

FIRM AND INDUSTRY SPECIFIC DETERMINANTS OF CAPITAL STRUCTURE: EMPIRICAL EVIDENCE FROM THE LISTED INDUSTRIAL SECTORS OF PAKISTAN

Hassan Raza¹ , Zeeshan Hamid² , Syed Asim Shah³ , Sana Khan⁴

1. Assistant Professor, Department of Management Sciences, Shaheed Zulfiqar Ali Bhutto Institute of Sciences and Technology, Islamabad,

2. Lecturer, Department of Management Sciences, Shaheed Zulfiqar Ali Bhutto Institute of Sciences and Technology, Islamabad,

3. Lecturer, Department of Management Sciences, National University of Modern Languages, Islamabad,

4. Scholar, Department of Management Sciences, National University of Modern Languages, Islamabad

Received: 25th July 2021

Revised: 10th August 2021

Accepted: 15th September 2021

Abstract: This research study attempts to examine the determinants of the capital structure of the listed non-financial firms from PSX for the time period between 2004-2020. Using panel regression analysis, the study confirms that both industry and firm-specific factors significantly influence the capital structure decisions of the selected firms. The findings of our study confirm that several firm-specific variables differ across industrial sectors, although prior research has found that these variables have a similar influence. Our research also shows the significant impact of industry-specific characteristics on the capital structure of Pakistani firms as significant coefficients report significant industry effects. Our study examines the impact of eight explanatory variables on the leverage ratio. Among four industry-specific variables, three significantly explained the variation in leverage ratio and all four firm-specific variables significantly explained the variation in the leverage ratio. The study findings support implications of trade-off theory based on tangibility factor, while growth factor supports the implications of agency theory. Similarly, the size factor confirms the prophecy of the tradeoff theory and Tobin Q and M/B ratio support the implications of agency theory.

Keywords: Capital Structure, Size, Growth, Tobin q, Tangibility, M/B ratio, Leverage, Price to Earning (P/E) Ratio.

INTRODUCTION AND BACKGROUND OF THE STUDY

Modigliani and Miller's foundational work (1958) is the cornerstone of capital structure theory, leading to the conclusion that financial leverage does not impact company market value and hence equity and debt as a perfect alternative are largely accepted. Several theories have been developed to examine the various determiners of the financial structure of the firm, such as the static trade-off and pecking order theories (Fama and French, 2002; Frank and Goyal, 2003; Kayhan and Titman, 2007; Delcours 2007), cost of agency issues (Jensen, 1984) and equity market returns (Bie and Haan 2007; Jenter, 2005 and Welch, 2004). The capital structure of a business is not only affected by firm-specific variables but also country-specific factors, according to empirical studies of (Bancel and Mittoo, 2004; De Jong et al., 2008). The variations in capital structure across firms from the same nation are often explained by firm-specific characteristics. When comparing capital structure choices of businesses in different countries, studies across various continents use firm and country-specific factors to explain capital structure variations. These empirical studies corroborate that variables unique to firms as well as countries had considerable explanatory power in the formation of the capital structure decisions.

In the determination of the capital structure, numerous studies synthesize firm-specific factors as the core exigent in the specific market context. Whereas many research scholars debate in this context revering these factors do not influence debts to equity but those of industry-specific factors do (Ahsan, Wang, Qureshi, Bancel & Mittoo, 2004; De Jong, Kabir, & Nguyen, 2008). The sentiments of these opponents are against the agency, trade-off, and pecking order theory since according to these theories firm-specific variables play an important role in determining the capital structure for any company. Furthermore, according to the theoretical review, results can either be constructive or non-constructive of a firm's specific determinants. Many studies observed various factors stipulating the underlying determinants of capital structure across industries and countries. The main factors discovered at the firm level are opportunities for growth, risk, firm size, earning of the firm, and its tangible assets. According to the agency theory there exists a negative or inverse relationship among debt structure and growth opportunities of the firm, but according to the pecking-order theory there exists a positive relationship between both. Authors of agency theory give their arguments, to support the negative relationship between debt structure and growth opportunities. According to Stulz, (1990), when a firm performs well and when it is in the growth stage then shareholders less focus on debt, and that debt is reserved for investment problems in the firms.

Accordingly, various research studies in core findings discover that the industry-specific factors had a significant impact on the leverage of the firms and even on financial distress. Booth, Aivazian, & Demircug-kunt, Psillaki & Daskalakis, (2009); Li & Islam, (2019); Fan, Titman, & Twite, (2012) and Moosa & Li, (2012). While Mackay and Phillips, (2005) position their arguments in this context that firm-specific factors are different for every company therefore industrial system, competition, and business atmosphere are important elements of capital structure. It's a mere fact that a lot of developed and developing market-based research have examined capital structure determinants, but the relevance of industry-specific variables has been largely ignored. Even firm-specific factors influencing the capital structure in the contextual setting of Pakistan is yet to be extensively explored. By studying the significance of industry-specific and firm-specific factors on capital structure decisions, this research study aims to

explain the capital structure decisions of Pakistani businesses using a large and comprehensive dataset. For example, Psillaki and Daskalakis (2009) and Fan et al. (2012) assume that industry-specific variables had the same influence on leverage decisions across businesses within a nation (Booth et al., 2001). But we suggest that the influence of industry-specific elements differs in terms of signs, magnitudes, and importance since industry factors, such as business climate, industry laws, and competitiveness are essential for companies' capital structure decisions in line with (Mackay and Phillips, 2005).

Empirical studies across various regions and countries largely emphasize the significance of firm, industry and macro-economic factors that influenced the capital structure decisions in the different corporate and legal environments. In the determination of the impact of industry-specific factors on the capital structure of a company, numerous studies followed the concept of De Jong et al., (2008). According to the idea of De Jong et al., (2008), the purpose of this study is to determine the impact of industry-specific factors (directly or indirectly) on the capital structure of the firm. Our study also explores other variables or factors entailing market risk and average industry growth which affect the capital structure of the company. Therefore, the capital structure of the firm is affected by the firm's specific factors. According to this study, firm size is only the main factor that affects capital structure significantly. While probability, tangibility and M/B do not significantly affect the structure of debt to equity.

Based on the insight of the empirical studies emphasizing the significance of both industry and firm-specific determinants of the corporate capital structure. Our research study examines the effect of both industry specific as well as the firm's specific determinants on the leverage of the firm including short-term and long-term leverage. In case of including more leverage in the capital structure for the hunt of rapid growth exposes the firm toward bankruptcy and financial distress. Therefore, it is necessary to understand the firm and industry-specific factors to develop a capital structure that has an appropriate proportion of debt and equity by keeping the firm safe against the exposure of higher financial risk. This research study assists the decision-makers and analysts in selecting the best optimal capital structure by keeping in view the changes or fluctuations across the firm and industry-specific factors and their impact on risk-return exposure of the underlying firms.

The rest of the research paper is structured as follows; the next section comprehensively elaborates the review of earlier empirical studies. The third section deliberates the research design and methodology, the fourth section evaluate and compare the empirical findings of the study. The final and last section conclude the paper with significant implications.

REVIEW OF EMPIRICAL STUDIES

The studies on the determining factors of the corporate capital structure were intensively explored in the various markets including the USA by (Baker and Wurgler, 2002; Flannery and Rangan, 2006; Hovakimian, 2006; Kayhan and Titman, 2007; Leary and Roberts, 2005; Welch, 2004), Great Britain by (Bevan and Danbolt, 2002, 2004; Marsh, 1982) and others (Bie and Haan 2007 and Akhtar, 2005). According to this prior research, corporate capital structure decisions are affected by a variety of factors, including firm-specific characteristics like profitability, size and growth, country-specific, industry-specific as well as macroeconomic conditions (Frank and Goyal, 2009).

Firm and Industry Specific Determinants of Capital Structure: Empirical Evidence from the Listed Industrial Sectors of Pakistan

In the core of the capital structure arena, a limited number of competing but not mutually exclusive theories underlie the creation of capital formation, including the trade-off theory and pecking order theory, as well as concerns of agency costs, asymmetric information, market timing and transaction costs (Jensen and Meckling, 1976; Myers, 1984; Baker and Wurgler, 2002; Oliver, 2005). It is based on a trade-off between the costs and benefits of borrowing that a business determines its target debt level. Businesses grow their debt levels until the marginal tax benefits of further borrowing are offset by a rise in financial bankruptcy costs, according to the underlying theatrical context. Deduced from this, bankruptcy costs are inversely correlated with the leverage ratio. Because of this, asset tangibility should be positively connected to leverage (Titman and Wessels, 1988; Rajan and Zingales, 1995; Frank and Goyal, 2009). Smaller businesses have a higher risk of insolvency because they have less access to financial resources and less flexibility in redeploying assets. Agency theory implies that businesses with high leverage are unwilling to invest, resulting in a wealth shift from debt holders to stockholders. Consequently, lenders demand collateral since secured debt can mitigate this risk. Due to this hypothesis, companies without collateral must pay higher interest rates on their loans or issue stock instead (Scott, (1977); Baker and Wurgler (2002); Islam and Khandaker, (2015). Size and tangibility are also predicted to have a beneficial influence on leverage since large businesses are less likely to experience financial difficulties.

Even though the trade-off theory continues to be the most widely accepted theory of capital structure, it is unable to explain observed corporate behaviour, such as the stock market's reaction to leverage-increasing and leverage-decreasing transactions, which consistently lead to stock price ups and downs. Based on knowledge asymmetry, the Pecking order theory of corporate leverage was developed as an alternative to the trade-off model (Myers and Majluf, (1984).

Empirical research on capital structure decisions in foreign markets is more relevant to our study too. According to Rajan and Zingales (1995), business size, asset tangibility, firm development, and profitability explain 19 per cent of the cross-sectional variance in companies' leverage. As a follow-up to Rajan and Zingales' (1995) study, Wald (1999) examines capital structure decisions made by French, German, Japanese, United Kingdom (UK), and United States (US) firms as a function of their business size, risk, investments, non-debt tax shields, and sales growth, the cross-country analysis confirms Rajan and Zingales' (1995) conclusions. As a result of disparities in tax policies and agency difficulties, as well as variances in bankruptcy and moral hazard costs and information asymmetries, the author shows that capital structure options change between nations. These cross countries and regional discrepancies in the practices untold the significance of industry-specific determinants of capital structure along with firm and country-specific for businesses and industries to leverage the optimal capital structure strategy.

RESEARCH DESIGN AND METHODOLOGY

In this research study, both industry-specific and firm-specific determinants formed the study variables are taken to assess the impact on the capital structure of the sample firms. The ultimate sample consist of twelve (12) non-financial industrial sectors taken from Industry Classification Benchmarked developed by FTSE and Dow Jones adopted by PSX and 197 firms for the period between 2004-2020. Data of study variables are taken from Thomson Reuters DataStream, IMF Financials and Annual Financial Reports. Identified variables are modelled into two groups representing four firm-specific and four industry-specific

variables, outliers hitting the data are eliminated to produce valid outcomes. A variable representing firm-specific analysis consists of Tobin Q, tangibility, M/B ratio and size, those representing industry-specific are P/E ratio, GDP contribution, risk and growth rate examined in the studies of Leary and Roberts, (2005); Akhtar, (2005) and Cassar and Holmes, (2003).

In assessing the industry and firm-specific determinants of capital structure, leverage ratio is regressed on a set of potential determinants of capital structure. We used to run leverage ratios as a dependent variable on least squares regression whereas industry-specific and firm-specific determinants as explanatory variables across the industry on the given data set. Unit root analysis is also applied to determine whether time series stand stationary or non-stationary in its level. Specifically, the following given model is applied to test the determinants of capital structure:

$$\begin{aligned} & \text{Leverage}_{i,t}(\text{Debt/Equity}) \\ & = \beta_0 + \beta_1 TQ_{i,t} + \beta_2 TANG_{i,t} + \beta_3 MB_{i,t} + \beta_4 GDPcon + \beta_5 Risk_{i,t} + \beta_6 GR \\ & + \beta_7 P/E + \beta_8 size + \beta_9 \sum_{T=1}^N Indus_DUM + \beta_{10} \sum_{T=1}^N Year_DUM + \varepsilon_{i,t} \end{aligned}$$

In the process of econometric testing of our main research hypothesis. first, we determine both firm-specific and industry-specific coefficients across the industry. Specifically, the test was conducted to check out whether four firm-specific coefficients Tobin Q, tangibility, M/B ratio, size and four industry-specific coefficients of P/E ratio, GDP contribution, risk and growth rate retain the similar value among industries in the sample along with dummy variables which is the numerical value used in regression analysis. Our study analysis is similar to De Jong et al., (2008) approach followed by using an unrestricted regression model where all the coefficients are allowed to differ across the industry over the selected time period.

Variables and Data Analysis:

The main purpose of this study is to determine firm and industry-specific factors of capital structure by taking data of non-financial firms across the various industrial group for the time period between 2004-2020. Various econometric tests were applied consisting of panel regression analysis with the unrestricted leaner model, descriptive analysis, unit root analysis and pairwise correlation to analyze the effect of industry and firm-specific factors on the capital structure of non-financial Pakistani firms.

In our study, the dependent variable is *Leverage*_{i,t}, it is calculated by dividing the total debt over the total assets. long-term leverage ratios are used rather than short-term leverage ratios to reflect sample businesses capital structure, as short-term leverage is mostly comprised of trade credits observed in the study of Titman Wessels, (1988); Booth et al., (2001) and Hall et al., (2004). Whereas independent variables in this study are M/B ratio refers to the market to book value ratio, tangibility is measured as the net book value of property, plant and equipment divided over the total assets. TQ refers to Tobin-Q measures the firm asset relative to firm market value and size is measured as the natural logarithm of total revenues taken from Lewellen and Badrinath, (1997) and Davidson and Heaney, (2011). P/E is the price to earnings ratio measured by dividing the market price per share over the earnings per share, GDP contribution is

Firm and Industry Specific Determinants of Capital Structure: Empirical Evidence from the Listed Industrial Sectors of Pakistan

determined by dividing the total sales of each specific industry over GDP, the risk is measured through the beta of each industry, size is measured as the natural logarithm of total revenues and growth rate is calculated by taking the geometric mean of the sales growth of each industry over the targeted period of study. Tobin Q, M/B ratio, tangibility, and size are firm-specific while P/E ratio, risk, growth rate, and GDP contribution are industry-specific factors, empirically examined in the studies of Mackay and Philips, (2005) and Kima et al., (2016).

DESCRIPTIVE ANALYSIS

Our analysis begins with the descriptive statistics, Table-1 below exhibits the mean and median values of the leverage and both firm and industry-specific factors along with the standard deviation to deliberate the variation in the values across the sample period. Minimum and Maximum values are also presented to identify the largest and smallest values in the data set.

Table 1: Descriptive Statistics for the period of 2004-2017

Variable	Mean	Median	St.Dev.	Min	Max
Tangibility	.416	0.253	.224	0.004	.943
Size	6.779	5.781	.635	5.189	8.346
Tobin Q	.695	0.481	1.011	0.038	9.849
Growth rate	1.016	0.937	25.337	-1.052	742.196
P/E	19.386	16.574	9.447	10.87	40.648
Risk	.298	.193	.157	0.004	.605
GDP contribution	.0019	0.0011	.0018	0.003	.0102
Leverage	.486	0.304	.228	0.008	.893
M/B	1.791	1.172	4.553	-.138	95.898

The findings of the descriptive analysis in Table 1 reports both industry and firm-specific variations that indicate the significant differences across industries and firms. As exhibited, debt to total assets representing leverage shows a mean value is 48.6% and median value of 30.4% indicating significant differences in leverage across industries. Leverage shows the standard deviation of 22% while the maximum value is 89.3% and the minimum value is 0.8%, these findings related to leverage corroborate that Pakistani firms use 48% debt in their business while 22% deviation occurs in the usage of debt.

Tangibility shows mean value is 41.6%, the median value of 25.3% and the standard deviation 22.4%, While the maximum value is 94% and the minimum value is 0.4%. As the mean value of tangibility is less than the mean value of size so it concluded that Pakistani non-financial firms demand less for the tangibility of the assets. The mean value of size is 6.779 and the standard deviation is 0.635. The maximum value of size is 8.346 and the smallest value is 5.189. Tobin q indicates a .69 mean value and 1.01 standard deviation along with 0.03 minimum and 0.695 maximum values. The risk is having a 0.298 mean value and 0.157 standard deviations, while the minimum value is 0.004 and the maximum value is 0.605. The growth rate shows a mean value of 1.016 and the standard deviation is 25.337. The negative mean value is shown by the growth rate. GDP contribution shows a mean value of 0.0019 and a standard deviation of 0.0018

with 0 minimum value and 0.0102 maximum value. The Market-book ratio shows a mean value of 1.791 and a standard deviation of 4.553. Whereas the maximum value is 95.89 and the minimum value is -1.38. The mostly market-book ratio gives the idea to investors about the market's stock value. But those firms who used intangible assets, market to book ratio is not appropriate for them. According to the above results, risk shows a minimum standard deviation and growth rate shows a maximum standard deviation.

PAIRWISE CORRELATION ANALYSIS

Pairwise correlation among the identified independent variables representing the firm and industry-specific factors and dependent variables representing capital structure measured by leverage is reported in Table 2 below. The correlation matrix reports that the identified variables had a range of correlation from 0.00 to 0.72.

Table 2: Pairwise correlation Matrix

Variables	Tang	Size	Tobin q	Growth	Risk	GDP	Leverage	M/B
Tang	1.000							
Size	-.031	1.000						
Tobin q	-.054	.216*	1.000					
Growth	.031	-.077*	-.005	1.000				
Risk	.074*	.382*	.022	-.064	1.000			
GDP	.054	.027	-.000	-.003	-.035	1.000		
Leverage	.119*	.059*	-.204*	.070*	-.064	-.139*	1.000	
M/B	.041	.186*	.723*	-.009	.005	-.025	.118*	1.000

* shows significance at the .05 level

To determine the relationship among variables pairwise correlation is constructed. The relationship among identified variables is tested at the significance level of 5%. According to the results, the growth rate is negative, and Tobin Q is positively related to size. Whereas risk is positively significant with size and tangibility. Further, leverage is negatively related to GDP contribution and Tobin Q while positively significant with size, tangibility, growth rate. M/B ratio is significantly related to Tobin Q, leverage and size. The maximum relationship is shown by Tobin Q and M/B ratio is .723 while no relationship between Tobin Q and GDP. This extensive range of relationships among the variables indicates the diversity and combination of factors representing firm and industrial segments that influence the choice of capital structure decisions.

UNIT ROOT TEST

Our study is based on the panel data set of multiple years with multiple industry-specific and firm-specific determinants forming the capital structure decisions. Both of these factors in the regression model are time series-based variables and are purported to be non-stationary in their properties (Hill et al., 2008). We

Firm and Industry Specific Determinants of Capital Structure: Empirical Evidence from the Listed Industrial Sectors of Pakistan

performed Levin, Lin and Chu tests to figure out whether the selected time series encompasses the unit root or is stationary in its level. The findings are reported in table 2 below.

Table 3: Unit Root Analysis (Levin, Lin & Chu Test)

<i>Variable Name</i>	<i>Statistic</i>	<i>Prob. * *</i>
<i>Leverage</i>	-3.43921	.0003
<i>GDP contribution</i>	-5.83651	.000
<i>Growth rate</i>	-9.7198	.000
<i>M/B</i>	-5.13312	.000
<i>Risk</i>	-3.84234	.0001
<i>size</i>	-6.96971	.000
<i>P/E</i>	-7.367	.000
<i>Tang</i>	-5.27349	.000
<i>Tobin q</i>	-2.72521	.0032

Table-2 display the findings of the Levin, Lin and Chu test, the results of tests reveal that all of the study variables representing the firm and industry-specific determinants of the capital structure does not possess the unit root and hence are stationary in its properties that validate the correct application of the desired regression model on the selected data set.

REGRESSION ANALYSIS

In determining whether the leverage can be estimated from firm-specific factors, for example, tangibility, Tobin-Q, size and M/B ratio and industry-specific factors growth rate, P/E ratio, risk and GDP contribution, the regression model is applied. Each firm-specific coefficient is compared across industries to see if tangibility, Tobin Q, size and M/B coefficients are the same across industries. Using a non-restricted regression model that allows all coefficients to vary across sectors, we undertake these tests. We examine if each of the selected industries has a firm-specific coefficient of the same value. This means that we assume that all firm-specific coefficients have the same value regardless of industry based on prior research (Booth et al., 2001; Psillaki and Daskalakis, 2009; Fanet al., 2012). Our analysis also figures out the variation explained by industry-specific determinants along with firm-specific factors and whether industry-specific or firm-specific factors contributes more to deciding the capital structure. Findings of the model test are reported in Table-2 below.

*Table 4: Regression results for the period of 2004-2020
Method: Panel Least Squares*

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>Tangibility</i>	.129	.050	2.588	.010
<i>Tobin Q</i>	-.074	.010	-7.473	.000
<i>Risk</i>	.607	.070	-1.517	.000
<i>Size</i>	.055	.024	2.249	.025
<i>GDP Contribution</i>	-5.094	5.147	-0.990	.323
<i>Growth rate</i>	.043	.008	5.301	.000
<i>M/B</i>	.012	.002	6.015	.000
<i>P/E</i>	.882	.163	9.424	.000
<i>R-squared</i>	.717			
<i>Adjusted R-squared</i>	.734			
<i>F-statistic</i>	498.658			
<i>Prob(F-statistic)</i>	.000			

Findings of the regression model presenting the association between firm-specific and industry-specific factors with leverage are presented in table 4. Among firm-specific factors, tangibility, size and M/B are positively significantly associated with the leverage while Tobin-q is negatively associated with leverage and is statistically significant. The results implied that bigger firms are inclined toward more borrowings to diversify the growth opportunities in the long run. The tangibility of the asset is also an important determinant and significantly affects the leverage. Leverage and the percentage of tangible assets are predicted to be positively correlated under trade-off theory. Defensive assets can be used as collateral, decreasing the creditor risk associated with incurring agency fees. Therefore, a large proportion of physical assets is predicted to be associated with increased leverage supported by the findings. The value of the firm is closely related to the leverage, the high fluctuation in the value brings significant variation in the debt structure of the firms. The proxy representing firm performance i-e Tobin q based on assets reports the significant negative association with leverage which indicates that profitability of corporate value is negatively linked with leverage for firms with strong growth opportunities. These findings are in line with studies of Paulo Esperança, Matias Gama, & Azzim Gulamhussen, (2003); Booth et al., (2001); Cassar & Holmes, 2003; Hall, Hutchinson, & Michaelas, (2004) and Paulo Esperança et al., (2003). For industry-specific deterrents, risk, growth rate and P/E ratio significantly impact the borrowing decisions, the industry with high risk and more growth opportunities tend to employ more debt to diversify investments. Industry with high P/E ratio are more adoptive toward leverage in financing various projects and

Firm and Industry Specific Determinants of Capital Structure: Empirical Evidence from the Listed Industrial Sectors of Pakistan

opportunities and through leverage can significantly influence profitability. GDP growth is negatively associated with leverage and is insignificant which indicates that economically associated industries are not or least associated with high leverage and not in favor of obtaining leverage. The findings of the study are consistent with Gajurel, (2005) and Wahlen et al., (2011).

From the insight of this analysis, we can establish that firm-specific variables have coefficients that differ across industries Furthermore, the F-statistics suggests that not all firm-specific determinants are equal for the selected industries in our sample. As a result, studies of capital structure cannot use a single model for all businesses from all sectors, and industry-specific characteristics, such as risk, growth, family concentration and GDP growth might vary between industries must be included.

Table 5: Linear Regression (Industrial Dummies)

<i>Leverage</i>	<i>Coef.</i>	<i>St. Err.</i>	<i>t-value</i>	<i>p-value</i>	<i>[95% Conf</i>	<i>Interval]</i>	<i>Sig</i>
<i>Textile</i>	.388	.077	4.55	.000	.193	.500	***
<i>Food</i>	.282	.066	4.27	.000	.152	.412	***
<i>Chem.</i>	.179	.080	2.31	.028	.019	.297	**
<i>Manu</i>	.168	.070	2.13	.021	.029	.386	**
<i>Fuel</i>	.229	.069	4.48	.001	.191	.450	***
<i>Electricity</i>	.171	.077	2.21	.027	.019	.323	**
<i>Coke</i>	.199	.065	3.05	.002	.071	.327	***
<i>Motor</i>	.120	.061	1.96	.050	.000	.240	*
<i>Other. Textile</i>	-.124	.065	-1.90	.058	-.252	.004	*
<i>Cement</i>	.152	.059	2.89	.076	.063	.368	**
<i>Services</i>	.111	.082	1.36	.175	-.050	.272	
<i>Sugar</i>	-.146	.069	-1.71	.075	-.272	.006	*
<i>Tang</i>	.172	.042	4.09	.000	.089	.254	***
<i>Size</i>	.199	.035	5.40	.000	.098	.262	***
<i>Tobin q</i>	-.152	.011	-13.64	.000	-.174	-.131	***
<i>Growth rate</i>	.001	.000	2.30	.022	-.001	.000	**
<i>Risk</i>	-.119	.056	-2.12	.034	-.229	-.009	**
<i>GDP</i>	.000	.000	-3.36	.001	.000	.000	***
<i>M/B</i>	.024	.002	11.18	.000	.020	.028	***
<i>P/E</i>	.003	.018	.16	.876	-.032	.037	
<i>Constant</i>	.292	.108	2.69	.007	.079	.505	***
<i>Mean dependent var</i>		.486					
<i>R-squared</i>		.707					
<i>F-test</i>		19.414					
<i>Prob > F</i>		0.000					
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$							

Table 5 reports the findings of industrial dummies along with their impact on the leverage. Results of all independent variables are reported in table 4 by taking industry dummies. The proxies representing size, tangibility, risk, Tobin Q, GDP contribution, P/E ratio, M/B ratio, growth rate are industrial dummies while leverage is a dependent variable. Tangibility shows a p-value of 0.000 and the coefficient value is 0.172 therefore it is significant. Size shows p-value 0.000 and coefficient value is 0.199 therefore it is found to be statistically significant. Tobin Q is negatively significant with a p-value =0.000 and a coefficient value is -0.152. The growth rate also shows a p-value of 0.022 and coefficient value 0.001 so it is significant ($p < 0.05$). Risk shows p-value 0.034 and coefficient value is -0.119 so it is significant ($p < 0.05$). GDP contribution shows p-value 0.001 and coefficient 0.000 therefore it is significant as ($p < 0.01$). M/B ratio shows the coefficient of 0.024 whereas the p-value is 0.000 therefore it is significant ($p < 0.01$). P/E shows a coefficient of 0.003 whereas the p-value is 0.876 therefore it is insignificant. The textile industry shows a p-value of 0.000, while the coefficient value is 0.388 and is statistically significant. The food industry shows a p-value of 0.000 and a coefficient value of 0.282 therefore it shows significant results. The stats of other industries including manufacturing, chemical, fuel, electricity, coke, automobile, other textiles, cement and sugar shows significant explanation by industrial dummies in explaining the capital structure position while only one industry representing service sector found to be insignificant.

In the underlying model, we determine the effects of firm and industry factors on leverage in Pakistani firms. Tables-4 show findings are largely in support of the hypothesis that both industry and firm factors significant explain the variation in the capital structure decision. The reported value of R^2 is 70.7%, which implies that a large portion of the industry and firm-specific variables can explain the capital structure of non-financial firms of Pakistan. The outcome of table 4 suggests that there are various firm and industry-specific variables for example size, tang, Tobin q, growth rate and M/B ratio which affect the leverage of Pakistani firms. But Tobin q, M/B ratio and tangibility show a significant effect on leverage among all regressions. Moreover, Tobin q put a significant effect on the leverage ratio, and it acts as a proxy of firm market performance. Therefore, these results suggest that those firms which have more good market performance are more expected to raise their debt level. While industry-specific variables do influence the function of firm-specific capital structure determinants, the choice of leverage ratios is also a factor. Overall market performance (Tobin's Q) has a substantial positive influence on market-to-book ratio and asset tangibility, confirming the assumption that businesses in industries with good market performance tend to be more profitable and have higher asset quality (Frank and Goyal, 2009). The overall findings indicate that industry-based parameters are considerably involved in the capital structure decisions and these factors also impact the way firm-specific factors influence the firm's decision to use a capital structure (Frank and Goyal, 2009; Fan et al., 2012).

CONCLUSION

In the determination of the targeted capital structure, pecking order theory, the agency theory, the trade-off theory, and the market timing theory are some of the capital structure theories that underpin how and what factors construed the capital structure. Firm-specific variables have influenced the capital structure of businesses operating in the various economies explored in the earlier empirical studies. More of the market and country-specific comparative research has been done in recent years, using country-specific characteristics to explain sample businesses capital structure choices and decisions. In this study, we looked

Firm and Industry Specific Determinants of Capital Structure: Empirical Evidence from the Listed Industrial Sectors of Pakistan

at whether industry-specific variables along with key firm-specific variables have a substantial influence on company capital structure determination or not in the context of Pakistan.

According to the findings of our research study, several company-specific characteristics, such as firm size, Tobin Q, tangibility, and M/B ratio have a substantial impact on sample businesses capital structure. Our research study also shows that the association between the leverage ratio of a firm's sample and firm-specific factors varies by industry. For example, we propose that industry-specific characteristics can both, directly and indirectly, influence a firm's capital structure decision for the targeted Pakistani corporates during the period between 2004-2020. When it comes to significant repercussions, our findings show that the GDP contribution, riskiness and growth rate had a considerable impact on the capital structure of corporations. In terms of firm-specific effects, our findings show the relevance of Tobin's Q, tangibility, firm size and M/B as firm-specific drivers of capital structure choice in Pakistan. As a result, the outcome of only one industry-specific factor is inconsistent and insignificant represented by the P/E ratio. In addition, businesses operating in economically relevant industries tend to be more leveraged, according to the research findings. Because of this, we infer that industry-specific variables had a significant role in the creation of corporate capital structures along with specific firm-specific factors. Our findings had significant implications for financial managers, decision-makers, investors and others in terms of capital structure choices and what factors can influence these choices at the firm and industry levels.

A major emphasis of this research, however, is to examine the impact of cross-industry variations on corporate financial decisions, which may have consequences for the literature on how industry variables along with specific firm centric variables affect company performance across multiple industries. This study, like many others, focuses on publicly listed corporations, while studies on capital structure drivers of small businesses and financial sector firms are rare. An in-depth examination of the factors that influence small business and financial sector firm's capital structure decisions would therefore considerably enhance the literature. It is also well established that there is a connection between firm-specific and industry-specific variables and capital structure. As a result, forthcoming researchers should pay greater attention to manager/owner-specific factors including age, ethnicity, education and professional history for future findings.

BIBLIOGRAPHY

- Abdul, 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), 2162-3082.
- 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. <https://doi.org/10.1108/15265940510633505>
- Abor, J. (2007). *Debt policy and performance of SMEs Evidence from Ghanaian and South African firms*. *Journal of Risk Finance*, 8, 364-379. <https://doi.org/10.1108/15265940710777315>

- Ahsan, T., Wang, M., Qureshi, M. A., Ahsan, T., & Wang, M. (2016). Firm, industry, and country-level determinants of capital structure: evidence from Pakistan. *South Asian Journal of Global Business Research*, 5(3), 362–384. <https://doi.org/10.1108/SAJGBR-05-2015-0036>
- Amidu, M. (2007). Determinants of capital structure of banks in Ghana: an empirical approach. *Baltic Journal of Management*, 2(1), 67–79. <https://doi.org/10.1108/17465260710720255>.
- Awunyo-vitor, D., & Badu, J. (2012). Capital Structure and Performance of Listed Banks in Ghana. *Global Journal of Human Social Sciences*, 12(5), 1–7.
- Bancel, F., & Mittoo, U. R. (2004). Cross-Country Determinants of Capital Structure Choice: A Survey of European Firms. *Financial Management*, 33(4), 103–132.
- Bathala, C. T., Moon, K. P., & Rao, R. P. (1994). Policy, Ownership, Managerial Impact of Institutional Holdings: A Perspective. *Financial Management*, 23(3), 38–50.
- Bayrakdaroglu, A., Ege, I., & Yazici, N. (2013). A Panel Data Analysis of Capital Structure Determinants: Empirical Results from Turkish Capital Market. *International Journal of Economics and Finance*, 5(4), 131–140. <https://doi.org/10.5539/ijef.v5n4p131>.
- Boadi, E. K., & Li, Y. (2015). Determinants of Bank Deposits in Ghana: Does Interest Rate Liberalization Matter? *Modern Economy*, 6(September), 990–1000.
- Boadi, E. K., Antwi, S., & Lartey, V. C. (2013). The Relationship between Liquidity and Profitability of Listed Banks in Ghana. *International Journal of Business and Social Science*, 4(3), 48–56.
- Cassar, G., & Holmes, S. (2003). Capital structure and financing of SMEs: Australian evidence. *Accounting and Finance*, 43(2), 123–147. <https://doi.org/10.1111/1467-629X.t01-1-00085>.
- De Jong, A., Kabir, R., & Nguyen, T. T. (2008). Capital Structure around the World: The Roles of Firm- and Country-Specific Determinants Abe de Jong, Rezaul Kabir and Thuy Thu Nguyen Report Series. *Journal of Banking and Finance*, 32, 1954-1969.
- Degryse, H., Goeij, P. De, & Kappert, P. (2012). The impact of firm and industry characteristics on small firms' capital structure. *Small Bus Econ*, 38, 431–447. <https://doi.org/10.1007/s11187-010-9281-8>.
- Delcours, N. (2007). The determinants of capital structure in transitional economies. *International Review of Economics and Finance*, 16(3), 400–415. <https://doi.org/10.1016/j.iref.2005.03.005>
- Dhaliwal, D., Heitzman, S., & Li, O. Z. (2006). Taxes, leverage, and the cost of equity capital. *Journal of Accounting Research*, 44(4), 691–723. <https://doi.org/10.1111/j.1475-679X.2006.00214.x>.

Firm and Industry Specific Determinants of Capital Structure: Empirical Evidence from the Listed Industrial Sectors of Pakistan

- Fan, J. P. H., Titman, S., & Twite, G. (2012). An international comparison of capital structure and debt maturity choices. *Journal of Financial and Quantitative Analysis*, 47(1), 23–56.
- Gatsi, J. G., & Akoto, R. K. (2010). Capital Structure and Profitability in Ghanaian Banks. *Social Science Research Network*, 1–69.
- Gomariz, M. F., & Ballesta, J. P. (2014). Financial reporting quality, debt maturity and investment efficiency. *Journal of Banking and Finance*, 40(1), 494–506. <https://doi.org/10.1016/j.jbankfin.2013.07.013>.
- Hall, G. C., Hutchinson, P. J., & Michaelas, N. (2004). Determinants of the Capital Structures of European SMEs. *Journal of Business Finance & Accounting*, 31(5), 711–728.
- Jensen, & Meckling, H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3, 305–360.
- Li, L., & Islam, S. Z. (2019). Firm and industry-specific determinants of capital structure: Evidence from the Australian market. *International Review of Economics and Finance*, 59, 425–437. <https://doi.org/10.1016/j.iref.2018.10.007>.
- Mackay, P., & Phillips, G. M. (2005). How Does Industry Affect Firm Financial Structure? *Review of Financial Studies*, 18(4), 1433–1466. <https://doi.org/10.1093/rfs/hhi032>.
- McConnell, J., & Servaes, H. (1995). Equity ownership and the two faces of debt. *Journal of Financial Economics*, 39, 131–157.
- Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, XLVIII (3), 261–297.
- Moosa, I., & Li, L. (2012). Firm-Specific Factors as Determinants of Capital Structure: Evidence from Indonesia. *Review of Pacific Basin Financial Markets and Policies*, 15(2), 1–17. <https://doi.org/10.1142/S021909151150007X>.
- Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance*, 39(3), 575–592.
- Pantzalis, C., & Park, J. C. (2014). Agency costs and equity mispricing. *Asia-Pacific Journal of Financial Studies*, 43(1), 89–123. <https://doi.org/10.1111/ajfs.12041>.
- Paulo Esperança, J., Matias Gama, A. P., & Azzim Gulamhussen, M. (2003). Corporate debt policy of small firms: An empirical (re)examination. *Journal of Small Business and Enterprise Development*, 10(1), 62–80. <https://doi.org/10.1108/14626000310461213>.

- Qureshi, M. A. (2009). *Does pecking order theory explain leverage behaviour in Pakistan?* *Applied Financial Economics*, 19(17), 1365–1370. <https://doi.org/10.1080/09603100902817592>
- Qureshi, M. A., Imdadullah, M., & Ahsan, T. (2012). *What determines leverage in Pakistan? A panel data analysis.* *African Journal of Business Management*, 6(3), 978–985. <https://doi.org/10.5897/ajbm11.1535>.
- Rajan, R. G., & Zingales, L. (1995). *What Do We Know About Capital Structures? some Evidence from International Data.* *The Journal of Finance*, 50(5), 1421-1460.
- Sbeti, W. M., & Moosa, I. (2012). *Firm-specific factors as determinants of capital structure in the absence of taxes* *Firm-specific factors as determinants of capital structure in the absence of taxes.* *Applied Financial Economics*, 22, 209–213. <https://doi.org/10.1080/09603107.2011.610738>
- Stulz, R. M. (1990). *Managerial discretion and optimal financing policies.* *Journal of Financial Economics*, 26, 3–27.
- Titman, S., & Wessel, R. (1988). *The Determinants of Capital Structure Choice.* *The Journal of Finance*, XLIII (1), 1–19.