

**IMPACT OF CAPITAL STRUCTURE ON FIRM VALUE CREATION:  
EVIDENCE FROM THE CEMENT SECTOR OF PAKISTAN**



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## CERTIFICATE

This is to certify that this thesis entitled: "Impact of Capital Structure on firm Value Creation: Evidence from the Cement Sector of Pakistan" submitted by Mr. Mazhar Hussain is accepted in its present form by the Department of Business Studies, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree of MBA.

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## **ABSTRACT**

The current study explains the capital structure effects on the firm's value. This study has analysed 18 cement companies listed in Pakistan Stock Exchange (PSX) over the period of 2009-2019. Two different estimation models i.e. one for Returns on Assets (ROA) and the other for Returns on Equity (ROE) have been used. The determinants used are Debt to Equity, Share Capital, Current Ratio, Return on Capital-Employed (ROCE) and Firm Size. Following the literature, the researcher start from simpler pooled OLS regression model chronologically and reached to the conclusion that fixed effect models are best for both ROE and ROA based on Hausman test. The estimated results indicate that current ratio and return on capital-employed have positive influence on the ROA while for ROE, capital ratio and equity have negative influence and finally the return on capital-employed secure positive impact.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

The capital structure of a firm/company can be defined as the combination of different sources to finance the firm's long-term assets, and funds its all operations, which include the current and long period debt and the share of owner equity. In corporate finance, the decision of the capital-structure-ratio is core of various other decisions (Shah and Khan, 2010). The decision of capital structure is a serious task for firms because it determine the financial position, performance and firm value. Optimized capital structure theories put emphasis on the sense of balance between the debt and equity ratio. Basically, firms optimize the "capital structure" in deciding the share of debt and equities to increase the firm value and cost of capital. The optimum "capital structure" is important in balancing the firms marginal cost to its marginal benefits (Graham, 2001). The firm has more aggressive "capital structure" when it finances its operations through debt, while financing through equity provide the opportunity of partial ownership to outside investors. The tax advantage can be achieved through increasing the debt portion of "capital structure" but then it also can bring more risk of financial distress which move the control to investors. Because of the direct effect of "capital structure" on firm's value it is very risky decision for all firms. In the literature the researcher can see that companies practice practical approaches for the designing "capital structure" to align it with flexible strategy and respond to the varying market environment. The management of firms can increase the firm value by wisely deciding the "capital structure". "Capital structure" have a strong influence on firm value due to incurring cost of debt and equity. When the firm uses debt instead of equity then the cost of equity rises due to the more return demand by equity holders.

The managers of the firms pass up the positive NPV projects because the returns would partially increase the debt holders which further push the firm to underinvestment problems (Myers, 1984). So the debt maturity structure also effects the firm value like leverage (Ozkan, 2002). With debt financing strategies, firms may reduce the problem of overinvestment but escalate the problem of underinvestment (Stulz, 1990). Debt also provide the tax benefit but increase the probability for financial distress. From the literature the researcher knew that setting of “capital structure” designing play a significant impact on making financial decision for the firms. If firm set back more amount in the retention then financing through external sources will be less needed (Ronny Manos, 2002). In the corporate governance firm tend to be more biased to investors if firm carry more finance through debt and less from equity (Faulkendar et al. 2006). So the management of the company should well understood the policy of “capital structure” effects on firm worth in a perspective of various research practitioners (Jensen and Mackling, 1976). The firm will move below from average in the industry and market will behave positive in the situation of using more debt (Masulis, 1983).

The theoretical support for “capital structure” is provided by “Modigliani and Miller (1958, 1963)”, which postulate that firm leverage have no relationship with its value but only when the researcher consider taxation in the symmetric world. The “theory of irrelevancy of capital structure” is starting point of great debate on the “capital structure” which consider that the “capital structure” is independent from firm performance. Conversely, many practitioner reject this narration because of idealistic nature but in the real world the value of firm is operated by various other factors like bankruptcy cost, information asymmetry, tax consideration, agency cost and further from digression of industry. If the researcher considers these factor to measures the

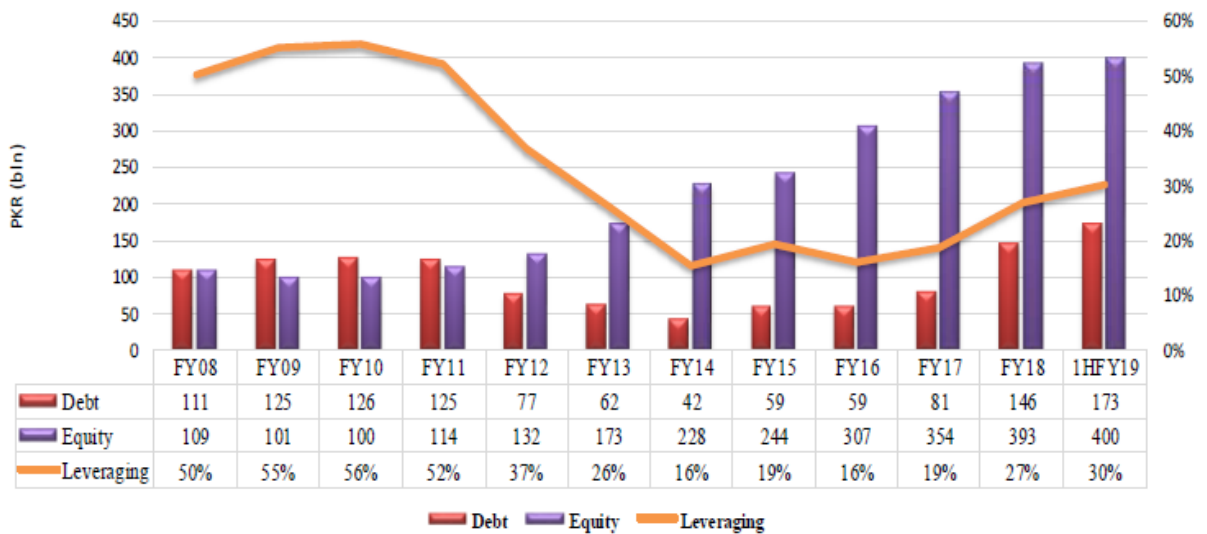


firm value then optimum “capital structure” can be achieved. The relation between “capital structure” and the firm’s value is the controversial and significant issue of finance as it predicted positive, negative and insignificant by various researchers. Furthermore various studies consider that the firm value is the linear function of “capital structure” (MM, 1958, 1963; Graham, 2000; Fama and French, 1998; Mollik, 2005; Andreas, 2009), which means that firm value slope is constant throughout different ratio of debt. In contrast, other studies argue that the firm value is differently effected by different level of debt ratio (Chieng-chung, 2008; Yu-Shu, 2010).

## **1.2 The Pakistan Cement Sector Overview**

The cement sector shows a significant role and contribution in the development of the economy of Pakistan, which is separated into north and south regions. The northern region cover over 80 % of total market share in the cement industry and 55 % share of the cement market cover by 5 top companies. Currently this sector utilizing the 74 % of installed production capacity and produce approximately 45 billion tons in a fiscal year. However, this research is concern with the “capital structure” and firm value of Pakistan cement industry, so the following figure shows the “capital structure” decision of th firms in the last decade.

**Figure 2.1: capital structure of Cement Industry**



*Source: PACRA*

In figure 1.1, the “capital structure” of Pakistan cement sector reveals that that financing through equity increased manifolds in the last decade, while the debt portion is decreased in the middle portion. Henceforward, in the second phase of expansion where main stream firms finances through debt, the leveraging is considerable lower compare to the first phase. However, financial affairs’ prudent management require by the increased interest rate. The liquidity profile strengthens due to retention prices improvement and devaluation of Rupee.

### 1.3 Problem Statement

The relationship of capital structure and firm value is significant according to past literature. However, the problem regarding capital structures have not been discussed thoroughly by practitioner and researchers in Pakistan. Over the fifty years, researcher have not concluded o the effect of capital structure on firm’s value in the listed firms of cement sector of Pakistan. Since cement sector of Pakistan heavily relies on debt therefore, the prime objective of this study is to determine the effect on firm value

creation with respect to capital structure in the listed companies of cement sector of Pakistan.

#### **1.4 Significance of the study**

For boosting the firm's success, the firms normally occupy more debt than equity in Pakistani market. Further, the more profit attracts the investors in the specific cement sector. The literature broadly explored the "capital structure" ratio and its further impact on the firm value, still it is the need to identify the practical confirmation of this association in the Pakistan cement sector firms. The current research study considered different school of thought appropriate to this relation and give practical proof from the financial system of Pakistan. This research will valuable for research practitioner to conduct further research in the said area and also provide opportunity to academicians whose are interested to get more information regarding this topic. This study will enable Pakistani practitioners to evaluate the "capital structure" design for the growth of business and firm value.

#### **1.5 Objective of the study**

This study is conducted with a single prime objective to explore the impact of "capital structure" policy on firm value for the cement sector companies listed in Pakistan stock exchange (PSX).

#### **1.6 Research Question**

What is the relationship of capital structure of cement companies of Pakistan with their profitability?

#### **1.7 Organization of the study**

This study comprises in five sections. The upcoming section focuses to account the review of related literature and unveil the gap in existing literature. Further, the third

section provide the brief overview of the data and suitable methodology for analysis, which is followed by the results of the data analysis and discussions in the fourth section. The last section concludes and summarize the study.

## CHAPTER 2

### LITERATURE REVIEW

The current chapter accounts the brief review of past studies. This section includes two subsection, the first section capture the literature while second highlight the gap in the literature which is fulfilled by this study.

#### 2.1 Theoretical and empirical Literature

Asif and Aziz (2016) examined the effect on firm's value of capital structure. They took data of 20 companies of cement sector in Pakistan for ten years (2006-2015). They considered "economic value added" (EVA) as a "dependent variable". On independent side they took several variables such as (ROCE, current ratio, D/E ratio and share capital). Descriptive statistic, simple linear regression model and correlation methods are used in this paper. They concluded that maximum of the "independent variables" included (share capital, current ratio and D/E) have positive relationship with the dependent variable of "economic value added". These results suggested that a perfect combination of equity and debt companies can improve their firm value.

Memon, Bhutto and Abbas (2015) investigated the impact on firm performance of capital structure. They collected data of 141 textile companies from balance sheets issued by "State Bank of Pakistan" for the period (2004\_2009). They represented (ROA) as dependent variable for firm's performance and amount of tax, size, tangibility, growth, D/E and risk as elements of capital structure .In this paper Log linear regression model is used to show the impact on firm's performance of capital structure. Their result shows that the capital structure of all determinants is significant. Salim and Dr. Yadav (2012), estimated the relationship among firm performance and capital structure. They selected the data of 237 firms listed in Bursa

“Malaysia stock exchange” during 1995-2011. They selected 4 proxies for performance such as (roa, eps, Tobin’s Q and roe) as dependent variable and 5 proxies such as (growth, short term debt, debt ratios and long term debt) for capital structure as independent variable. Control variable consists of firm’s size. In this thesis Simple OLS Model has been used. The results show that eps, roa and roe have negative relationship with long term debt, short term debt, total debt, and among with the growth have positive relationship. Tobin’s Q shows that significantly positive relationship among long term debt, short term debt and total debt have significant negative relationship. Professor Zhao, Antwil and Mills (2012) studied impact on firm’s value of capital structure. They took the data of 34 firms listed in the Ghana Stock Exchange for the year ended 31st Dec 2010. They considered FV as dependent variable whereas determinant of capital structure like long term debts and equity as independent variable. In this study, they used OLS “Ordinary Least Squares Method”. Result of the study shows that there is positive impact of long term-debt on firm’s value. Maxwell and Kehinde (2012), studied impact on firm’s value of capital structure. They took the data of 124 firms listed on the NSE for the year ended 31st Dec 2007. They considered FV as dependent variable whereas determinant of capital structure like long term debt and equity as independent variable. In this study, they used OLS Method. The result of the study shows that there is positive impact of long-term debt on firm’s value.

Moghadas Pouraghajan & Bazugir (2013) highlighted the impact on firm’s value of capital structure. They collected the necessary data from selected firms listed in TSE over the period 2006-2010. They considered fv as dependent variable whereas asset growth, capital structure, revenue growth, firm size and stock price as independent variable. They used linear regression technique model in this paper. The results show

that the capital structure has a meaningful relationship with firm value, and a meaningful relationship among increase on firm value and asset growth. However it didn't show meaningful relationship among firm size, revenue growth and firms' value.

Aggarwal & Padhan (2017) highlighted the effect on firm's value of firm equity and capital structure. They took data of BSE listed hospitality firms for the period 2001-2015. In this paper they used firm value as "dependent variable" whereas capital structure and firm quality as "independent variable". "Dependent variables" include price to book, enterprise value and Market capitalization and "independent variables" include size, tangibility, liquidity, profitability, gdp, growth, inflation, firm quality and leverage. They used "fixed effect", "pooled OLS" and "re model" . The results of the study show that the firm value has a significant relationship with liquidity, firm quality, size, leverage and economic growth.

Riaz (2015) studied the impact on firm's financial performance of capital structure. He took data of 28 listed companies in Chemical sector of Pakistan at KSE (Karachi Stock Exchange) during (2009-2013). Dependent variable Financial Performance include (roa) whereas Independent Variable CS include "time interest ratio, long term debt, D/E, total debt ratio and short term debt". Control variable consists of FS. He used panel LS regression and correlation in this study. His results show that STD and TDR have significant negative influence on the performance of firms evaluated by "ROA". The relationship in among times interest earned ratio and "ROA" is positive and significant. However, long term assets and D/E have negative but insignificant effect on "ROA".

Anup and Suman (2010) explained the effect on firm value of capital structure. They collected the data of four dominant sectors (77 firms) listed in (DSE) and (CSE) of

Bangladesh during the period (1994-2003). Firm value (Share price) as “Dependent variable” whereas capital structure (profitability, dividend pay-out, growth rate, risk, firm size, public ownership, assets and operating efficiency and liquidity) were taken as “independent variables”. The study uses “fixed effect model”, “time series”, “descriptive statistics” and “cross sectional regression”. Their results show that share price is positively correlated with dividend per share, fixed asset turnover, inventory turnover ratio, dividend growth, EPS, book value per share, current ratio, P/E ratio and net profit margin.

Mujahid and Akhtar (2014) highlighted the impact on shareholders wealth and firm’s performance of Capital Structure. They collected data of 155 textile firms listed at KSE Pakistan for the years of (2006-2011). They represented shareholders wealth and firms Performance and (ROE, stock price, ROA and EPS) as dependent variable whereas Capital Structure (D/E) as “Independent variable”. They apply Regression analysis in their paper. Results of the study show that there is positive effect among (shareholders wealth and firm performance) and capital structure.

Badar and Saeed (2013) explored the effect on firm’s performance of capital structure. They collected data of 10 firms of (Food sector) listed at Karachi stock exchange in Pakistan for the years (2007-2011). They selected (roa) as “dependent variable” for firm’s performance whereas D/E, long term debts and current liabilities as “independent variable” for capital structure. Multiple regression has been used and the results indicate that there is a significant and positive impact on firm performance of long term debts and negative of short term debt respectively. There is a negative effect on firm’s performance of firm’s leverage. Finding of the results show that short term debts is prohibited due to negative impact, so firm must have use long term debts.



Priya, Nimalathasan and Piratheepan (2015) studied the impact on firm value of capital structure. They collected the data of manufacturing firms listed in Colombo Stock Exchange “CSE” in Sri Lanka for the years of (2008-2012). They represented firm value (price earning ratio, E/S) as “dependent variable” whereas capital structure (equity ratio and debt ratio) as “independent variable”. In their study multiple regression and correlation were used. The results showed that capital structure has effect on firm value and equity Ratio is negatively related with EPS.

Javed, Tariq and Imran (2014) evaluated the effect on firm performance of capital structure. They collected data of 63 companies (nonfinancial firms) listed at “Karachi Stock Exchange” in Pakistan for the years (2007-2011). They highlighted firm performance (ROS, ROA and ROE) as “dependent variable” whereas capital structure (DTA, EQA, & LDA) as “independent variable”. The results showed that with ROA there is a positive effect of capital structure on firm performance. Akhar, Javed, Maryam and Sadia (2012) examined the relationship among financial performance and financial leverage. They collected data of 20 firms recorded at Karachi stock exchange from energy and fuel sector in Pakistan during the years (2000-2005). They represented Financial Performance (ROE, dividend ratio to equity, eps before tax, sales, sales growth, ROA, dividend cover ratio, net profit margin, eps after tax, eps before tax growth) as “dependent variable” whereas Financial Leverage (D/E ratio, gearing ratio) as “independent variable”. They used Formulas, Descriptive statistics for data investigation in their study. The results of the study show that there is a positive link among the financial performance and financial leverage. The study suggested that by using financial leverage, the managers of the energy and fuel sector of Pakistan can recover at their financial performance. Rafiq, Iqbal and Atiq (2008), studied the elements of Capital Structure. They took the data of 26 companies in the

chemical sector registered at the Karachi Stock Exchange in Pakistan for the years (1993\_2004). They analysed six repressors (tangibility of asset, income variation, growth, size, profitability and NDTs) are “independent variables” and “dependent variable” as leverage. In their study they used pooled regression in a panel data analysis. The outcomes of the study found that the “independent and dependent variables” are highly significant except firm tangibility. Their study shows policy associations of importance for investors, managers, researchers and analysts. Fumani and Moghadam (2015), studied the effect on firm value of capital structure. They took the data of 55 firms registered in TSE during the years (2010-2014). They represented “dependent variable” is Firm Value (EPS, ROE) and “independent variable” is capital structure (financial leverage) and control variables are (firm size, company growth). For the study they have applied multiple regression analysis, T-test and F-statistics. The outcomes of the study show that there is a negative and significant effect of ROE on financial leverage and (significant and positive) effect of EPS on the financial leverage. Tas and Ede (2018) observed the effect on firm value of capital structure. They collected the data quarterly basis of 8 companies (Non-Metal Mineral Products) in Turkey from (2000 to 2018). For the study they have used “dependent variable” is firm value and “independent variable” is capital structure. They have used (OLS method) in their study. The results of the study show that there is not occurs any significant connection of leverage with examined variables, and there is not any connection with inflation and debt ratio for our companies.

Bukhari and Khan (2013) studied the Impact on firm’s performance of capital structure. They have collected the booklets of 380 companies of (nonfinancial sector) listed at Karachi Stock Exchange in Pakistan for the years (2005-2011). They selected Firm’s Performance (ROE, EPS, ROA and net profit margin) as “dependent variable” whereas Capital Structure (leverage, short term debt and long term debt) as

“independent variable” and control variables are (sales growth, assets turnover, size and assets growth). For the study they used “OLS” method in. Results of the study showed that there is (negative and significant) connection among all variables of capital structure and EPS and (positive and insignificant) connection among all proxies except net profit margin and performance. Size effect positively the performance while sales growth has a (negative and significant) impact on ROA. Assets Growth has effect on the firm performance. Turere (2012), studied the determinants of capital structure. He collected the data of four listed energy and petroleum companies at NSE for the period of (2000-2010). He selected the determinants of capital structure (Age, financial performance, size and ownership structure growth rate as “independent variable” and “dependent variable” is total leverage. For his study he used multiple regressions. His study displays the results that all the elements including (age, size, growth rate and ownership structure) are the key elements and there is an insignificant effect on capital structure of financial performance. Cuong and Canh (2012), investigated The effect on firm value of capital structure. They took the data of 92 “Vietnam’s Seafood Processing Enterprises” (SEAs) registered at two Vietnam’s Stock Exchange for the years (2005\_2010). They selected firm’s value (ROE) as “dependent variable” and independent variable is capital structure (debt ratio). For their study they used an advanced panel threshold regression. The outcomes of the study show that there is strongly effect among firm value and debt ratio.

## **2.2 Literature Gap**

In previous studies researchers have investigated the impact of capital structure on firm’s value in cement sector of Pakistan but no one found its impact on return on asset and return on equity. The focus of this study is to empirically find the impacts on return on asset and equity of capital structure.

## **CHAPTER 3**

### **DATA AND METHODOLOGY**

#### **3.1 Data and Variables**

##### **3.1.1 Sample Selection**

In the current study, the unit-of-analysis is manufacturing cement industry of Pakistan. The current study take the sample of 18 companies in the cement sector. There are approximately 100 companies, which are registered under cement sector with SECP. Out of these, just 28 are active. However, this study focused on 18 main leading companies which are listed in Pakistan Stock Exchange (PSX). The secondary data are taken from the company's balance sheets considering the main source of data availability.

##### **3.1.2 Parameter of Selection of Sample**

The sample data and time span are selected on the basis of data availability, since only 18 companies are active in the cement sector of Pakistan. Another reason for selection of time span and sample sector are, that there is less evidence which explain the capital structure and its impact on firm's value creation in the said industry.

##### **3.1.3 Data Sources**

The data taken into consideration in the current study has been collected from Pakistan stock exchange, company's annual reports and Pakistan's State Bank website for the period of 2009-2019.

##### **3.1.3 Variables Definition**

The table given below 3.1 explains variables, definition of variables and source of variables.

**Table 3.1 Variables definition and source.**

<b>Variables</b>	<b>Definition</b>	<b>Sources</b>
Return on Assets (ROA)	An indicator of how profitable a company is relative to its total assets. (Firm performance). $ROA = \frac{Net\ income(annual)}{Total\ Assets}$	Company's Annual Reports
Return on Equity (ROE)	A measure of the profitability of a business in relation to the equity. $ROE = \frac{Net\ income(annual)}{Shareholders' Equity}$	Company's Annual Reports
Leverage (D/E)	To finance a company's assets by using some proportion of shareholder's equity and debt known as Debt to equity ratio. $D/E = \frac{Total\ Liabilities}{Shareholders' Equity}$	Karachi Stock Exchange
Return on Capital Employed (ROCE)	Financial ratio that determines a company's profitability and the efficiency. $ROCE = \frac{Earning\ before\ interest\ and\ tax}{Total\ assets - Current\ Liabilities}$	Karachi Stock Exchange
Current Ratio (CR)	Measures whether a company has enough resources to meet its short-term obligations. $Current\ Ratio = \frac{Current\ Assets}{Current\ Laibilities}$	Company's Annual Reports
Share Capital (SC)	The part of the capital of a company that comes from the issue of shares.(common or preferred stock) Share Capital = the issue price per share times the number of outstanding shares.	State Bank of Pakistan
Firm's Size (FS)	It is an amount that one needs to pay to buy or take over a business entity. $Size = \log(total\ assets)$	Company's Annual Reports

### 3.2 Model specification

The researcher have different financial ratios in the field of finance, which can be taken as the proxies for measurement of firm performance and value creation, like as (ROA, ROE and ROI). But in our study the researcher use ROE and ROA as proxies to account because in the literature it is extensively used and more effective measures of firm's value creation and firm's performance. Chakravarthy (1986) identified that the high return on assets (ROA) and return on equity (ROE) show efficiency of the firm. Large number of literature available, they used (ROA and ROE) as dependent

variables (eg. Majumdar and Chhibber, 1999; Abor, 2005, Saeedi and Mahmoodi, 2009; Ebaid, 2009).

So therefore, the researcher estimate two models and both the variables (ROE and ROA) are utilized as dependent variable. On the other hand, our explanatory variables in both models are debt-to-equity ratio, return-on-capital-employed, share-capital, current-ratio and size of firm.

### ***Model 1***

$$ROA = \alpha_0 + \alpha_1 dt + \alpha_2 roce + \alpha_3 sc + \alpha_4 cr + \alpha_5 sz$$

### ***Model 2***

$$ROE = \beta_0 + \beta_1 dt + \beta_2 roce + \beta_3 sc + \beta_4 cr + \beta_5 sz$$

Where,

**ROA** : Return on Assets

**ROE** : Return on Equity

**ROCE** : Returns on the Capital Employed

**DT** : Debt to Equity Ratio

**SC** : Share-Capital

**CR** : Current-Ratio

**SZ** : Firm Size

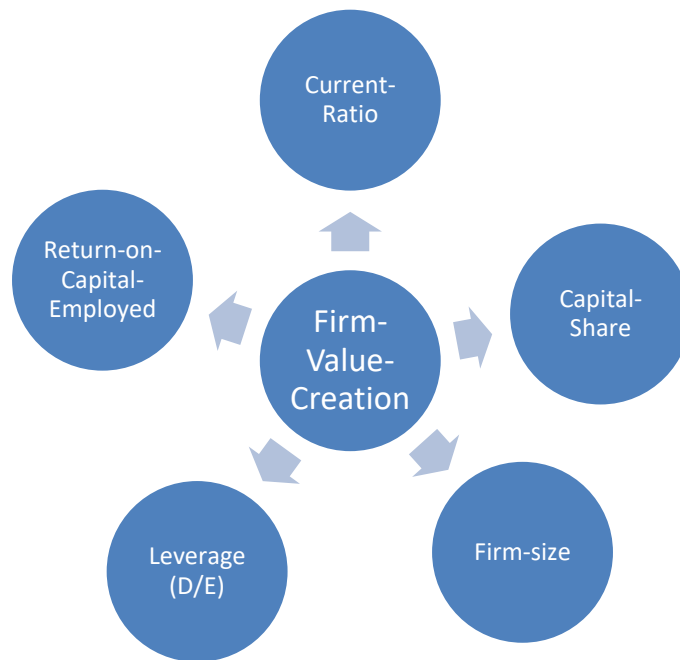
## **3.3 Theoretical Background**

Numerous practitioner have multiple arguments on the relationship of capital structure and firm's value creation. According to the Modigliani and Miller (1958), capital

structure is irrelevant to determine the firm value. The MM proposition explain that real assets is responsible to change the firm's value rather than the ratio of debt and equity under capital structure. In contrast, the agency cost theory argue that the decision of capital structure must be taken for the reduction in the agency cost by reducing the equity cost in high level of leverage which further enhance the market value of firm (Jensen and Meckling, 1976). This view also supported by Dual Investor theory, by arguing that all parties are important to ensure the success and survival of firms (Schlossberger, 1994).

Additionally, the stakeholder theory also argue that the firm's value is strongly determined by the Stockholder (Freeman, 1984). Thus, mostly the theories reject the narrative of MM theory and place a combined statement that firm value may be determined by the firm's capital structure. The measures of capital structure highlighted in the next section of conceptual background. Going with flow, we also assumed that firm's value in the cement sector affected from its decisions of capital structure. Thus, this study is conducted with the aim to unveil the said phenomenon, the empirical results on this scenario are discussed in the next chapter.

### 3.4 Conceptual Framework



Several capital structure determinants have been used in different studies according to research objectives. In the current dissertation, different determinants are utilized for capital structure, unveil the impact on firm value. Both ROE and ROA are taken as the proxy for the firm value on dependent side while debt to equity, capital share, firm size, current ratio and return-on-capital employed are utilised as the independent variables. So, the researcher designs the above conceptual framework in term of above mentioned variables, Asif and Aziz (2016). There are several studies; they are directly test the Modigliani and miller hypothesis on influence of capital structure on firm value, Sarma and Rao (1969).

### 3.5 Estimation Technique

As the researcher has data set with both cross section and time series dimensions, panel data set, for 18 different cement companies for years 2009-2019, therefore the researcher will move toward panel data estimation techniques. Most often careless researchers and students use fixed effect and random effect models when they found



data arranged in panel data format. According to Hun Myoung Park (2011) one should begin with a simpler model. It means that one should try first pooled regression model rather than random/fixed effect models; a one-way relatively than two-way-model and fixed and the random-effect models compare to hierarchical linear model. Therefore, in this manuscript the researcher will follow Hun Myoung Park (2011).

### **3.5.1 Pooled OLS Regression Model**

Initially the researcher will start from POLS regression and later think judgmentally regarding its possible problems. If there is no group specific and time heterogeneity then the researcher will stop at pooled regression otherwise the researcher will choose either fixed or random effect model. The pooled regression model can be represented as

$$y_{it} = \alpha + \beta X_{it} + \varepsilon_{it}$$

Where  $\alpha$  and  $\beta$  indicate that the intercept and slop coefficients are same for all group/entities in data set.

### **3.5.2 Fixed Effect Model**

If heterogeneity, either group specific or time specific or both, exist then the researcher will go to the next step. Fixed effect model examine individual specific heterogeneity in intercepts and assume same slopes coefficient and constant variance across entities/groups. The general fixed effect model is given below

$$y_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it}$$

In fixed effect model the individual's specific heterogeneity is time-invariant, and consider as portion of intercept. Moreover, the individual specific intercept is correlated with others regressors.

### 3.5.3 Fixed effect versus POLS regression model

Firstly, the selection between fixed effect and POLS regression depends on the joint hypothesis test, F-test, on all the dummy coefficients except the one for reference category. the null hypothesis for this F-test assume that all dummy coefficients are not different from zero while alternate hypothesis elaborate that at-least one of the dummy coefficient is different from zero.

$$F(n-1, nT-n-k) = \frac{(e'e_{pool} - e'e_{LSDV})/(n-1)}{(e'e_{LSDV})/(nT-n-k)}$$

If the null hypothesis is rejected, then fixed effect model will be used otherwise pooled OLS regression.

### 3.5.4 Random effect model

If the individual heterogeneity is captured in disturbance term and is not correlated with regressors then random effect model will used. The general random effect model is

$$y_{it} = \alpha + \beta X_{it} + (\mu_{it} + \varepsilon_{it})$$

Where  $\mu_{it}$  is the individual specific random heterogeneity or part of the composite disturbance. The intercept and slopes coefficient are same for all individuals/ entities in random effect model.

### 3.5.5 Random effect versus pooled OLS regression model

In order to choose between random effect and pooled OLS regression model Breusch and Pagan (1980) introduced Lagrange multiplier (LM) test. The LM test examine the null hypothesis that the individual specific random heterogeneity or variance components are zero,

$$H_0: \sigma_\mu = 0$$

The LM test static is given below

$$LM_u = \frac{nT}{2(T-1)} \left[ \frac{T^2 e_{pool}' e_{pool}}{e' e} - 1 \right]^2$$

This LM statistic follow chi square distribution with one degree of freedom. If the null hypothesis is rejected, it means that the random effect is significant in data and the researcher will use random effect model to capture this heterogeneity.

### 3.4.6 Hausman test

If null-hypothesis of both F-test and Breuch pagan LM test are to be rejected, means that the researcher are indifferent between random and fixed effect model, then Hausman-test use to choose among the random effect and fixed effect. Under the null hypothesis of no correlation between individual effect and any repressors, both OLS and GLS are consistent but OLS is inefficient, while under alternative hypothesis OLS is consistent but GLS is not. The Hausman test use the following test statistic

$$H = \frac{(\beta^{fix} - \beta^{rand})' (\beta^{fix} - \beta^{rand})}{(var(\beta^{fix}) - var(\beta^{rand}))}$$

This test statistic follow chi square distribution with  $k$  degree of freedom. The decision rules for Hausman test is that, if the null hypothesis is rejected then the researcher should use fixed effect model otherwise random effect.

### 3.5.7 Chaw test for poolability

The chaw test for poolability use to check if the slopes of regressors are same across groups or over time. The null hypothesis of Chaw test for poolability is that the slopes of the regressors are same regardless of individuals,  $H_0: \beta_{ik} = \beta_k$ . The chaw test for poolability is given below.

$$F[(n-1)(k+1), n(T-k-1)] = \frac{(e'e - \sum e_i'e)/(n-1)(k+1)}{\sum e_i'e/(n-1)(k+1)}$$

Where  $e'e$  is the sum of square error (SSE) of POLS and  $e_i'e$  is standard square error of the POLS for the group  $i$ . Then, If the statement of the null-hypothesis is rejected, it means that each individuals has its own slope for all regressors. After this happening the researcher have to apply hierarchical linear model.

### 3.5.8 Hierarchical linear model

The researcher will also check for heterogeneous slope coefficient for all individuals and time. If the slopes of the regressors are same regardless of individuals then the researcher should use either random effect or fixed effect based on the decision of Hausman test. If the slopes of the regressors are not same then ultimately the researcher should use hierarchical linear model.

## CHAPTER 4

### RESULTS AND DISCUSSIONS

#### 4.1 Descriptive Statistics

In table 4.1 below, the descriptive state are given for all variables in this study. As the researcher discussed earlier, the researcher have twin dependent variables, ROE and ROA, and five explanatory variables, return on capital employed, current ratio, debt to equity, capital share and firm size.

18 listed companies' data have been used in this study with 198 observations; all of the firms are listed in Pakistan stock exchange (PSX). The Descriptive statistics includes minimum and maximum, mean, and standard deviation for overall, between and within companies' data.

The second column shows the means value for all variables, the highest mean value is firm size 23.1887 and then followed by share capital 21.398, ROA, 5.65771, Current Ratio, 1.493494, debt to equity ratio 1.308446, ROCE -0.0598474, ROE, -393368.

The third column shows the standard deviation, the standard deviation of share capital for overall companies, between companies and within company are 0.9966275, 0.986321 and 0.2642336 respectively. The standard deviation of Return on Equity (ROE) for overall companies, between companies and within company is 142.7948, .986321, and 131.1812. The standard deviation of Return on Capital employed (ROCE) for overall companies, between companies and within company are 2.347372, .8735548 and 2.187646. The standard deviation in ROA (Return on Asset) for overall companies, between companies and within company is 8.883325, 6.474476 and 6.254797. The standard deviation of Firm's Size (FS) for overall

companies, between companies and within company is 1.297541, 1.263588 and .4098861. The standard deviation of Debt to Equity (DE) for overall companies, between companies and within company is 7.022318, 2.529918 and 6.575512. The standard deviation of Current Ratio (CR) for overall companies, between companies and within company is 1.511701, .8340463 and 1.274722.

The fourth column shows the Min values, the Min values of share capital for overall companies, between companies and within company are 18.06401, 19.11982 and 20.06105. The Min values of Return on Equity (ROE) for overall companies, between companies and within company are -1774.37, -233.4386 and -1544.865. The Min values of Return on Capital employed (ROCE) for overall companies, between companies and within company are -31.67, -3.544091 and -28.18576. The Min values of Return on Assets (ROA) for overall companies, between companies and within company are -18.36, -11.37545 and -12.7332. The Min values of Firm's Size (FS) for overall companies, between companies and within company are 19.47426, 19.84539 and 22.3187. The Min values of Debt to Equity (DE) for overall companies, between companies and within company are -2.56, .0990909 and -12.5761. The Min values of Current Ratio (CR) for overall companies, between companies and within company are .15, .2736364 and -.8601426.

The fifth column shows the Mix values, the Mix values of share capital for overall companies, between companies and within company are 23.3478, 23.16914 and 22.39766. The Mix values of Return on Equity (ROE) for overall companies, between companies and within company are 93.73, 23.13636 and 323.235. The Mix values of Return on Capital employed (ROCE) for overall companies, between companies and within company are 1.17, .2840909 and 4.654243. The Mix values of Return on Assets (ROA) for overall companies, between companies and within company are

24.39, 15.87182 and 28.88316. The Mix values of Firm's Size (FS) for overall companies, between companies and within company are 25.56, 24.9 and 24.77656. The Mix values of Debt to Equity (DE) for overall companies, between companies and within **company** are 89.14, 11.32455 and 79.1239. The Mix values of Current Ratio (CR) for overall companies, between companies and within company are 13.41, 2.95 and 12.90349 respectively.

**Table 4.1 Descriptive Analysis**

<b>Variables</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Mix</b>
SC overall		.9966275	18.06401	23.3478
between	21.39826	.986321	19.11982	23.16914
within		.2642336	20.06105	22.39766
ROE overall		142.7948	-1774.37	93.73
between	-3.93368	57.89635	-233.4386	23.13636
within		131.1812	-1544.865	323.235
ROCE overall	-.0598474	2.347372	-31.67	1.17
between		.8735548	-3.544091	.2840909
within		2.187646	-28.18576	4.654243
ROA overall		8.883325	-18.36	24.39
between	5.65771	6.474476	-11.37545	15.87182
within		6.254797	-12.7332	28.88316
FS overall		1.297541	19.47426	25.56
between	23.1887	1.263588	19.84539	24.9
within		.4098861	22.3187	24.77656
DE overall		7.022318	-2.56	89.14
between	1.308446	2.529918	.0990909	11.32455
within		6.575512	-12.5761	79.1239
CR overall		1.511701	.15	13.41
between	1.493494	.8340463	.2736364	2.95
within		1.274722	-.8601426	12.90349

*Source: Author Computation's*

In the current study, the researcher have tried to investigate the impact on ROA and ROE by explanatory variables for different leading companies in cement sector registered in Pakistan stock exchange over the period 2009 to 2019. In this section of manuscript the researcher have estimate different panel model such as pooled regression, random effect and fixed effect, following the advice of Hun Myoung Park (2011). The researcher started from simple pooled OLS regression model and then

moved chronologically to more fancy models. The results of all models are given below in their concern table.

#### 4.2 Results of Pooled OLS regression for Return on Asset

Following the chronological method of Hun Myoung Park (2011) from simple model to fancier model, the researcher get start from the regression of pooled OLS of ROA model. The results of the model are given in table 4.1. The results indicate that all coefficients are significant at conventional level of 5%. The share capital, and DE contain negative and statistically significant effect on ROA while impact on ROA by (ROCE), FS and, CR, are positive and statistically significant. The model is best fitted model but there could be some individual specific heterogeneity and pooled OLS regression model is unable to capture that. Therefore, the researcher moves toward fixed effect model for ROA.

**Table 4.2 Pooled OLS regression for ROA**

<b>Variable</b>	<b>Coefficient</b>	<b>SE</b>	<b>T</b>	<b>Prob</b>
SC	-1.912533	.9885101	-1.93	0.054
ROCE	.7505586	.2287805	3.28	0.001
FS	2.945954	.7652724	3.85	0.000
DE	-.1717983	.0766866	-2.24	0.026
CR	1.784415	.3786994	4.71	0.000
_cons	-24.12555	11.62027	-2.08	0.039

*Source: Author Computation's*

#### 4.3 The Fixed effect model of ROA

Keeping in mind, the possible individual specific effect the researcher have estimated fixed effect model of ROA. Further, the estimated results are given in table 4.2. The estimated results depict that only CR has positive significant effect on ROA, while the rest of remaining variables displays statistically insignificant effect.



**Table 4.3 Fixed Effect Model for ROA**

<b>Variable</b>	<b>Coefficient</b>	<b>Se</b>	<b>T</b>	<b>P</b>
SC	3.016752	2.012662	1.50	0.136
ROCE	.2546407	.2005151	1.27	0.206
FS	1.125239	1.297275	0.87	0.387
DE	-.0222425	.066589	-0.33	0.739
CR	1.575746	.3450559	4.57	0.000
_cons	-87.29739	35.8997	-2.43	0.016

*Source: Author Computation's*

#### **4.4 Comparing the pooled regression and fixed effect model for ROA**

For comparing the pooled OLS regression and fixed effect model, the F-test is used with null hypothesis that all of the individual specific effect is zero. Hence, the value of F-test statistic, 6.93, with probability value of 0.0000 indicates the rejection of null hypothesis and thus the researcher unveil that individual “specific fixed effect” is present. Therefore, the researcher should use fixed effect model to deal with this group specific effect.

#### **4.5 The ROA random effect model**

Following Hun Myoung Park (2011) the researcher estimates the ROA random effect model. The estimates are given in below table 4.3. the estimated results shows that ROCE, FS and CR have significant positive effect on ROA while the effect of other explanatory variables are not significantly different from zeros.

**Table 4.4: Random Effect model for ROA**

<b>Variable</b>	<b>Coefficient</b>	<b>Se</b>	<b>Z</b>	<b>P</b>
SC	-.21224073	1.369457	-0.16	0.877
ROCE	.3793984	.2018381	1.88	0.060
FS	2.072841	1.01285	2.05	0.041
DE	-.059897	.0672983	-0.89	0.373
CR	1.741784	.3400077	5.12	0.000
_cons	-40.36389	19.2493	-2.10	0.036

*Source: Author Computation's*

#### **4.6 Comparing the POLS regression and random effect models of ROA**

For comparing POLS regression and random effect models, two different types of tests are used. B-P LM test and Baltagi LM test. Stata by default provide the result for Breusch-Pagan LM test, so the researcher have used this one in our analysis for comparing the two models. The high value of estimated Breusch-Pagan LM test statistic, 80.58, with low probability value, 0.00, indicate the best model is random effect model compare to POLS regression model.

#### **4.7 Hausman test: Selection of fixed effect vs random effect model of ROA**

Both of the tests i.e. the F-test and LM test reject the narration of null hypothesis, means that both random and fixed effect models are best than POLS regression model. So, in this situation the researcher tries to choose the best among them by using Hausman test in the analysis. Further, the estimated value of Hausman test is 31.32, with probability of 0.0000, is high enough and thus the researcher rejecting the narration of null hypothesis and favouring the model of fixed effect.

#### **4.8 Robustness of ROA fixed**

The aforementioned regression analysis indicate that the model of fixed effect is best in the modelling ROA against their determinants. The estimates of robust fixed effect regression model is given in the table 4.4. Furthermore, the estimated results indicate that ROCE and CR have significant positive influence on ROA while SC, DE and FS on ROA are not significantly different from zero in reference to their specific effect. The average intercept for all individual companies is represented by `_cons` which is negative and significant.

**Table 4.5: Fixed Effect (Robust) model for ROA**

<b>Variables</b>	<b>Coefficient</b>	<b>se(robust)</b>	<b>T</b>	<b>P</b>
SC	3.016752	1.984341	1.52	0.147
ROCE	.2546407	.10496	2.43	0.027
FS	1.125239	1.493573	0.75	0.462
DE	-.0222425	.0477143	-0.47	0.647
CR	1.575746	.5615702	2.81	0.012
_cons	-87.29739	37.19662	-2.35	0.031

*Source: Author Computation's*

#### **4.9 Pooled OLS regression results for ROE**

Our second objectives are to analyse the effect of return on equity by SC, ROCE, FS, DE and CR. similar to ROA, the researcher have estimate pooled OLS regression model for ROE and their results are putted in the below given table 4.5. The results directs that only two variables, that is ROCE and DE have significant effect on ROE. The ROCE is positively related with ROE while DE is negative. The model is best fitted model with  $R^2$  of 0.9799. The individual company specific heterogeneity could exist, therefore the researcher also estimate fixed effect model.

**Table 4.6: Pooled regression for ROE**

<b>Variables</b>	<b>Coefficient</b>	<b>Se</b>	<b>t</b>	<b>P</b>
SC	-2.247893	2.711818	-0.83	0.408
ROCE	1.650171	.6276223	2.63	0.009
FS	3.317697	2.099401	1.58	0.116
DE	-20.09819	.2103773	-95.53	0.000
CR	-.7898044	1.038901	-0.76	0.448
_cons	-5.190007	31.87834	-0.16	0.871

*Source: Author Computation's*

#### **4.10 The ROE fixed effect model**

For capturing the possible individual company specific effect the researcher have estimate the ROE model of fixed effect. It includes the estimated results which are putted into table 4.6. The results indicate that only two covariates DE and FS have

significant effect on ROE with positive sign for FS and negative for DE. The remaining variables shows no significant effect.

**Table 4.7: Fixed Effect Model for ROE**

<b>variables</b>	<b>Coefficient</b>	<b>Se</b>	<b>t</b>	<b>P</b>
SC	-6.315791	6.245586	-1.01	0.313
ROCE	.5733449	.6222277	0.92	0.358
FS	6.881381	4.025634	1.71	0.089
DE	-19.78929	.2066355	-95.77	0.000
CR	-1.412359	1.070759	-1.32	0.189
_cons	-.3200973	111.402	-0.00	0.998

*Source: Author Computation's*

#### **4.11 Comparing POLS regression and model of fixed effect for ROE**

To know whether the model of fixed effect is best for ROE or POLS regression the researcher have used F-test. The statement of the F-test null hypothesis is that all the coefficients of dummy for individual company specific effect is not different from zero. Supplementary, the estimated F-test statistic 3.17 with probability 0.0001 indicate that it can be reject the argument of null hypothesis. It means that the individual company specific effect is present in data set and the researcher should use the model of fixed effect.

#### **4.12 The ROE random effect model**

The model of random effect for ROE of 18 different cement companies are shown in table 4.7. The estimated results shows that ROCE and DE have significant effect on the ROE. The DE has negative impact while ROCE has positive effect on return on equity.

**Table 4.8: Random Effect Model for ROE**

variables	Coefficient	Se	Z	P
SC	-2.247893	2.711818	-0.83	0.407
ROCE	1.650171	.6276223	2.63	0.009
FS	3.317697	2.099401	1.58	0.114
DE	-20.09819	.2103773	-95.53	0.000
CR	-.7898044	1.038901	-0.76	0.447
_cons	-5.190007	31.87834	-0.16	0.871

*Source: Author Computation's*

#### **4.13 Comparing POLS regression and random effect models of ROE**

For comparing random effect and POLS regression model LM (Breusch-Pagan) test is used. The value of estimated LM test statistic is 0, with probability value, 1, shows that the researcher cannot reject the narration of null hypothesis of individual company specific-variance is equal to zero. And thus the researcher has to prefer POLS regression over the model of random effect.

#### **4.14 Hausman test: Selection of random effect vs fixed effect model for ROE**

In the case of ROE the indication of F-test is that the fixed effect model would be prefer over POLS while the LM test prefer POLS over the model of random effect. So, here the researcher tries to compare fixed effect and random effect models through formal Hausman test. Moreover, the estimated Hausman test value of 41.55, with probability of 0.0000, is high enough and thus the researcher can reject the statement of the null hypothesis and prefer the model of fixed effect.

#### **4.15 Robust fixed effect model for ROE**

As the researcher shown through formal test that the model of fixed effect is more relevant in capturing the individual specific-effect, therefore, the researcher have robust model of fixed effect for ROE. Additionally, the robust estimates indicate that

ROCE, DE and CR have significant effect on ROE. The DE and CR negatively influence the ROE while ROCE is positively.

**Table 4.9: Fixed Effect (Robust) for ROE**

Variables	Coefficient	se(robust)	T	P
SC	-6.315791	5.890137	-1.07	0.299
ROCE	.5733449	.0480793	11.92	0.000
FS	6.881381	5.207232	1.32	0.204
DE	-19.78929	.0325591	-607.80	0.000
CR	-1.412359	.8328655	-1.70	0.108
_cons	-.3200973	86.81088	-0.00	0.997

*Source: Author Computation's*

## CHAPTER 5

### CONCLUSION

In this section of the study the researcher conclude our analysis with the following results. Following the way recommended by Hun Myoung Park (2011) for modeling panel data the researcher have run first POLS (Pooled Ordinary Least Square) regression model, both for the ROE and ROA. Both, the POLS regression model for ROE and ROA were best fitted model but keeping in mind the individual specific heterogeneity the researcher have run fixed effect model as well for both ROE and ROA. Furthermore, the joint restriction test of fixed effect models indicate that the better model is fixed effect compare to POLS regression model both for ROA and ROE. Secondly the researcher have also run random effect models both for ROA and ROE the expected possible imprudent over POLS regression model. Moreover, the Breusch Pagen, LM test comes in favour of the random effect model of both ROA and ROE. Having the two, random effect and fixed effect, alternative choices of the Hausman-test support the model of fixed for our analysis. The robust fixed effect model has been run for both ROA and ROE.

From the estimated results the researcher can conclude that the current ratio and ROCE have significantly positive influence on ROA. It means that if the current ratio increase the ROA will increase. Similarly as expected the increase in ROCE has positive effect on ROA. The empirical results indicate that if the individual company want to increase their return on asset they should increase their ROCE and CR. the estimated robust fixed effect model for ROE, showed that CR and DE have negative influence on ROE. From these results mean the researcher can suggest that the current ratio and debt equity increases, the return on capital will fall while for ROCE the effect in positive and significant. Form this results the researcher can conclude that

the researcher can increase the ROE by increasing ROCE. The other independent variables which include firm size and debt to equity have insignificant impact on dependent variable in both models. The insignificance maintains itself in both random effect and fixed effect, so it have no theoretically relevancy to be discuss.

### **5.1 Recommendations and policy implications**

The outcomes of this study suggest that to increase the firm's value of specific sector (cement industry) requires keeping the debt and equity ratio very low.

In Pakistani cement industry, most of the firms operating under their optimal level and their capital structure are very poor and out-dated, due to these reasons financial performance of cement firms is adversely affected. By keeping in view, the importance of this sector, it is suggested that the financial analysts and managers should emphasize on the optimum level of capital structure and efficient utilization and allocation of resources. This will help to achieve the targeted level of productive efficiency in cement sector of Pakistan.

### **5.2 Limitation of the Study**

The analysis conducted in this study explore the phenomenon of only one sector which include 18 firms of cement. In the other companies, sectors and countries may be the situation is different. So we cannot fully generalize the result of this study to all sector or to every country.

### **5.3 Future Research**

In this study, the researcher explores the problem of only one sector of Pakistan economy. The future research can be done to find the impact of capital structure on firm's value for the whole sectors in the Pakistan economy, or for the world wide data.



## REFERENCES

- Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *The journal of risk finance*.
- Aggarwal, D., & Padhan, P. C. (2017). Impact of capital structure on firm value: evidence from Indian Hospitality Industry. *Theoretical Economics Letters*, 7(4), 982-1000.
- Akhtar, S., Javed, B., Maryam, A., & Sadia, H. (2012). Relationship between financial leverage and financial performance: Evidence from fuel & energy sector of Pakistan. *European Journal of Business and management*, 4(11), 7-17.
- Andreas Stierwald (2009), "Determinants of firm profitability – The effect of productivity and its persistence". *Melbourne Institute of Applied Economic and Social Research The University of Melbourne*.
- Antwi, S., Mills, E. F. E. A., & Zhao, X. (2012). Capital structure and firm value: Empirical evidence from Ghana. *International Journal of Business and Social Science*, 3(22).
- Asif, A., & Aziz, B. (2016). Impact of Capital structure on Firm value creation- Evidence from the Cement sector of Pakistan. *International Journal of Research in Finance and Marketing*, 6(6), 231-245.
- Bokhari, H. W., & Khan, M. A. (2013). The impact of capital structure on firm's performance (A case of non-financial sector of Pakistan). *European Journal of Business and Management*, 5(31), 111-137.
- Breusch, T. S., & Pagan, A. R. (1980). The Lagrange multiplier test and its applications to model specification in econometrics. *The review of economic studies*, 47(1), 239-253.
- Chakravarthy, B. S. (1986). Measuring strategic performance. *Strategic management journal*, 7(5), 437-458.
- Chhibber, P. K., & Majumdar, S. K. (1999). Foreign ownership and profitability: Property rights, control, and the performance of firms in Indian industry. *The Journal of Law and Economics*, 42(1), 209-238.
- Chien-Chung Nieh, Hwey-Yun Yau, and Wen-Chien Liu(2008), "Investigation of target capital structure for Electronic listed firms in Taiwan", *Emerging Markets Finance & Trade* 2008, Vol.44, No. 4, pp.75–87.
- Chowdhury, A., & Chowdhury, S. P. (2010). Impact of capital structure on firm's value: Evidence from Bangladesh. *Business and Economic Horizons (BEH)*, 3(1232-2016-101116), 111-122.
- Cuong, N. T., & Canh, N. T. (2012). The effect of capital structure on firm value for Vietnam's seafood processing enterprises. *International Research Journal of Finance and Economics*, 89(89), 221-233.
- Ebaid, I. E. S. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. *The journal of risk Finance*.

- Fama, E.F. and French, K.R. (1998), "Taxes, financing decisions, and firm value", *Journal of Finance*, Vol. 53, pp. 819-43.
- Fumani, M. A., & Moghadam, A. (2015). The Effect of Capital Structure on Firm Value, The Rate of Return on Equity and Earnings Per Share of Listed Companies in Tehran Stock Exchange. *Research Journal of Finance and Accounting*, 6(15), 51-58.
- Graham JR (2000), "How big are the tax benefits of debt", *Journal Finance*, Vol.55 No.5, 2000, pp. 1901-1941.
- Graham, J.R., and C. Harvey, 2001. The theory and practice of corporate finance: evidence from the field, *Journal of Financial Economics* 60, 187-243.
- Javed, T., Younas, W., & Imran, M. (2014). Impact of capital structure on firm performance: Evidence from Pakistani firms. *International Journal of Academic Research in Economics and Management Sciences*, 3(5), 28.
- Jensen, M. C., & Meckling, W. H. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, 3(4), 305-360.
- Majumdar, S. K., & Chhibber, P. (1999). Capital structure and performance: Evidence from a transition economy on an aspect of corporate governance. *Public choice*, 98(3-4), 287-305.
- Masulis, R. W. 1983. The impact of capital structure change on firm value: Some estimates. *The Journal of Finance*, 38(1), 107-126.
- Memon, F., Bhutto, N. A., & Abbas, G. (2012). Capital structure and firm performance: A case of textile sector of Pakistan. *Asian Journal of Business and Management Sciences*, 1(9), 9-15.
- Modigliani, F., and M.H. Miller, 1958, The cost of capital, corporate finance and the theory of investment. *American Economic Review* 48, 261-297.
- Modigliani, F., and M.H. Miller, 1963, Corporate income taxes and the cost of capital: A correction, *American Economic Review*, 53, 433-443.
- Moghadas, A., Pouraghajan, A., & Bazugir, V. (2013). Impact of capital structure on firm value: Evidence from Tehran Stock Exchange. *Management Science Letters*, 3(6), 1535-1358.
- Mollik AT (2005), "Capital structure choice and the firm value in Australia: A panel data analysis under the imputation tax system". *Working Paper*, Thirteenth Annual Conference on Pacific Basin Finance, Economics and Accounting, June 10-11, New Brunswick, New Jersey.
- Mujahid, M., & Akhtar, K. (2014). Impact of capital structure on firms financial performance and shareholders wealth: Textile sector of Pakistan. *International Journal of Learning and Development*, 4(2), 27-33.
- Ogbulu, O. M., & Emeni, F. K. (2012). Capital structure and firm value: Empirical evidence from Nigeria. *International Journal of Business and Social Science*, 3(19), 252-261.
- Park, H. M. (2011). Practical guides to panel data modeling: a step-by-step analysis using stata. *Public Management and Policy Analysis Program*, Graduate School of International Relations, International University of Japan, 1-52.

- Priya, K., Balasundaram, N., & Pratheepan, T. (2015). Impact of Capital Structure on the Firm Value: Case Study of Listed Manufacturing Companies in Sri Lanka. *Scholars World-IRMJCR*, 3.
- Rafiq, M. (2008). The determinants of capital structure of the chemical industry in Pakistan. *The Lahore Journal of Economics*, 13(1), 139-158.
- Riaz, S. (2015). Impact of capital structure on firm's financial performance: An analysis of chemical sector of Pakistan. *Journal of Poverty, Investment and Development*, 12(1), 345-357.
- 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.
- Saeedi, A., & Mahmoodi, I. (2011). Capital structure and firm performance: Evidence from Iranian companies. *International Research Journal of Finance and Economics*, 70, 20-29.
- Saeedi, A., & Mahmoodi, I. M. A. N. (2009). The determinants of capital structure: evidence from an emerging market. *Recent Advances in Business Administration*, 17(1/2), 13-18.
- Salim, M., & Yadav, R. (2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia-Social and Behavioral Sciences*, 65, 156-166.
- Sarma, L. V. L. N., & Rao, K. H. (1969). Leverage and the Value of the Firm. *Journal of Finance*, 673-677.
- Shah, A., and Khan, S. 2007. Determinants of capital structure: Evidence from Pakistani panel data. *International review of business research papers*, 3(4), 265-282.
- Tas, O., & Ede, S. (2018). THE EFFECT OF CAPITAL STRUCTURE ON THE VALUE OF FIRM. A STUDY OF TURKEY NON-METAL MINERAL PRODUCTS INDEX. *PressAcademia Procedia*, 8(1), 34-37.
- Yu-Shu Cheng, Yi-Pei Liu and Chu-Yang Chien (2010), "Capital structure and firm value in China: A panel threshold regression analysis", *African Journal of Business Management Vol. 4(12)*, pp. 2500-2507.