theory which proposes that growing firms will first opt for the internally generated funds for satisfying their financing requirements. However, this does not favor the extensive adaptation of pecking order theory which advocates that internally generated funds may not be sufficient for a growing firm and next predilection for such firm would be to use debt financing. The capital markets in Pakistan are not well developed and mostly firms use alternative modes of financing (Khanna, 2001). Pakistani firms by and large have short-term financing as the average firm size is small that makes it difficult to approach

the capital market in terms of cost and technical problems. The major source of liabilities in Pakistan has been commercial banks, which do not support long term loans. One justification for the implication of pecking order theory is that the, commercial banks hesitate to offer long term debt in Pakistan. In the view of Leary (2009), bank loan supply movements are also an important determinant of variation in debt ratios across the firms. In his view, debt-equity structure of minor firms is more susceptible to the loan supply than larger firms. Most of the firms in Pakistan are family owned.

3.3 Size

According to Ferri and Jones (1979), the justification for the belief that firm size is significant with respect to financial structure lies in the evidence that bigger firms might be more diversified, benefit from easier access to the capital markets, get higher credit ratings for their debt issues, and pay lesser interest rates on borrowed funds. Abor (2005) finds in his study of listed firms in Ghana that profitability is dependent on firm size and sales growth. García Padrón, María Cáceres Apolinario, Maroto Santana, Concepción Verona Martel, and Jordán Sales (2005) have the opinion that as the firm size increases, the information available concerning to it also increases, which curtails the level of information irregularity in the market and makes it feasible to obtain finances from lenders. Leary (2009) uses size as a proxy for bankruptcy cost by assuming that larger firms will be facing higher bankruptcy and transaction costs. But in the view of Rajan and Zingales (1995), smaller firms face higher transaction cost and greater informational abrasions. Leary (2009) finds size to be an important determinant of capital structure. He argues that even if all the firms face similar changes in lending terms, larger firms would be less affected due to their greater access to debt financing. As, small companies have limited access to capital markets. So it is assumed that smaller organizations use lesser debt and will try to finance their expenses through internally raised funds. Titman and Wessels (1988) demonstrate that short term debt ratio is negatively associated with the size of firm. Qureshi and Azid (2006) conclude that leverage is inversely correlated to the firm size. In their view negative association between leverage and firm size is because of the reason that larger firms may have better access to equity offerings, or they may have lower transaction costs, or they may want to maintain their managerial flexibility by avoiding the restrictive covenants of debt.

3.4. Industry

MacKay and Phillips (2005) show that capital intensity is very much industry-specific, with some variation among firms inside industries but minute firm-level changes over time. Moreover, capital structure also depends upon the firm's position within a specific industry. The industry factors affecting the firm's financial leverage include its proximity to the median industry capital-labor ratios, the measures and actions of the other firms in the same industry as well as its maturity. Harris and Raviv (1991) prove that firms in a particular industry will have comparable leverage ratios while leverage ratios vary across industries.

Baker (1973) investigates the impact of risk and leverage on the profitability of the industry. Their examination indicates that the firms in the similar industry are likely to have same debt ratios so leverage ratios are affected by the industry. In the view of Hull (1999), an industry's debt to equity norms represents an optimal capital structure and optimal capital structure is the one that is consistent with goal of owner's wealth maximization by increasing the firm value. He finds in his study that the firm's announcement of moving closer to industry leverage ratios causes a positive while announcement of moving away from the industry norms causes a negative impact on share price.

3.5. Growth

In the view of Jensen and Meckling (1976), firms having attractive investment opportunities and higher growth rates are expected to use lesser debt in comparison to the firms having low growth opportunities. So leverage is expected to be negatively associated with growth. Titman and Wessels (1988) also observe that growth opportunities are capital assets that boost the value of a firm but do not produce current taxable earnings. For this reason, a negative relation can be suggested between debt and growth opportunities. They establish that transaction cost has a significant impact on the choice of capital structure. Their results also indicate that short-term debt ratios are negatively associated with the firm size; as smaller firms face relatively higher transaction costs when issuing long-term financial instruments. Nivorozhkin (2002) argues that the firms with greater estimated growth rates can be expected to make use of a higher amount of equity finance, because lower leverage reduces the likelihood of giving up a lucrative investment opportunity. Frank and Goyal (2009) discover a positive correlation within leverage and growth opportunities.

Most of the theories of capital structure say that a firm can reduce its cost of capital and improve its value by judicious use of debt capital. Theoretically this relation is supposed to be positive but a number of researchers like have found a negative relation of debt and profitability in their respective countries (Fama & French, 1998; Jensen & Meckling, 1976; Myers, 1977). In spite of extensive theoretical arguments and numerous studies conducted on capital structure, no consensus has yet been achieved about its role in determination of corporate performance. In the light of the above discussion following is the research problem to be explored in this study.

What is the impact of financial leverage on financial performance of the companies in Pakistan?

Data and Methodology

This study is conducted on non-financial firms of KSE-listed firms. Data required for the study is obtained primarily from different volumes of Balance Sheet Analysis of the listed stock exchange companies published by the State Bank of Pakistan from the year 1998 to 2017. The market prices

data was taken from the business recorder site. The firms having some missing information, extreme values and negative values of stockholders' equity were excluded.

Econometric Model

A significant effect of financial leverage on firm value has been pronounced by all capital structure theories except MM irrelevance theory. The trade-off theory and MM theory (1963) proclaim a positive impact of leverage on firm value, as the use of leverage leads to tax shield benefits for the firms. However, the pecking order theory proves a negative impact of leverage on firm value. The primary aim of the study is to examine the impact of leverage on firm value. The effect of firm leverage on firm value along with control variables of size, growth and industry is examined using the following model. Pooled OLS regression model is used to determine the effect of leverage on firm performance. The use of multiple regression model enhances the explanatory power of the model. As there are a number of factors affecting leverage that may not be measured with complete accuracy, so an error term exists in the equation. Three different proxies are used to measure leverage and firm value is estimated using three different measures. Thus, we have run nine models as each regression equation presented below is run three times using different performance measure.

Financial Performance = *f* (Leverage, Size, Growth, Industry Effect)

$$Performance_{it} = \beta_0 + \beta_1(TDA)_{it} + \beta(FSZ)_{it} + \beta(SG)_{it} + \beta(IND)_{it} + \mu_{it} \quad (1)$$

$$Performance_{it} = \beta_0 + \beta_1(LDA)_{it} + \beta(FSZ)_{it} + \beta(SG)_{it} + \beta(IND)_{it} + \mu_{it} \quad (2)$$

$$Performance_{it} = \beta_0 + \beta_1(SDA)_{it} + \beta(FSZ)_{it} + \beta(SG)_{it} + \beta(IND)_{it} + \mu_{it} \quad (3)$$

where

Performance $_{it}$ = performance of *i* firm in time *t* as measured by the following three ratios

- ROE= Return on Equity
- ROA= Return on Asset
- TQ= Tobin's Q

TDA= Total Debt to Assets
LDA= Long Term Debt to Asset
SDA= Short Term Debt to Asset
FSZ= Firm Size measured by the log of total assets
SG= Sales Growth
IND= Industry
μ = Error Term
β_0 = Intercept

Variables

The independent variable 'Leverage' is the use of fixed cost funds to enhance returns to the shareholders. Leverage ratios demonstrate the degree to which the firm utilizes debt in its capital structure. Following are the three measures used as a proxy for financial leverage in this study

- SDA= Short Term Debt/ Total Asset
- LDA= Long Term Debt/ Total Asset
- TDA= Total Debt/ Total Asset

The variables employed as control in this study are size, growth and industry. Size is calculated as the log of total assets (Leary, 2009), growth is measured using sales growth (Abor, 2005). The impact of industry is measured using dummy variables. All non-financial sectors including textile, synthetic and rayon, woolen, cement etc. Table I shows the list of industries used in the sample. These industries are categorized into 28 groups. Automobile assembler industry was used as a benchmark against remaining industries. List of the industries included in the sample are given in Table I.

Dependent variable firm performance is measured using the following three proxies

- ROE (Return on equity)= Net profit after tax/Stockholders equity
- ROA(Return on assets)= Net profit after tax/Total Assets
- Tobin's Q= (Market value of equity+ Book value of debt)/ (Book value of equity+ Book value of debt)
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Table 1: List of industries included in the sample

Sectors	Dummies
AUTOMOBILE ASSEMBLER	D1
AUTOMOBILE PARTS & ACCESSORIES	D2
CABLE & ELECTRICAL GOODS	D3
CEMENT	D4
CHEMICAL	D5
ENGINEERING	D6
FERTILIZER	D7
FOOD & PERSONAL CARE PRODUCTS	D8
GLASS & CERAMICS	D9
JUTE	D10
LEATHER & TANNERIES	D11
MISCELLANEOUS	D12
OIL & GAS EXPLORATION COMPANIES	D13
OIL & GAS MARKETING COMPANIES	D14
PAPER & BOARD	D15
PHARMACEUTICALS	D16
POWER GENERATION & DISTRIBUTION	D17
REFINERY	D18
SUGAR & ALLIED INDUSTRIES	D19

SYNTHETIC & RAYON	D20
TECHNOLOGY & COMMUNICATION	D21
TEXTILE COMPOSITE	D22
TEXTILE SPINNING	D23
TEXTILE WEAVING	D24
TOBACCO	D25
TRANSPORT	D26
VANASPATI & ALLIED INDUSTRIES	D27
WOOLLEN	D28

Method

The study makes use of pooled OLS regression of panel data for the purpose of examination. According to Baltagi (1995), one beneficial point of using the panel data set is that, degrees of freedom are amplified and collinearity among the explanatory variables is condensed due to the several data points. This increases the economic efficiency of the results. The panel regression equation is different as compared to regular time-series or cross-section regression by the double subscript attached to each variable. The model can be written in general form as given in the econometric equations. Descriptive statistics is used to analyze the data trends and correlation analysis was conducted to check the existence of multicollinearity. The pooled OLS regression analysis is used to test the impact of financial leverage on performance.

4. Analysis

Descriptive Statistics

Dependent variable is the performance which is measured by using three ratios. The mean value of ROE is -0.14. Maximum value of ROE is 33.60 while minimum value is -334.20. The variation of the values from mean is depicted by standard deviation i.e. 5.64. The high variability of returns on equity is due to high variances both in equity and profits.

Table 2: Descriptive Statistics

Variable	*ROE*	*ROA*	*TQ*	*TDA*	*LTDA*	*STDA*	*Size*	*Growth*
Mean	-0.14	0.04	6.15	0.59	0.16	0.43	14.39	-1.94
Std. Dev.	5.64	0.16	14.51	0.36	0.27	0.26	1.74	107.80
Min	-334.20	-3.85	0.31	0.00	0.00	0.00	7.09	-8129.98
Max	33.60	5.57	437.06	13.04	10.66	6.69	20.26	1.00

Another measure used to estimate financial performance is return on asset ROA which had a mean value of 0.04. Maximum value of ROA is 5.57 while

minimum value is -3.85. Standard deviation of return on assets is 0.16 that is quiet low as compared to the standard deviation of return on equity. Reported net profits were negative for a large number of companies. Leverage is measured using short term, long term and total debt measures separately.

Calculated average value of total debt is 59 percent. This value indicates that the Pakistani firms are using equity and debt almost equally in their capital structure. On average 43% assets are financed by the short term debt and only 16% is financed by long term debt. Utilization of long term debt is negligible in many organizations. Total values of debt ratios indicate that out of total debt 73% is the part of short term debt and only 27% is represented by the long term debt. Total debt liabilities of some firms have gone over total assets value while lowest value is only 0 percent. There is 36% deviation of total debt to asset from the mean. Descriptive statistics of control variables indicate that the mean growth rate is -1.94%. Mean size of the firm calculated by the log of total assets is 14.39. The value of standard deviation from the mean is 1.74. Minimum growth rate is -8129.98 and maximum is 1.

Correlation Analysis

Correlation analysis for each performance ratio with all independent and control variables is individually conducted. As there is no significant association found between X variables so the results of the analysis established the fact that the issue of multicollinearity is not existent in the data. Table.3 shows that the return on equity is negatively linked to long-term debt, total debt and short-term debt. ROE is having positive but very weak correlation with size and growth. It can be concluded that greater size and growth rates are positively correlated with return on equity.

As shown in Table 3. ROA is negatively correlated to all measures of leverage including long term, short term and total debt. It is positively correlated with size and growth. Likewise ROE and market based performance measure i.e. Tobin's Q also show negative correlations with long-term, total debt and short-term debt. Tobin's Q is positively correlated with size, suggesting that the chances of profitability enhances as the size of the firm increase. The explanatory variables do not significantly correlate.

Regression Analysis

First three regression models showing impact of leverage using all three proxies is tested separately on ROE along with control variables of size, growth and industry. As depicted in Table 4, significance of regression models at both 95% and 99% confidence intervals approves the validity and reliability of the results. Coefficient of TDA is negative and significant. Size and growth are positively influencing the ROE with insignificant p values.

	ROE	*ROA*	*TQ*	*TDA*	*LTDA*	*STDA*	*Size*
ROA	0.1411	1					
TQ	0.017	0.1599	1				
TDA	-0.0448	-0.0886	-0.1982	1			
LTDA	-0.0297	-0.0544	-0.1415	0.7648	1		
STDA	-0.031	-0.0622	-0.1168	0.6688	0.0325	1	
Size	-0.0153	0.1087	0.074	-0.0489	0.0043	-0.0865	1
Growth	-0.0007	0.006	0.0051	-0.0107	-0.0033	-0.0114	-0.0017

Table 4: Impact of Leverage on ROE including Industry Dummies

	Regression (1)		***Regression (2)***		***Regression (3)***	
	B	***P-value***	**β**	***P-value***	**β**	***P-value***
Intercept	0.744	0.364	-0.323	0.691	0.721	0.861
TDA	-1.576	0.000				
LDA			-1.672	0.000		
SDA					-0.835	0.010
Size	0.018	0.703	0.037	0.440	0.001	0.990
Growth	0.000	0.937	0.000	0.968	0.000	0.951
D2	-0.179	0.755	0.042	0.942	-0.173	0.762
D3	0.096	0.874	0.061	0.921	-0.057	0.925
D4	-0.319	0.493	-0.001	0.998	-0.478	0.304
D5	-0.118	0.792	0.032	0.943	-0.226	0.610
D6	-0.042	0.936	0.095	0.859	-0.170	0.748
D7	-2.090	0.002	-1.864	0.007	-2.204	0.001
D8	0.056	0.906	0.211	0.658	0.002	0.996
D9	-0.103	0.862	0.099	0.869	-0.287	0.628
D10	-0.369	0.694	-0.148	0.875	-0.363	0.698
D11	-0.217	0.760	-0.342	0.631	-0.325	0.646
D12	-0.488	0.345	-0.179	0.729	-0.461	0.369
D13	-0.135	0.855	0.150	0.840	-0.048	0.948
D14	0.231	0.711	0.061	0.922	0.061	0.921
D15	-0.320	0.589	0.052	0.930	-0.349	0.556
D16	-0.163	0.761	0.074	0.890	-0.099	0.851
D17	-0.210	0.681	0.103	0.842	-0.323	0.526
D18	0.173	0.820	-0.161	0.832	0.048	0.949
D19	-0.094	0.828	0.021	0.961	-0.274	0.522
D20	-0.185	0.735	-0.008	0.989	-0.319	0.555
D21	-0.319	0.600	-0.100	0.870	-0.388	0.521
D22	-0.029	0.945	0.064	0.879	-0.211	0.610

D23	-0.007	0.987	0.096	0.814	-0.247	0.530
D24	0.328	0.571	0.395	0.499	0.072	0.901
D25	0.079	0.926	0.092	0.914	0.097	0.907
D26	-11.556	0.000	-11.365	0.000	-11.790	0.000
D27	-0.753	0.326	-0.740	0.336	-0.973	0.202
D28	-0.442	0.635	-0.122	0.896	-0.443	0.633
F	6.390	0.000	5.980	0.000	5.620	0.000
RSq	0.027		0.030		0.024	

The impact of industry on ROE, with high beta coefficient and very low p-values is highly significant for Fertilizer and Transport industry. As Automobile Assembler industry was employed as a benchmark to evaluate the impact of industry classifications so the results indicate that Fertilizer and Transport industry industries are performing worse than Automobile Assembler industry. Regression results using LDA with the variables of size, growth and industry represent similar results as with TDA. The model is highly significant at confidence intervals of 95% as well as 99% having F statistics of 5.980. This is a sign of inverse relationship of LDA and ROE. The impact of size and growth is positive and insignificant. Effect of industry categories on ROE is also evident from the p values. As the same industry is used as a benchmark so here again Fertilizer and Transport industries are found to have worse performance as compared to cement. Size and growth show very small positive values of beta coefficients with insignificant p value. Results for the impact of industry are similar for all measures of leverage. Regression output for industry dummy variables indicate that industry classification has an impact on the firm performance.

Results of next four regression models are depicted in Table 5. All regression models indicating the impact of each measures of leverage along with the variables of size, growth and industry on ROA are highly significant. Explanatory power of the variation in dependent variable is considerably enhanced. All measures of leverage show negative coefficients. P values for all independent variables are significant.

Positive and significant influence of size on ROA is evident from the coefficients and p value in all regression models related to ROA. Coefficient for growth variable is negligible. The influence of industry classification on ROA is manifested by the significance of p value of a number of industries in comparison with Automobile Assembler industry. Industry classification and its relevant impact on the ROA is notably different from Automobile Assembler industry in all the industries included in the sample except Fuel & Energy and sugar.

The impact of industry categorization on the ROA is corresponding to the results obtained for ROE. But the results of regression of leverage on market oriented performance i.e. Tobin's Q are relatively different (Table 6). The reason may be that the market values of the firms are extremely volatile and a large number of factors influence them. All regression models showing the impact of each leverage measure on Tobin's Q are highly significant. The explanatory power is obviously supplemented due to addition of industry variable along with size and growth. TDA is having negative coefficient and

is significant. LDA and SDA also show significantly negative coefficient. It denotes that debt position is linked with a decrease in profitability. The impact of industry on profitability is significantly better as compared to Automobile Assembler industry in D3, D4 and D5, D6, D10, D12, D13, D14, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27 and D28.

Table 5: Impact of Leverage on ROA including industry dummies

	Regression (4)		***Regression (5)***		***Regression (6)***	
	B	***P-value***	**β**	***P-value***	**β**	***P-value***
Intercept	0.016	0.390	-0.073	0.000	0.007	0.724
TDA	-0.134	0.000				
LDA			-0.131	0.000		
SDA					-0.073	0.000
Size	0.010	0.000	0.011	0.000	0.008	0.000
Growth	0.000	0.944	0.000	0.830	0.000	0.854
D2	-0.015	0.238	0.003	0.835	-0.016	0.214
D3	-0.042	0.002	-0.046	0.001	-0.056	0.000
D4	-0.057	0.000	-0.032	0.003	-0.072	0.000
D5	-0.033	0.001	-0.021	0.041	-0.043	0.000
D6	-0.034	0.005	-0.024	0.052	-0.046	0.000
D7	0.022	0.157	0.040	0.013	0.011	0.477
D8	0.012	0.252	0.025	0.024	0.006	0.567
D9	-0.019	0.159	-0.004	0.787	-0.036	0.008
D10	-0.061	0.004	-0.043	0.049	-0.062	0.004
D11	-0.015	0.361	-0.026	0.117	-0.025	0.127
D12	-0.088	0.000	-0.062	0.000	-0.087	0.000
D13	0.058	0.001	0.082	0.000	0.065	0.000
D14	-0.034	0.017	-0.049	0.001	-0.049	0.001
D15	-0.015	0.250	0.015	0.278	-0.020	0.153
D16	0.005	0.658	0.025	0.042	0.007	0.554
D17	-0.067	0.000	-0.042	0.000	-0.078	0.000
D18	-0.036	0.039	-0.064	0.000	-0.047	0.007
D19	-0.051	0.000	-0.042	0.000	-0.067	0.000
D20	-0.068	0.000	-0.054	0.000	-0.080	0.000
D21	-0.029	0.037	-0.011	0.421	-0.036	0.010
D22	-0.048	0.000	-0.042	0.000	-0.064	0.000
D23	-0.047	0.000	-0.041	0.000	-0.069	0.000
D24	-0.033	0.012	-0.030	0.028	-0.056	0.000
D25	0.040	0.037	0.041	0.034	0.037	0.057
D26	-0.050	0.027	-0.036	0.117	-0.071	0.002
D27	-0.068	0.000	-0.069	0.000	-0.088	0.000
D28	-0.082	0.000	-0.056	0.009	-0.084	0.000
F	31.480	0.000	24.060	0.000	22.240	0.000
RSq	0.135		10.570		0.098	

Size is positively affecting the firm performance. Growth is having very small coefficient and insignificant p value in all regression models related to Tobin's Q. So it may be assumed that growth has no significant impact on market oriented performance. The value of R^2 is 16%. As depicted by regression (7), the p value for DFL is very high that negates its impact on Tobin's Q. The variable of size is significantly positive influence on performance. Industry classification also matters in determining the market performance of the firm. As shown by the regression results the impact of industry classification on financial performance varies from one industry to another.

Table 6: Impact of Leverage on TQ including industry dummies

	Regression (7)		***Regression (8)***		***Regression (9)***	
	B	***P-value***	**β**	***P-value***	**B**	***P-value***
Intercept	2.762	0.324	-3.265	0.240	2.954	0.306
TDA	-9.107	0.000				
LDA			-7.909	0.000		
SDA					-6.936	0.000
Size	0.656	0.000	0.764	0.000	0.555	0.001
Growth	0.000	0.924	0.000	0.868	0.000	0.913
D2	-1.340	0.482	-0.193	0.920	-1.515	0.430
D3	-1.779	0.354	-2.189	0.257	-2.738	0.155
D4	-1.887	0.194	-0.490	0.742	-3.260	0.027
D5	-0.897	0.540	-0.217	0.884	-1.856	0.208
D6	-2.277	0.186	-1.720	0.323	-3.222	0.063
D7	2.038	0.404	2.077	0.399	0.955	0.697
D8	9.060	0.000	9.812	0.000	8.686	0.000
D9	-2.260	0.199	-1.564	0.381	-3.605	0.042
D10	-5.943	0.074	-4.473	0.181	-5.926	0.077
D11	1.317	0.571	0.960	0.681	1.098	0.638
D12	5.787	0.000	7.231	0.000	5.383	0.001
D13	5.923	0.006	7.241	0.001	5.909	0.007
D14	-1.025	0.610	-2.443	0.225	-1.726	0.392
D15	-1.356	0.462	0.619	0.740	-2.119	0.258
D16	17.905	0.000	19.282	0.000	17.820	0.000
D17	-4.207	0.011	-2.972	0.078	-5.687	0.001
D18	-3.192	0.191	-4.891	0.046	-3.556	0.147
D19	-3.533	0.011	-3.421	0.015	-4.824	0.001
D20	-3.766	0.027	-3.015	0.080	-4.741	0.006
D21	-1.601	0.429	-0.725	0.722	-2.308	0.257
D22	-4.084	0.002	-3.868	0.004	-5.314	0.000
D23	-3.288	0.010	-3.242	0.013	-4.819	0.000
D24	-2.667	0.148	-2.524	0.176	-4.093	0.027

D25	20.162	0.000	19.705	0.000	20.050	0.000
D26	-4.555	0.120	-3.894	0.188	-6.182	0.036
D27	-2.090	0.409	-2.825	0.267	-3.151	0.215
D28	-5.616	0.043	-3.605	0.196	-5.849	0.037
F	27.25	0.001	25.43	0.001	25.64	0.001
RSq	0.1559		0.1467		0.1538	

Discussion

This study has used a fairly large sample of twenty years for investigating the impact of leverage on firm performance. We have presented the results using OLS regression. However, for robustness, we conducted analysis using fixed effect and random effects but the same relationship were observed. The regression results in this study are comparable and consistent with the empirical study on the capital structure of Ghanaians' firms by Abor (2007) in which he find a negative impact of all measures of leverage on ROA. Saji & Eldhose (2017) also find an inverse relationship of debt ratio with market valuation for a sample of FMCG firms in India. Iqbal et al. (2020) find a negative impact of debt ratio on firm innovativeness. These results are also consistent with the findings of existing studies on the capital structure of Pakistan that demonstrate the existence of pecking order theory owing to negative relationship of debt ratios and profitability (Shah, Butt, & Hassan, 2009; Shah, 2007). Another reason for getting a negative relationship between leverage and profitability may be extant of non-performing loans in Pakistan. As most of the industrial sector was getting loans on highly subsidized rates, it decreased the efficiency of the firms.

As per the capital structure theory leverage is supposed to positively affect the firm performance. Nonetheless, the current study finds negative impacts for all kinds of debt on ROE, ROA and Tobin's Q, which means inefficiency of debt utilization by Pakistani firms. The positive impact is supposed to exist due to the tax deductibility of interest payment and tax payment on dividends. But to gain tax benefits of debt, the company has to be efficient enough to earn the rate of return more than the rate of interest payment. Otherwise the firm has to suffer the consequences of low profitability. Shang (2021) shows a significantly positive relationship between managerial ability and short term debt. Long term debt was found to affect the performance negatively due to high rate of interest to be paid for it. Shaikh et al. (2022) find a negative impact of financial leverage on financial performance. Haifeng et al. (2021) show that the firms with the optimal leverage amount depict positive impact of financial leverage on efficiency while highly geared firms depict an negative impact of leverage on efficiency.

5. Conclusion

One of the most argued issues of corporate finance is the relevance of capital structure in determining firm performance. The current study has addressed the same and found the significant negative impacts of leverage on firm

performance. Most common observation in the developing countries like Pakistan is the existence of a negative impact especially of long-term debt on firms' returns. For robustness, this study has explored the impact of short-term, long term and total leverage independently. The results of the study have depicted that the size of firms has a considerable positive impact on firm performance. Larger organizations with more fixed assets can avail secured loans at favourable rates. The cost of capital is relatively less in the big organization and rates of return are high. The growth rate had no significant impact on firm performance.

The impact of industry on performance varies with the type of industry as a firm's capital structure depends upon the industry norms. The reason of negative impact of debt on profitability is that the indebted firms increase their risk as they increase the amount of leverage in their capital structure. Due to unstable political conditions prevailing, the investment in Pakistan has become highly risky and stock market is extremely volatile. Fixed payment obligations exert a pressure on the managers to perform efficiently due to the existence of leverage in the capital structure. As the level of leverage in firm increases, creditors restrict firm managers to grab the high return investment opportunities due to high risk involved, resulting in low returns. Long term debt is comparatively more expensive so quite often it is not possible for the firms to achieve that rate of return. Thus, as per the analysis firms in Pakistan should rely more on equity financing. Future studies should be conducted to find the optimal debt level for each industry separately.

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