CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Impact of Financial Leverage on the Firm Performance: Empirical Evidence from Cement, Food & Personal Care and Automobile Industries in Pakistan

by

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This work is dedicated to my beloved Mother and Father whom death during thesis were incalculable lasting blow, but urge to make my parents proud and with support of family members, encourage me to achieve this milestone. I would also like to dedicate this work to my respected supervisor "Dr. Muhammad Mazhar Iqbal" for his support and guidance in each step of this study

CERTIFICATE OF APPROVAL

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Abstract

This study focuses on Impact of financial leverage on firm performance. It has been an intensely researched topic for last few decades. The panel data is drawn from Pakistan stock exchange listed firms in three industries: cement, food and personal care, and automobiles. This study analyzed the results of linear along with nonlinear relationship of financial leverage on firm performance. Along with Financial leverage other control variables such as firm size, revenue growth, board of director education, GDP and inflation are regressed on firm performance. This study includes only those control variables which have shown statically significant impact on firm performance. Financial performance has been measured by Tobin's Q (TOQ) and return over assets (ROA).

Usually financial performance commonly measured by return over assets (ROA) which is accounting based measure which doesn't show true performance of firms' due window dressing of accounts and other inputs. Thus, relationship of leverage with market-based performance variable i.e. Tobin Q (TOQ) has been measured. Results of this study shows that there is a positive relationship between the financial leverage and overall firms' performance with respect to accounting base measures i.e. ROA. However, financial leverage shows mix results with respect to market-based measure which indicate the inefficient market. Further results of the study indicate financial leverage shows positive relation with respect to cement and food & personal care industry with accounting base measure (ROA) and market base measure (Tobin Q). However, automobile industry shows negative relationship of financial leverage with market base measure.

Keywords: Capital Structure, leverage 's square, Tobin's Q, Pakistan Stock Exchange.

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Abbreviations

Eduofdir	Education of Directors
Firmsize	Size of the firm
FL	Financial leverage
GDP	Gross Development Product
Infl	Inflation
Rev growth	Revenue Growth
TTD	Total Debt To total Assets

Chapter 1

Introduction

1.1 Contextual Background of the Study

Financial gearing, or FL, is utilized as an X variable or independent in this article, which is calibrated as the percentile of total loan to total capital from equity. Financial leverage is the measure of the firm's indebtedness, total debt divided by the equity of the firm. It is an independent variable. Second leverage (FL) is the extent of the entity's indebtedness, total debt divided by the assets of the firm. It is an independent variable. In this research, they measured the impact of the independent variable on the two different measures separately.

The second dependent variable is ROA is the return of the assets, which is an accounting-based measure, and it is derived by the PBIT, or profit remaining before the interest payment and tax payment, divided by the total average assets during the financial periods. It shows how much is generated in return for the full asset value held.

Firm size is control variable and it is measured in variety of ways like goods or services produced or capital invested, value of product etc. It is an inner characteristic of the organization firm size gives the company economies of scale through which it can achieve the higher production and hence low cost per product as compared to competitor hence good performance, diseconomies of scale is for low size firms which cannot attain the lower cost due to lower size of the firm.

TOQ is the Tobin's Q, which is the market-based variable aimed at the measurement of the financial performance of the firm. It is derived from the full market value of the corporation or entity divided by the full value of its assets. Market capitalization is the average number of shares held during the year multiplied by the share value of the market at the year end. This value describes performance based on the marketing variable and it also shows the market value with respect to assets held, which means how many assets are valued extra from the assets that are possessed.

Education of directors these are also a strength factor for organization, educated directors have more ability to run organizations better and to take off from difficult situation better, Inflation and GDP growth are the macro economic factors that present the external environment, market condition, booms and bust in the economy and these all factors are the basic elements that describe the platform on which conducting the business.

Education of directors these are also a strength factor for organization, educated directors have more ability to run organizations better and to take off from difficult situation better, a research or study on the Nigerian firms for six-year panel data suggested it as a supporting factor where management education has the positive impact on the organization performance (Saidu, 2019).

In Pakistan raw material and industry is abundant in cement production so Pakistan is ranked on the 5th in cement production. In the surroundings of stoppage in world development prediction, geo-political, services, goods and fiscal year policy risks, cement for construction and its usage is anticipated to propagate at a minor average progression rate of 2.14% over the next (5) five years. Historically, progression rate in world cement industry trade had been less than growth in world trade on justification of huge shipping cost and convenience of raw material supply. However, in Pakistan 's per person or individual cement usage at 142kg is on the inferior side as equated to most local peers and vis-à vis world average of 401kg. In Pakistan, on average 26 % is the export and the 75% is local use.

Noghondari and Noghondari (2017) allude to the FL related use is one of the foremost troublesome issues that confront the Financial directors when taking a decision, because the increment within the obligation proportion may increment

the money related dangers and lead to the rise of capital cost. Financial use and enitity estimate have considered the foremost critical issues which concern money related directors as a result of the enormous improvement which the money related advertise experiences and the mechanical advancement within the utilize of money related assets, which have permitted finishing the advantage of the assortment of these assets. Budgetary Use is imperative within the mining and extraction industry division, to back its resources and hence increment shareholder esteem.

Presently, nearby are 3,202 automotive manufacturing plants in the country, with an investment of 92 billion (US$570 million) producing 1.8 million motorcycles and 2000,000 vehicles annually (GPTI, 2020). A noteworthy escalation in demand for vehicles, boosted however relatively through easy accessibility of car financing or leases and debt from financial institutions and lending companies at little financial charge, was contributory in the wild advance of the industry.

It is evident, that in spite of an incredible increase, in demand of vehicles in the country; Pakistan yet rests as one of the "less motorized country" of the global nations with 12 cars per thousand people. The progression in the vehicle area had certainly likewise prearranged stimulus to the related vehicle vendor industry, that likewise tackled complications in line for to the current decline in demand of the products, vehicle. By subsequent worldwide tendencies, the vehicle sector in Pakistan displayed substantial growth in the time that is under examination.

Pecking order Theory or (P.O.T) devised and presented by (Myers, 1984) and (Myers & Malijuf, 1984) ,first priority or the prime way of financing is to finance by the retained earnings or from profit for the year if don't have retained reserves than debt financing is sought and the last option is the equity financing so this is the priority of the cost wise capital structure from least cost to highest cost , organizations keep an eye on a pyramid hierarchy of business strategies and goals in generation of their capital structure.

Therefore, conferring to theory (P.O.T) entities with the increase in the profit, are much less expected to acquire loan for new developments or projects because they have the accessible in-house reserves for this drive. Accordingly, rendering to theory (P.O.T) the profit gaining companies are little probable to suffer dues for new ventures or projects because they have the accessible internal source of reserve

funds for this problem. Besides aimed at the Static Tradeoff approach, larger the firm, the greater will be the possibility, that will have of giving loan notes or debt, resultant in a healthy positive connection between loan and magnitude of the corporation. Contrariwise, the pecking theory (P.O.T) presumes that greater profits or revenue lead to rise in the main cause that companies pick to shelter their financial loss or shortfall of resources or undistributed reserves. Big organizations do not deliberate the straight liquidation costs as an active variable in determining the level of leverage because greater companies, actuality are more expanded into different sectors, have less likelihood of becoming bankrupt.

Prices of outstanding shares increase the firm's ability to finance new projects, by increasing Debt / equity or D/E ratio, relationship between the D/E and share price trade off, if a Debt / equity ratio (titman & wessels, 1988). Signaling Theory (S.T) in the beginning was established by the signaling theory, enlightens that loan is reflected as a way to highpoint investors' confidence in the business organization, for example if an entity issues loan notes, debentures etc. it delivers a signal to the marketplaces that the company is expectant of positive cash flows in the prospect, as the principal and interest payments on loan are a fixed contractual liabilities that has to be paid by the entity and that is further need to be paid by its cash flows. That relation is negative for entities whose growth chances are either not renowned by the capital markets or are not adequately valuable to be overwhelmed the effects of their debt extend.

To scrutinize the relation concerning between leverage and growth they used facts and data set on the historical data of 22 years and they establish a robust negative relation between them. Described that nearby occurs a negative influence or relation between leverage(Lev) and future financial growth. It was also established or confirmed that leverage did not decrease growth for entities known to have good profit chances.

Increasing or enhancing levels of company loan profiles and issuance of corporate finance debt or loan notes or the financial instruments, has ended it an overbearing to comprehend what the crucial factors of a geared capital arrangement are, as well as its consequences for the financial operational performance and value of these firms. Sometime it is difficult to arrive at one conclusion because sometimes

there is some effect, and other time it is inverse, multiple factors are involved, but with the varying control factors and debt measurement and financial performance measuring variables there is great difference in the outcomes due to the variables arriving with total different methodology.

Return over asset is net profit of the revenue distributed over the total assets it can be abbreviated in equation as PBIT/Assets, on the other hands, return over equity is return divided by total equity, similarly GP margin is gross profit divide it by total sales so and net profit divided by total sales is net profit margin but all these performance measures are based on some accounting policies so these are not comparable in broad terms, there is need to take the market based measures that involve the fair value or market value of the assets like Tobin's Q.

In short, return over asset is return divided by total assets, contrary to this return over equity is return divided by total equity, similarly GP margin is gross profit divide it by total sales so and net profit (NP) divide it by total sales is net profit (NP Margin) margin but all these performance measures are based on some accounting policies so these are not comparable in broad terms, there is need to take the market based measures that involve the fair value or market value of the assets like Tobin 's Q. sometime it is difficult to arrive at one conclusion because sometimes there is some effect, and other time it is inverse, multiple factors are involved, but with the varying control factors and debt measurement and financial performance measurement variables there is great difference in the outcomes due to the variables arriving with total different methodology.

There are many theories that describe the relevance of the financial structure of capital and entity's financial achievements. There remain three theories which describe that there's influence on the entity's performance related to the structure of the capital. Pecking order theory gives us an order in which financing makes us less costly, if we finance from internal funds like retained earnings than it is better, second best is to finance through the debt and third through equity, in this structure cost of capital will be minimized. Leverage is the basic capital structure identity that makes the capital that is life line for any business, for long term and short term liquidity capital is most vital.

Signaling theory says that company paying higher dividends has more good

performance than similar type or identical company with smaller dividends. Company also uses trade-off theory to balance the cost and benefit to choose the capital structure in the form of debt and equity which makes firms to decide. The Modigliani-Miller theorem negates any impact and declares that a company's Financial structure or structure of capital financing is not an aspect in its value determination. Fair value is determined by the current or present value (PV)of future earnings, the theorem articulates.

Results of most studies are not conclusive some say that leverage has positive impact, some say negative and some say that there is no impact, so there is no one conclusion in the different sectors. There are countless models related to the structure of the capital & performance of the entity, so our focus is the pecking order theory and to focus and research the influence of financial leverage on the profitability or operational ratios. Firms value and profitability can be indicated by variety of measures like return over assets, Tobin's Q, economic value added etc., leverage is debt over equity ratio. Several studies recommend that the entity's value can most accurately be characterized by Tobin's Q for the reason that it clarifies a number of business organization dimensions like Tobin's Q elucidates the changes in choices about diversification portfolios and venture among firms, the relationship of equity possession of corporate executives with entity's worth and paying outs, financing and reward policies (Farooq & Masood, 2016).

Meanwhile Modigliani and Miller (1958) described "irrelevance proposition" with the limiting conventions that structure of the capital does not affect entity 's fair value, a thorough enquiry has been made on the subject structure of capital (the mixture of loan and equity capital). On the other side many studies found the inverse relationship. Study in the cement, food and individual care and automobile industries is not taken together previously in this field from 2005 to 2020 for 9 cement and 9 food and personal care industry and nine automobile best companies listed on (PSEX) Pakistan stock exchange.

In Trade of theory weighing the cost and benefit in the capital structure decision to balance the both, hence trade off theory is used to balance the cost of capital with its benefits to minimize the cost and get the benefit. It pronounces that there is a benefit to supporting with capital financing with loan, the taxation gains of loan

and there is a low cost debt, the costs of financial suffering counting bankruptcy charges of debt and non-bankruptcy charges such as staff redundancy and paying them redundancy pays, contractors challenging and asking payment terms that are not fruitful for the frim, stockholder internal strife, etc.). The peripheral profit of extra growths in debt drops as debt increases, while the peripheral charge increases, so that a firm that is improving its overall value will focus on this trade-off when selecting how much debt and equity to use for funding. Many studies suggest ,that the firm's value can best be represented by Tobin's Q because it explains a number of corporate dimensions like Tobin's Q explains the differences in decisions about diversification and investment among firms, the association of equity ownership of corporate managers with firm's value and payout, funding and compensation policies (Farooq & Masood, 2016) Since Modigliani and Miller (1958) presented irrelevance proposition under restrictive assumptions that capital structure does not affect firm value, an intensive investigation has been made on the topic of capital structure (the mix of debt and equity capital).

The monetary judgment made with the aid of using control could be very vital in figuring out the most fulfilling capital shape. The control of a corporation itself ought to lay out its capital shape in the sort of manner as to boom its enterprise really well worth, and this selection could be very vital.

However, companies have a various degree of flexibility, and directors are searching for to gain the proper series to gain a most fulfilling capital shape (Salem & Yadev, 2013). The idea of capital shape and its courting to marketplace fee and overall performance has been a complicated subject in company finance and accounting literature because the seminal work of Modigliani. and Miller. (1958) argued that below very conservative situations of perfect monetary markets, homogeneous aspirations of investors, a tax-loose economy, and no transaction costs, the capital shape is unrelated to the willpower of corporation valuation. According to this idea, the really well worth of a corporation is decided with the aid of using its real properties, now no longer with the aid of using the mixture of stocks that it issues.

If this plan does now no longer keep positive arbitration procedures, a creditor will accumulate the securities of an undervalued corporation and promote the stocks of the hyped up corporation in the sort of way as to advantage the identical

sales streams. When shoppers take gain of those arbitrage possibilities, "the fee of hyped up stocks will fall and the fee of undervalued stocks will boom till all expenses are equivalent. Even though within side the actual world, those restrictive assumptions do now no longer exist, which has led many pupils to introduce extra clarification of this idea and its underlying assumptions, suggesting that the capital shape influences the corporation's fee and effectiveness, particularly after the seminal paper with the aid of using Jansan and Mickleng (1976) that confirmed that the quantity of monetary leverage within side the corporation's capital shape changed into influenced (Herris & Revev, 1992; Grehem & Hervay, 2001). Modigliani and Miller (1958) suggested that guidelines need to now no longer have an effect on the fee of a corporation with inside the surest inventory marketplace, however later contend that corporation fee may be stepped forward with the aid of using adjusting the capital shape because of the tax gain of the debt. Modigliani and Miller (1958) argued that at the very conservative concepts of surest monetary markets, homogeneous aspirations of investors, a tax-loose economy, and no transaction costs, the capital shape is unrelated to the willpower of corporation valuation. Investors select buying undervalued securities and promoting hyped up stocks to advantage profits. When purchasers see that there's an possibility to buy undervalued securities at a top rate beneath the equilibrium, they'll promote on the inflated fee and spend money on securities which might be undervalued to capitalize on those arbitrage opportunities. This take a look at investigates the elements that have an effect on the monetary leverage of Indian indexed companies.

Company also uses trade-off theory to balance the cost and benefit to choose the structure of capital in the form of loan and equity finance which makes firms to decide. Pecking order theory gives us an order in which financing makes us less costly, if finance from internal funds like retained earnings than it is better, second best is to finance through the debt and third through equity, in this structure cost of capital will be minimized.

It states that there is an advantage to financing with debt, the tax benefits of debt and there is a cost of financing with debt, the costs of financial distress including bankruptcy costs of debt and non-bankruptcy costs (e.g. staff leaving, suppliers

demanding disadvantageous payment terms, bondholder/stockholder infighting, etc.). The marginal benefit of further increases in debt declines as debt increases, while the marginal cost increases, so that a firm that is optimizing its overall value will focus on this trade-off when choosing how much debt and equity to use for financing.

For the assurance of organization taken a toll, budgetary arrangements and proprietorship structures there's expansive sum of empirical writing is accessible in past ponders, that joins the relationship between them. Insider equity ownership had vital impact or influence on the budgetary use, working chance, corporate control and agency cost and there's inconsistent declaration is accessible on the relationship between them. This circumstantial gives the floor for managers to form organization clashes and to endeavor their possess intrigued instead of shareholders esteem maximization. That was followed the prospects of proprietors and directors interests that clashes away laid out by their classical hypothesis of "stewardship or owner and administration separation" Instead of firm's esteem maximization directors have thought process for their possess utility maximization or too utilized.

In this research or study, main focus spot lighted and the main pressure on corporate administration and evaluate the instruments in controlling or minimizing costs which strikes over from office issues. Study created the simultaneously devices controlled at minimizing the office through insider proprietorship and use. Study tried the impact of change in insider value use on organization taken toll moderation. Study connected "Fixed Impact Model" strategy on test of 47 non-financial firms recorded in Pakistan Stock Trade from the period of 2010-2014. This consider replied the questions that insider value possession and use can be considered as machine and mechanism equipped at decreasing the impact of office taken a toll and Stock-holders interests are secured within the firms with expanded insider proprietorship and budgetary use. Additionally, this consider would moreover anticipated to provide some productive and imaginative rules for the viable component of corporate administration to hedge stockholders interface, ingrains their certainty (Khailid, 2020).

Importance of the financial management is all about decision making, decisions

are made in a variety of paradigms of investment, financing, asset management, and dividend policy. The investment decision affects three main areas. Decision making criteria for the manager may need to make a decision to start a new business, or it may be a specific decision to expand the current business and replace the current asset or machine. Replacement or changing the type of cash generating asset may be due to technical improvements or other factors. In the investment portfolio of asset or share capital once an investment decision is made, the next and most important decision is how to fund the investment decision made by the investment portfolio manager.

The central question to the studies in finance and macroeconomics is whether leverage affects a company's performance or not. The existing separation between corporate ownership and management and the consequent cost of the agency portrays an ugly picture of a serious problem in modern corporate governance. Managers deal with this situation by setting goals that are different from the goals of the owner or company. And it loses value because the manager pursues their goals against the owner's goals. A specific mechanism has been proposed to address this situation, one of them is the capital structure used.

The company's capital structure deals with asset financing through a variety of options or swaps. Companies can use various combinations of liabilities, capital, or other financial arrangements. To increase the market value, companies can choose different combinations of fixed income, Lease financing, bank loans, or many other options are available for the investment portfolios or managers. Capital composition decisions are one of the most important financial management decisions, especially in the area of corporate finance, and are central to many other decisions such as dividend policy, project finance, long-term securities issuance, merger finance and acquisitions similarly it works and so on.

The corporate finance manager has multiple goals, one is to increase the wealth of shareholders and reduce the cost of capital. Managing of the cost of capital by operating an effective capital structure management tool more effectively is necessary. Therefore, from theory, a high level debt or low equity / asset ratio reduces the cost of finding borrowed capital and thus increases corporate value by forcing management to take more action in the interests of shareholders. It can

be concluded that optimal capital structure minimizes the cost and increases the profitability.

Optimal capital structure is the point where the value of the company is maximized and the cost of capital is minimized. It raises the question of whether such an optimal capital structure exists or not. Simply put, it can be understood what the determinant of the capital structure is in a particular industry or capital market.

Capital structure studies are important to both researchers and managers. The main problem faced by financial managers is not only the acquisition or collection of funds, but also the wise use of them for maximum profit. In most cases, the source of funding is the same for all companies. Some companies succeed and others fail because of some reasons. This clearly means that in addition to the excellent ideas and geographic presence of many listed companies, there is something beyond the financial success of the company. In addition, most South Asian countries, especially Pakistan, have undergone many financial reforms, which have brought financial reforms to financial markets. These reforms play an important role in the functioning of financial markets; this makes it more attractive to study the effects of leverage in a variety of situations or ways.

Producing employments distinctive measure for the calculation of financial use through accounting measures, which incorporates brief term obligation, long term obligation and add up to obligation as a ratio of add up to resources .This ponder uses two bookkeeping degree for money related use as autonomous variable; that are obligation to equity proportion (Debt/Equity) and Add up to obligation to Add up to resources (Debt/Assets). D/E proportion is an important instrument of budgetary investigation to assess the budgetary structure of firm.

It basically indicates the relative extent of obligation and value in financing the resources of the firms. It has vital suggestion from the perspective of lenders, and proprietor of trade and the firm itself Consider appears that analysts may utilize both book value and advertise esteem degree for use. In showcase esteem degree book esteem of debt is separated by showcase esteem of value. On the other side, in book esteem degree book esteem of debt is separated by book esteem of calculations.

1.2   Problem Statement

Impact of financial leverage on firm performance has been an intensely researched topic for last few decades. Some studies have analyzed only linear relationship. However, mixed results of such studies hint upon non-linear relationship too. Also, various studies have taken different control variables in valuables in empirical testing. Therefore, it may be imperative to include only those control variables which have shown significant impact on firm performance.

Moreover, mixed results of various studies may be attributed either to using market-based measures or accounting based measures but not both. It suggests that using both types of measures in a study may highlight if different results may be attributed to different measures. This research aims to take care of all these issues.

1.3   Gap Analysis

Gap analysis from the literature review suggest that previously research articles were showing limitations to enhance the research to the be done on the one sector or for 100 best firms or on some other criteria, but together cement and food and personal care and automobile firms were given in the future recommendation that were never explored further there was July 2005 to June 2020 data recommended by previous researchers (Farhan Ahmed, 2018) (Ali, 2020) (Nawazish & Reddy, 2016) ,pecking order theory was not taken alone and signaling and trade of theories were also taken.

Old studies have only taken accounting based performance measure which is sometime biased due to accounting principles and policies change like depreciation policy change, fair value or historical cost, revaluation etc. that's why old researcher's results are distorted and not accurate, firms fair value based measure like TOQ or Tobin 's Q will give the fair value based measure which is more reliable. In previous studies these two important industries were neglected and have taken these important industries together to measure the impact. In previous studies less data was taken so taken 15-year data which will clear the situation more

accurately (Nawazish & Reddy, 2016).

20 listed firms from food and fertilizer sector were studied from 2008-15, was established that firm 's performance is negatively and significantly affected by the financial leverage in Pakistan, optimal level of debt needs to be maintained to reduce the cost and make the firms profitable. Ten listed firms from 2012-17 were studied from the textile sector and relationship was measured between corporate governance, financial leverage and performance of the firm, Corporate governance factors like board size, audit committee were positively correlated and financial leverage was found negatively correlated to the firm's performance in the top ten textile listed firms of Pakistan. The outcomes designate that the accessibility and non- accessibility of growing choices to companies are very vital aspects in evaluating "ownership concentration" and loan impact on firm operational

performance, extraordinary ranks of power concentrated in the hands of owner's leads to a merging and entrenchment effect representing non-linear relationships with financial operational performance in equally the convenience and non-convenience of growing options.

Another (Ali, 2020) learning focused on progression option accessibility and non-accessibility as dummy variables and finds that in the occurrence of progression options, non-linear relations are found between entity 's operational performance and possession concentration and positive substantial relations of loan with firm operational performance.141 companies listed on stock exchange from2008 to 2018 data was taken. 25 Islamic banks from the Asian markets were chosen to study data from 2011 to 2019 to analyze the impact of "financial leverage" on the operational results of the banks, the results established that financial leverage is on the near level in Islamic Banks that completely be subject to upon the flexibility ratio for the change of the value of loan and their influence of earning.

"Financial performance" was measured by the proxies return over asset , return on equity (R.O.E) and (TOQ)Tobin 's Q and effect of financial leverage was observed, KSE 100 listed stocks firm's data 2005-14 was studied and revealed that FL has influence on the profitability ratio of the KSE 100 listed companies in Pakistan. (Farhan Ahmed, 2018) KESE listed firms from past 13 years were studied to measure the influence of "financial leverage" on shareholders returns, the outcomes

endorse the conception of "leverage premium" and have significant inferences for financial management, investment experts and other market contestants who use asset pricing models or framework ideology for investment appraisals. Data from chemical, fertilizer and cement sector was taken and 2008-17 periods was analyzed to see the relationship of "financial leverage" FL and the operational results performance values, financial leverage (FL), Total leverage (TFL), Leverage ratio, Leverage ratio to change in cash spanned by wrapped market prices and WACC are taken as descriptive variables.

1.4 Research Questions

1. Does financial leverage (FL) affect overall performance of cement, food & personal care and automobile industries in Pakistan.

2. Does financial leverage (FL) affect firms wise performance of cement, food & personal care and automobile cement industries in Pakistan differently.

3. Does Financial Leverage affect firm Performance linearly as well as nonlinearly.

4. Do selected firm specific and selected macro variables affect firm performance.

5. Does the affect of Financial leverage remain same whether ROA or Tobins Q is used for firm performance.

1.5 Objectives of the Research Study

Objectives of this scientific research study are given as follows

1. To investigate whether financial leverage affect overall firms performance in three selected industries.

2. To investigate whether financial leverage affect firms wise performance differently.

3. To investigate whether Financial leverage affects firm performance linearly as well non-linearly.

4. To explore the effect of selected firm-specific and macro variables on firm performance of cement, food and personal care and automobile industries in Pakistan.

5. To investigate the effect of financial leverage on different measures of firm performance such as ROA and Tobins Q.

1.6   Contribution of this scientific research study

This scientific research study is contributing to the understanding of financial leverage and its impact on the three unique industries that are vital for Pakistan by focusing on the accounting and market-based performance measures. It is evident that accounting-based measures are sometimes not relevant due to window dressing or making figures more massaged to get a better picture. Hence, the other measure that is combined is the market-based, which will definitely show a true picture. Hence, it will also indicate that in future studies, both measures can help to get a clear picture. So it will help the other firms to make their capital structure decided by this study as to whether they should use which form of finance the most.

According to their contribution to infrastructure, the cement, food & personal care and automobile industries employ many people, reducing unemployment, and they also pay luxury tax and duty tax to the government for the parts they import. This study is the new dimension that will take the data from the longer period, which has not previously been taken, and three important industries are taken together for the study, which will pave the way and direction to study three industries based on their importance.

By focusing on the accounting and market-based performance measures, this study is contributing to the knowledge in the area of financial leverage and its impact on the three unique industries that are vital for Pakistan. As it is seen that accounting-based measures are sometimes not relevant due to window dressing or

making figures more massaged to get a better picture, hence the other measure which is combined is the market-based, which will definitely show a true picture and hence it will also indicate that in future studies both measures can help to get a clear picture.

Chapter 2

Literature Review

2.1 Theoretical Background and Supporting Theories

To inspect the relation between financial leverage (FL) and growing they used data set over a period of 21 years and they establish a sturdy negative relation concerning them. This research established that there occurs a negative relation concerning financial leverage and prospect profit growth.

It was moreover established that financial leverage did not decrease financial increase in growth for entities acknowledged to have good profit prospects. on degree of financial leverage(FL) has negative impact on the profitability (Mahira, 2011), Ten listed firms from 2012-17 were studied from the textile sector and relationship was measured between corporate governance, financial leverage and performance of the firm, Corporate governance factors like board size, audit committee were positively correlated and financial leverage was found negatively correlated to the firm's performance in the top ten textile listed firms of Pakistan. (Chandani & Ahmed, 2021).

25 Islamic banks from the Asian economies have been decided on to observe the facts from 2010 to 2019 to investigate the effect of financial leverage at the overall performance of the banks, the outcomes mounted that monetary leverage is on the extent in Islamic Banks that completely relies upon the power ratio for the adjustment of the fee of debt and their strength of earning. The outcomes of

present day studies paintings are offering sturdy proof in help of the Signaling Theory which says that better capital approach better overall performance of the banks. (Abdul Rahim, 2021). Education of the director can be considered as the supporting factor for the firm's performance a study research indicated that the education of the management has positive effect on the six years data from 2011 to 2016 on the Nigerian listed stock exchange firms results were showing the increase in the performances,

Financial performance was measured by the proxies return over asset, PBIT on equity and T.O.Q(Tobin 's Q) and effect of financial leverage was observed, KSE 100 listed stocks firm's data 2005-14 was studied and revealed that financial leverage(FL) has influence on the profitability ratios of the KSE 100 listed companies in Pakistan. (Farhan Ahmed, 2018).

KESE listed firms from past 13 years were studied to measure the effect of financial leverage on stock returns, the consequences verify the belief of leverage premium and feature crucial implications for financial managers, funding analysts and different marketplace individuals who use asset pricing frameworks for funding appraisals. These findings have international relevance, substantially for different rising and growing economies in which default chance is of significance because of cyclical nature of coins' flows and occasional recuperation fees because of weaknesses of legal structure. Our consequences propose that at the same time as size, price and, greater importantly, financial leverage are systematic in nature, marketplace chance top rate isn't a applicable factor. (Nawazish & Reddy, 2016). 20 listed firms from food and fertilizer sector were studied from 2008-15, in this study it was established that firm's performance is negatively and significantly affected by the financial leverage in Pakistan, optimal level off debt needs to be maintained to reduce the cost and make the firms profitable (Ali, 2020).

Investigation for the affect that how anticipated stock return influenced by the fuel blend structure in control era portfolios for European control companies. The tests of 22 greatest open recorded European control makers were chosen for the period January 2005 to December 2010. The capital resource estimating demonstrate (CAPM) and multi-factor showcase models were utilized to capture the precise chance ( ) of the control companies relative to the generally advertise execution

additionally the other ordinary vitality and macroeconomic chance components. The full-information approach was utilized to decide technology-specific betas and hazard calculate from the chosen test. The result demonstrates that the fuel blend era altogether effect on the stock returns of the explored companies. Especially, the test of chosen companies uncover that it creates significant contrasts within the orderly hazard ( ) of gas and atomic era return on return on value ROE, return on capital worker RCE and benefit edge PM as free factors. Sham factors are too utilized by the analyst. Straight relapse demonstrate utilized OLS strategy as investigate strategy. The result appears that oil and gas gives most elevated return. On the other hand area doesn't matter in financial and monetary execution of vitality companies (Hashim & sudhir ,2017).

In another study which considered investigating the developing Russian Vitality Benefit companies (E.S.CO) markets. The consider test of more than hundred companies was chosen for the period 2009 from Russian Alliance. Information was collected through survey, based on study of 161 vitality companies and organization. Clear measurements, Fischer's correct test and two-tail test were connected. There comes about appeared that legally binding shape of ensures sparing generalize more appropriate in E.S.CO showcase and increment pick up whereas shared sparing uncommon in utilize. It moreover appeared that (kotter, 2012).

There are different sources accessible to raise reserves for organizations. Value subsidizing and obligation financing are the two major sources that exist. The financing sources give radically diverse sorts of costs and benefits to its capital suppliers. Subsequently, the proper choice over the suitable source of subsidizing by the administration of fund is organization to send its borrowed cash (khalid & junaid, 2019). The consideration of more obligation financing into the firm capital structure would create more esteem to organizations within the circumstance where assess installment may be an administrative necessity as envisaged by the MM theorem Be that as it may, keeping up the ideal level of blend in between obligation and value too another technique taken after by the administration .In Pakistan, Securities Exchange Commission (SECP) control the obligation advertise of corporate. Corporate papers, bonds and debentures are the most categories of obligation securities exchanged in Pakistan.

Another study examined the relationship between budgetary leverage and productivity utilizing 130 management consulting firms from the year 2012 to 2016. The use, firm measure, liquidity and firm age were considered as free factors and return on resources utilized to degree the profitability of the firms. The regression results of the considered too uncovered a negative linear relationship between combines to the obligation and profitability. This study communicated the effect of financial use on firm execution based on the Russian joint-stock companies over the period from 2004 to 2013 utilizing obligation to total resources proportion as free variable, return on resources and return on value as dependent variable. The outcomes about uncovered that financial use contrarily effect on firm performance. The reasons are clarified as ineffective corporate control of Russian market, obligation pulling in challenges, high growth potential and tall intrigued rate for financing through debt (Coley, 2021).

Elkington (2013) proposes that the company will pay consideration to three perspectives, specifically improving the quality of the company (benefit), consideration to the community, particularly the encompassing community (individuals), and the environment (planet soil) as a frame of corporate social duty. Corporate social responsibility or C.S.R is one of the vital concepts in corporate administration. In common, it can be pointed out that the highlight of CSR is on the integration of voluntary consideration to social and natural issues into commerce behavior to respond to social issues.

Another study targeted on growth alternative availability and non-availability as dummy variables and reveals that with inside the presence of growth alternatives, non-linear family members are located among corporation overall performance and possession attention and advantageous large relations of debt with corporation overall performance. 141 agencies listed on stock change from2008 to from 2008 to 2018 data was taken. The goal of study changed into to decide the effect of focused leverage and possession on corporation overall performance in the case of Pakistan's logistics area one after the other in the presence and shortage of boom alternatives to be had to the corporation. The effects imply that the supply and non-availability of boom alternatives to companies are very essential elements in studying possession attention and debt have an impact on corporation overall

performance, excessive ranges of strength focused with inside the palms of owner's ends in a convergence and entrenchment impact depicting non-linear family members with monetary overall performance in each the supply and non-availability of growth alternatives. Whereas, with inside the absence of growth opportunities, inverse parabola family members are depicted of possession attention and corporation overall performance, and poor family members among debt and corporation overall performance (Mirriam, Ambreen & Faisal, 2020).

Data from chemical, fertilizer and cement sector was taken and 2008-17 period was analyzed to see the relationship of financial leverage and the overall performance values, financial leverage(FL), Total leverage(TL), Leverage ratio, Leverage ratio to change in cash crossed by lagged marketplace values and WACC are taken as explanatory variables. it became concluded that leverage dynamics are massive participants in designing the company financial policies(Hussain & Ghafoor, 2020).

Another study analyzed, that profitability, company length, and Non-Debt Tax Shield have been large and negative, at the same time as tangibility and interest charges considerably and undoubtedly affected debt to capital ratio. This studies analyzed the mild role of enterprise length and the interest fee within side the capital shape over six years (2013–2018) for 30 listed Pakistani corporations running with inside the sugar market. Independent variables have been profitability, company length, tangibility, Non-Debt Tax Shield, liquidity, and macroeconomic variables have been exchange charges and interest charges (Hussain & et al, 2020).

Five fertilizer companies listed on stock exchange were analyzed by taking their six-year data from 2012-18. regression analysis was taken which showed results that F.L has negative impression on the profitability ratios of those firms ROA and F.L were the measuring proxies. (Ullah, 2019).

Another study (Sajid:Mehmood & Sabir, 2016) regression results of OLS model shows that financial leverage has negative and widespread effect at the net funding; it means that once the financial leverage ratio will increase it's going to motive a lower in net funding. The look at become carried out at the Pakistani listed corporations to observe the effect of financial leverage on funding decisions. Moreover, consequences display liquidity and profitability have positive & widespread effect on firm's funding whilst cash flows have positive however insignificant effect

on net funding.

Two Studies have taken seven years' data and other taken one-year data, but are taking extensive data from 2005 to 2020 which is a first time to make research in that area with a big sample from the population, measures previously taken are the accounting based figures that are easy to manipulate with change in depreciation policies, by making provisions but market based performance taken here as subject of research to remove any thing that can be manipulated.

An excessive corporation's share price will appeal to buyers to make investments in the corporation as such there might be an growth in stock prices, and while the corporation's financial overall performance is horrific it's going to motive a decline in stock prices (Harningsih, 2019). It was also said that financial ratios have an impact on company value, whilst it was believed and said that Return on Asset (ROA) has an impact company value, whilst Debt to Asset Ratio (DAR) and Current Ratio (CR) does now no longer have an effect on company price. CSR has a positive impact on company price, however proved that CSR has a trifling negative impact on company price and a widespread positive impact on company' financial overall performance measured through Return on Assets (ROA) and Return on equity (ROE). Improved financial overall performance is anticipated to growth the company price, in order that the better the financial overall performance, the better the company. A wholesome corporation is a corporation that has an awesome financial overall performance, therefore, the corporation price is excessive. Many preceding researchers have performed theoretical research concerning the impact of financial ratios on company price.

And occasionally excessive use of debt results in growth the cost of equity financing as shareholders then sense insecure about their go back on investment. First one is equity holders who're rewarded with the dividends and improved price of shares and 2nd one is the debt holders who're rewarded with the interest charge and the main quantity borrowed via way of means of a corporation. Profitability is a critical degree of firms' overall performance and Return on Assets (ROA) and Return on Equity (ROE) are the ordinarily used accounting measures of corporation overall performance (Demsetz, 1985). Debt financing is riskier than that of fairness financing as use of debt comes with quite a few expenses inclusive of

interest expense, bankruptcy dangers etc. In this period of globalization and the maximum aggressive commercial enterprise world, financing choices play a massive position in maintaining profitability of the firms. A corporation can boost brief time period debt and longtime debt financing. Both fairness and debt are had to join up the funding desires of the firms. Short time period debt is associated with liquidity choice while long time debt is associated with long time investment in fixed property choices. Hence an ultimate blend of debt and capital is needed without lowering the profitability. The effect of financial leverage may be positive or negative relying on whether or not the corporation is running in a strong or a dynamic commercial enterprise surroundings or relying on whether or not the employer assumes extra or much less operational risk, because the forms of dangers have a tendency to offset every other.

A study in the field (Novy-Marx, (2011) established that using a singular degree of working leverage, recorded that running leverage predicts returns in the cross-segment, and that techniques shaped through sorting on working leverage earn good sized extra returns. Intra-enterprise variations in book-to-marketplace are pushed through variations in working leverage, giving upward thrust to anticipated go back variations.

This derive and take a look at implications of the working leverage speculation for the cross-segment of anticipated returns. Operating leverage additionally explains why the price premium is vulnerable and non-monotonic throughout industries, however sturdy and monotonic inside industries. the goal of this task is to examine the impact that operational leverage has at the profitability of agricultural food SMEs and on different threat elements that typically decide this profitability, together with size, monetary leverage, specificity and reputation.

With recognize to those variables, we've got most effective observed posted articles that examine the effect of operational leverage on the connection among monetary threat and the profitability of huge corporations indexed on monetary markets. Given the significance of this enterprise and the unique traits of small- and medium-sized corporations, we consider that understanding the impact of the value shape or running leverage is important to enhance the competitiveness of corporations and the European economy.

Operational threat relies upon at the sort of belongings utilized by the enterprise in its manufacturing process, which determines the running leverage or the connection among constant and variable prices of manufacturing. The findings received verify that running leverage or value shape is a determinant of the profitability of SMEs; its impact does now no longer act in isolation because it additionally determines the impact that different threat variables have on profitability. However, if all corporations belong to the identical area and percentage the identical threat traits of the area, running leverage could be a great indicator of operational threat. In addition, through directing the examine toward an unimaginable interest area this is key with inside the European economy, the distortion that the enterprise impact can produce is removed and critical implications and outcomes are received for enterprise managers to enhance competitiveness in this type of substantial area. This all suggests that the impact of running leverage at the threat of the enterprise is determinant inside an enterprise, whilst no clean dating is observed while analyzing it among industries. Therefore, if corporations from exceptional industries are analyzed, running leverage couldn't be used because the most effective variable indicating operational threat.

Novy-Marx (2011) has studied and described the various factors regarding the operating leverage and it is described that an enterprise can pick out exceptional manufacturing strategies, in order that if the selected method way better constant prices and decrease variable prices, the margin in step with unit bought could be better whilst the break-even factor or minimal income degree to cowl constant prices and generate wonderful returns could be better. We consider that the primary contribution of this task is the examine of the connection of the primary threat elements to the go back as a characteristic of the asset shape, when you consider that that is an problem that without delay impacts the competitiveness of corporations and to which scant attraction has been paid withinside the literature.

These authors finish that huge corporations generally tend to offset more running leverage with much less monetary leverage to enhance profitability. Therefore, the inclusion of excessive percentage of debt makes funding much less appealing for shareholders, which compel managers to underinvest and forget about a few treasured tremendous internet gift value (NPV) projects. Additionally, any other

factor which bolster underinvestment speculation is the "debt overhang" problem, and is the reason that if company is already debt saturated, lenders could be reluctant to finance the task due to the fact they could have positive reservations approximately the go back in their bills.

However, the inclusion of greater debt in this situation will depart fewer quantities of budget for the managers, as large chew of the profits must be paid again in shape of hobby bills and essential quantity. Proponents of underinvestment concept states that growth quantity of debt in capital shape ends in underinvestment practices via way of means of managers. However, numerous researchers like Myers (1979), Jensen (1987), Stulz (1991) Lang et al (1997) challenged this proposition and argued that during imperfect marketplace situations and presence of uneven information, leverage can be associated with funding selection. Modigliani and Miller (MM)(1958) of their irrelevance concept proposed that during a global of ideal capital markets, no transaction expenses and no taxes, funding selection is inappropriate to using leverage.

It could be very critical for each character of the business enterprise that to present unique attention in the direction of the quantity of economic leverage and their effect at the company profitability. Such organizations are unfastened from the charge of any constant quantity of costs this means that that no economic leverage is related to that business enterprise. Financial leverage of the business enterprise is measured with the aid of using the ratio of overall money owed to overall property.

Financial leverage ratio tells that how a whole lot cash the business enterprise has borrowed for financing their capital structure. If the go back on property of the company is more than earlier than tax interest price, then the economic leverage may be positive. If the company go back on asset is much less than earlier than tax hobby price then the economic leverage may be negative (Lang, 1997). If the business enterprise borrows extra money than the business enterprise has to pay extra quantity of cost or charge of money owed that's referred to as cost price.

The apparel enterprise is exertions intensive, and it gives entry-level occupations for unskilled people in each evolved and growing countries. The apparel enterprise is likewise one which, in general, and given present-day tiers of innovation,

may be installed even in rising countries at fairly low funding costs. Using information from economic statements and accomplishing economic ratio evaluation, agencies locate their strengths and weaknesses and paintings on decision-making and operations accordingly (Makori & Jaagongo, 2012).

Kiwin et al (2013) opined that budgetary structure is the blend of all things that show up on the right hand side of the company's adjust sheet. Capital structure is the blend of the long-term sources of funds utilized by the firm (V Horne, 2003). In this manner, budgetary structure is the whole of current liabilities and capital structure. The resources claimed by the firm influence the development profile of financial plans.

A firm intensely committed to genuine capital speculation, spoken to fundamentally by settled assets on its adjust sheet, ought to back those resources with changeless (long-term) sorts of capital. Permanent parcel of the firm's speculation in current resources ought to moreover be financed with permanent capital. The firm's fetched of value rises when the firm increments its utilize of financial leverage since the money related hazard of the value increments whereas the trade chance remains the same .The full efficient chance of the firm's value has two parts: business risk and monetary.

According to Thobas (2012), the fulfillment of an enterprise is decided with the aid of using the way capital is mobilized and utilized. The capital shape is described because the ratio of long-term debt to equity, each of that are utilized by an enterprise to pay for its assets (Swanson et al., 2003). This share may also extrude throughout companies and/or time relying at the enterprise culture, management method, or the enterprise wherein the enterprise operates. In principle, there may be no theoretically most suitable stage for the share of debt and equity (Modigliani and Miller, 1958). Modigliani and Miller (1958) may be commonly taken into consideration because the pioneers in concluding and modeling the connection among capital shape and corporation overall performance with the aid of using presenting capital shape beside the point theory. More recently, Shyam Sunder and Myers (1999) proposed ,pecking order theory wherein they counseled that in phrases of elevating capital, businesses must first use inner accruals, observed with the aid of using debt, and then equity.

A research of Kajanathan and Nimalthasan (2013) argued that the effects of capital shape on enterprise overall performance and increase have to be concluded primarily based totally on specific traits of the companies, industries, or the entire macro-economic system of countries. It can be visible that the connection among capital shape and corporation overall performance has been argued extensively within side the current years with regards to economic control issues (Kajanathan and Nimalthasan, 2013).

From those factors of view, this studies ambitions to have a look at the effects of capital shape (represented with the aid of using the economic leverage) on corporation overall performance of Vietnamese indexed companies on HSX. The affects might be moderated primarily based totally on commercial traits to bring the maximum particular advice for Vietnamese indexed companies.

The most concepts in this ponder are use, liquidity administration and benefit. Use is the extent of fixed intrigued capital within the financial structure of organizations whereas liquidity measures the nexus between current resources and current liabilities. Benefit is the capacity of organizations' administration to utilize assets effectively in arranges to produce adequate revenue. For the reason of this consider, use is measured by means of three builds – Degree of Operating Leverage (DOL), Degree of Monetary Use (DFL) and Degree of Combined Use (DCL) while liquidity is measured by means of two develops – Current Proportion (CR) and Speedy Proportion (QR). Profitability is measured by means of the firms' Profit per Share (EPS). According to Bogen (2002), he said that fund is the life wire of any firm without which there can be no survival. Financing is the procurement of cash or other resources through implies such as deal - 15 - of stock, holding net benefit and expanding a dept.

In the European Union, the arena is ruled through small- and medium-sized organizations and represented through clusters in diverse locales which can be especially established in this supply of the economic enterprise. Employment advent within side the department has been mainly vital for ladies in growing countries, who till currently had no work possibilities aside from the ones supplied through own circle of relatives' individuals or, alternatively, they sought positions within side the informal region.

Not at all like bigger and freely held companies, have little firms had no opportunity to turn to the bond market since of tall fetched of enlisting and issuing securities. Concurring to this stream of literature (Faulker et al., 2007), smaller firms, indeed in the event that paying less profits, do drop back intensely on bank obligations for two reasons.

Firstly, they contribute more than bigger firms and furthermore bigger firms have more get to value funding than littler firms. In any case, the proposition around the negative relationship between measure and use is combated by other analysts that back a positive relationship. Besides, little businesses are frequently youthful and need the fundamental track record in terms of benefit records to qualify them for debt fund. Another contention proposes that a negative relationship between use and firm size is related to straightforwardness and divulgence. This study inquire about comes about appeared that youthful and new firms are critical.

Currently competitive trade environment, there's a race is an each angle of firm exercises, the specters is indeed in liquidity term or in execution term both cling a wings towards survival of firms in Sustainability Commerce Society and in Emerging Economies Vol. 2, No 1, issue 2021, 36the volume, as concern use too plays an critical parts in today competitive universes, there's a wide setting composing on corporate fund, which broadly accepted, use and maturity arrangement are basic perspectives particularly in term of addressing manager and shareholder strife which we called an office issue in nowadays septic corporations.

However, Mill operator and Modigliani, (1958) proposes that in a pretentious Market, the esteem of firms isn't as it were pertinent to capital structure. Besides, there's a reality of advertise blemishes (as a rule when there's deviated data, charges, and struggle of intrigued) and these non-obtrusive formulate CS preference pertinent to the issue or problem.

This examines used economic ratio evaluation to discover the important thing areas to enhance the profitability of the fabric enterprise of Pakistan. As a consequence, it's far visible because the first step at the ladder to industrialization in growing countries, a number of that have encountered in an excessive yield improvement fee within side the region of south Asia. The decision-makers of corporations on this marketplace region are commonly located in evolved countries and regularly

in limited geological areas or corporations within side the same.

Every corporation desires budget to assist and/or to growth their income. There are foremost sorts of reasserts of finance which might be reachable to companies; those are debt and equity. The combination of those reasserts is known as capital shape. Financial managers are greater involved with the extent of debt and equity to apply for his or her operations. Managers are eager to have an ultimate degree of debt and equity to maximize the cost of their company, limit the value of capital (debt and equity) and maximize corporations' overall performance and profitability. More specifically, a combination of company's debt (long-time period debt and precise short-term debt) and equity (not unusual place and desired stocks), typically known as the company capital shape, determines the manner how company budget its standard operations and growth through the usage of specific reasserts of investment. Debt comes within side the shape of bond problems or long-time period notes payable, even as equity is classed as not unusual place inventory, desired inventory or retained profits. Short-time period debt which includes operating capital necessities is likewise taken into consideration to be a part of the capital shape.

As might be defined in detail (in an incoming phase on literature review), the Modigliani and Miller's concept of irrelevance helped emerged some of theories concerning diverse bases of capital shape. These theories, which predominantly include Pecking order concept, Static trade-off concept, Agency concept and Signaling concept, gift differing perspectives concerning ultimate blend of diverse additives of debt and equity 3 in numerous situations. However, the combination-ture of debt and equity is typically represented through anticipated leverage L, in which L is anticipated as a ratio of debt to overall assets (TA): L = D / TA; or as a ratio of debt to equity (E): L = D / E; for this study, we're adopting the second one degree of economic leverage, that is: L = D / E. Financial leverage, company overall performance and applicable theories Interest on debt is a set value and is written off towards sales. Thus a loan might also additionally permit an corporation to generate greater profits without a corresponding growth in the equity capital. Increase in equity might require elevated dividend bills which can't be written off towards the profits.

However, even as excessive leverage can be useful furnished it will increase sales greater than it reasons discount of sales due to hobby price, it can additionally motive severe coins glide troubles in recessionary periods due to the fact there may not be sufficient income sales to cowl the hobby bills.

Whereas additionally, debt gives tax shield, its hobby-price will increase may additionally cross to a degree wherein it nullifies all internet sales and reasons pushing the company towards bankruptcy. This is what's protected more often than not below the Static trade-off concept of capital shape. Conversely, the Pecking order concept of capital shape advocates that the company overall performance or profitability needs that inner budget, which can be quite simply available, be given desire to be spent first, accompanied through debt as such budget are inexpensive relative to the elevating of clean equity; after which if budget are nonetheless needed, corporations must cross for new equity as a ultimate resort.

Firm profitability, in step with Agency concept, additionally relies upon whilst agency charges are at their lowest. Agency charges are stated the ones charges which arise whilst Agents (managers) vary from their Principals (shareholders) in comparing investment new projects. Shareholders and bosses even in a different way view the managers' going for elevating equity as opposed to their choosing debt; managers' going for elevating equity is conceived as terrible signal concerning company' economic function as opposed to their movements for elevating debt that's signaled as fine signal of company economic status (Signaling concept). Hence, Signaling concept of capital shape can be used to elevate the cost of company's stocks.

Debt to equity ratio relates the quantity of a company's debt financing to the quantity of equity financing. It is the quantitative degree of the share of the entire debt to residual owners' equity (wade, 2005). Thus, it's miles a hallmark of the agency's monetary shape and whether the agency is extra reliant on borrowing (debt) or on shareholders' capital (equity) to fund property and operational activities. Many empirical researches in distinctive jurisdictions have hired this degree of monetary shape of their numerous researches.

Return on Assets (ROA) is a degree of company overall performance that exhibits to the customers of monetary statements how nicely an agency makes use of its

property to generate income. A better ROA denotes a better stage of company overall performance. A growing ROA, for instance, can also additionally to start with seem good, however turn out be unimpressive if as compared with different corporations within side the equal line of business or with the enterprise average. Hence, if a agency's ROA is beneath the enterprise average, the agency is not making use of its property optimally. Macsimovic (2004) posited that this degree become used of their examine as it become the most effective variable that may be calculated across countries. They finish that USA comparisons of profitability are consequently difficult. The ROA ratio can also additionally therefore be extra beneficial whilst as compared to the threat unfastened price of go back to be rewarded for the extra threat involved. If a company's ROA is identical or maybe much less than the threat unfastened price, traders could be detached and higher off simply buying a bond with a assured yield.

Return on equity is every other degree of company overall performance that indicates how nicely an agency has used the capital from its shareholders to generate profits. Investor's use ROE as a degree of how nicely an agency has used their budget to generate go back. Evidently, several empirical research have hired this degree in a quest to have a look at the anticipated courting among monetary shape and company overall performance (Zeta and hung, 2020).Based on the above defined concepts, this examine used Return on Assets and Return on Equity as overall performance measures.

Another research (fana and mobu ,2018) is constructed upon the trade-off theory and relevance theory to set up the effect of economic leverage at the economic overall performance of indexed petroleum companies within side the Nigerian Capital Market. The relevance of those theories to the examine is mentioned below: The trade-off idea, argues for the lifestyles of an top-quality capital shape, through incorporating diverse imperfections to capital markets unnoticed through the Modigliani and Miller (1958) hypotheses, however maintaining the assumptions of marketplace performance and symmetric information.

Thus, although growing economic leverage may allow a corporation to boom its price through making the most of tax shields on debt Modigliani and Miller, (1963), better economic leverage may result in better predicted direct and oblique

economic misery prices, which lower the corporation's price. According to the trade-off idea, the finest financing blend coincides with the extent of economic leverage at which the advantages and prices of debt financing are precisely balanced. The trade-off idea of leverage assumes that there are advantages to leverage inside capital shape used till a top-quality capital shape is attained. The idea acknowledges that (tax benefit) debt hobby is tax deductible. This reduces the tax legal responsibility hence, growing tax shield. An excessive share of debt in a company makes it very unstable for buyers to spend money on it. This makes buyers call for an excessive top class on inventory or excessive dividend. The idea assumes that a corporation has a finest capital shape primarily based totally on trade-off among prices and advantages of the usage of debt.

This idea does now no longer give an explanation for the conservative nature of companies while the usage of debt finance, why leverage is steady in maximum nations but they have divergent taxation systems (Ramadu & Efosy, 2013). Firm's top-quality debt ratio is decided through a trade-off among the financial disaster fee and tax gain of borrowing and it is completed on the factor while the marginal gift price of the tax on extra debt is identical to the boom within side the gift price of economic misery prices (Penday, 2015) The second idea is the relevance idea which give an explanation for that economic leverage have a positive effect at the price of a corporation. This idea relates strategies to the capital shape and therefore, price of a corporation. They include: Net Income (N.I) and Traditional strategies. The Net Income technique is of the opinion that leverage impacts the general fee of capital, therefore the price of the corporation varies with leverage (loan to equity).

According to this technique, a boom in debt divided by equity ratio will result in a lower within side the basic fee of capital, thereby main to a surge in the price of the corporation. If we take bird eye of this view, in a manner that the corporation has to maintain to incorporate debt in its capital shape, till there may be no extra equity within side the capital shape. Technique was constructed on the two main considerations or assumptions 1, The use of debt does now no longer extrude the hazard belief of buyers, as a result, the equity capitalization charge, Ke or cost of equity and the debt capitalization charge Kd means cost of debt, remain

consistent with the adjustments in leverage; and secondly the debt capitalization charge is much less than the equity capitalization charge for example the cost of debt technique.

Debt offers corporations extra economic agility in taking over funding possibilities because, in general, debt may be raised extra speedy than both fairness finance or the buildup of income as Debt may allow corporations to growth their after tax income with the aid of using exploiting to be had tax shields (Harry and Khdiaja, 2015). However, the company's preference of an greatest capital shape, stays one of the big unresolved troubles within side the economic economics literature (Myers, 2001). The trade-off model, which argues that corporations pick out the greatest stage of debt with the aid of using buying and selling off the advantages of debt in opposition to its prices and the concept gives that there's an greatest stage of debt that is attained while the marginal advantage equals the marginal price of a further unit of debt (Anatol and Bunim, 2014).

Pecking order concept with the aid of using Myers (2001) predicts that agencies ought to use inventory issuances to cowl financing deficits handiest as a final resort, after cheaper, much less data touchy alternatives (like inner cash, financial institution debt, or public debt) had been exhausted. Firm increase, capital intensity, commercial intensity, age of company, commercial enterprise cycle traits amongst others had been recommended as elements able to figuring out profitability and with the aid of using extension, stage of economic leverage.

Another study for the research literature, Robb and thomson (2005) came to know that profits from economic leverage are pretty considerable in terms of economic overall performance and using debt complements the company marketplace fee. Zenoah and Botha (2014) states that in start-up and adulthood stages, a company's get right of entry to to debt markets is extensively encouraged with the aid of using investments in property which are proper to outside lenders as collateral.

The researchers mentioned that a few of the maximum dominant company financing demanding situations in maximum growing economy It said that the corresponding sector of 2013, nominal GDP become envisioned N18,295, 631.ninety one or N14,535,420.ninety five million in actual phrases and as a result, the increase price of actual GDP become recorded at 6.21% in Q1 2014, better than

four. 45% recorded withinside the corresponding sector of 2013, however decrease than 6.77% recorded within side the fourth sector of 2013.

In addition, it recorded that during Q1 2014, oil GDP become worth N2, 612,066.21 million in nominal phrases, in comparison to N2,756,313.26 recorded withinside the corresponding sector of 2013 and Real increase within side the Oil region become recorded at -6.60% in Q1 2014, indicating higher overall performance in comparison to -11.40% increase recorded within side the corresponding 2013 sector and the -9.36% increase recorded within side the fourth sector of 2013.

The oil region additionally grew with the aid of using 1.18 in step with cent within side the fourth sector of 2014, 10.fifty four percentage better than the decline of 9.36 in step with cent recorded within side the fourth sector of 2013 (NBS, 2014).

According to the Strategic arrange for Agricultural and Rural Statistics 2015-2022 ,Agricultural companies are important since agriculture is one in every of the most important contributors to the economy. it's one of the most sectors within the country, contributive to concerning twentyfive per cent of the country's total value and a supply of resource for the agricultural population. The agricultural sector is additionally important as a result of it's a significant source of employment accounting for quite eight per cent. It also contributes extremely to the country's export market. Development of the financial system is so deeply related to the development and improvement in agriculture.

Although the farming corporations are a key contributor to economic process and development, their growth is proscribed or curtailed because of lack of accessibility of enough funding required for them to control from the loaning establishments (Global monetary Development Report, 2014). The unpredictable changes in atmospheric condition are a major issue contributive to poor yields so poor performance of the agricultural companies (Duke, 2017). However, with limited and non-sustainable financial capital the agricultural firms won't notice their full growth potential. Firms want capital to finance their operations and may try this mistreatment internal funds, debt or equity. Accessibility to capital funding is very important for the agriculture sector to thrive in world.

Over the years, the problems of economic capital structure of agricultural companies became important to the arena since folks are currently shifting from the

normal farming strategies to a lot of trendy farming methods that are motor-assisted by new technology and mechanization. a pair of This has light-emitting diode to farming being adopted more as a billboard business worn out giant scale than as a hobby worn out little scale so the requirement for external funding. in line with the International Finance Corporation(2013), within the assemblage countries wherever agriculture is that the mainstay for many rural families, availableness of capital funding through investments in the agricultural sector is lacking and wanting. Financiers are sceptical in loaning and investment in the agricultural sector due to the high risks involved. this can be due to the unpredictable and uncontrollable nature of the surroundings they operate within which principally depends on nature adore dry spells, floods, attack by pests and diseases, availability of market.

Although the national governments are attempting to produce awareness associate degreed enlighten folks to encourage them venture into this sector by providing incentives and subsidies, they need not been terribly successful. This has principally been contributed to the shortage of funding needed to boost on the production, processing, transportation, storage and promoting of the products. It's vital to own an best capital structure since successively this influences the come back on assets of the agricultural firms. Taking loan from monetary establishments and individual investors is that the main supply of debt financing.

A high debt, debt equity and long run debt level exposes the firm to the danger of defaulting within the event that it's ineffective to satisfy the reimbursement obligation. There are numerous studies conducted on the impact of debt funding on monetary performance of companies and therefore the results have been conflicting and inconclusive (Duke, 2015). A study conducted by Cechscity (2012) on the important impact of debt on firms showed that prime levels of borrowing may lead to slow growth of the firm whereas average levels of borrowing spurs the growth. Over reliance on borrowing may lead to liability and financial condition of an organization.

Barcay, Smeth, and Wetts (1999) locate that leverage is excessive for regulated corporations and corporations in low-tech industries, and is low in excessive-tech industries. Jonson and Mockling (1977) country that industries wherein

possibilities for asset distribution are greater limited, could have better stages of debt. Therefore regulated public entities, banks, and corporations in mature industries with few boom possibilities might be greater particularly levered. They additionally preserve that corporations for which gradual or maybe negative boom is best and which have huge coins inflows from operations must have greater debt.

Raimaen (2007) agree and display that firm's with excessive boom possibilities have greater long time debt of their capital structure. However Jonson (1987) posit that corporations with an abundance of top investment possibilities may be predicted to have low debt stages relative to corporations in mature, gradual-boom, coins-wealthy industries. Powall's (1997) studies on how an awful lot does enterprise matter, concludes that enterprise club explains among seventeen to 21s percentage of the economic overall performance variance among corporations. This helps his argument that industries compete for capital and different sources and that below sure conditions, corporations in a few industries may want to have a sustainable, albeit shared, advantage.

Atar, et al (2014) examines the connection among economic leverage and economic overall performance, proof from gas and strength area of Pakistan. The end result suggests that there may be a well-known belief that a courting exists among the economic leverage and the overall performance of the agencies' i.e. maximum of the economic overall performance signs have high-quality courting amongst leverage and the economic overall performance when examine with debt to fairness ratio whilst the gearing ratio shows bad relationships with the leverage signs. The gearing ratio additionally takes under consideration the impact of capital with go back numerator which now no longer only contains the debt however additionally the great stocks of desired stock. The end result provides that gearing ratio may vary from that of debt to fairness ratio whilst debt fairness ratio takes under consideration the long time debt.

Rahim (2011) research the connection among economic leverage and economic overall performance in indexed sugar agencies of Pakistan. The effects suggests high-quality courting of debt fairness ratio with go back on asset and income growth, and bad courting of debt fairness ratio with incomes in step with share, internet income margin and go back on fairness.

This bad courting among debt fairness ratio and income in step with share (E.P.S) aid the truth that as debt increases, the interest charges or fee will even rises, so E.P.S will decrease. Akinotu (2013) examines the impact of economic leverage on decided on signs of company overall performance in the sectors. This suggests that economic leverage appreciably impacts company overall performance in non financial sectors. Riyan (2013) investigates the affect of economic leverage on shareholders go back and marketplace capitalization, proof of telecommunication area agencies in the world. It was discovered that the character of courting and the country of affect of the economic leverage on shareholder's go back and marketplace capitalization personally shows high-quality courting among economic leverage and shareholder go back however bad courting among economic leverage and marketplace capitalization. Utah and Bsursa (2012) recommend that economic leverage and coins go with the drift effect the ranges to which companies manage their income.

They retain that it relies upon on financial institution or enterprise a corporation belongs to their diploma and quantity of controlled income varies. Obadovich (2013) shows that large board length negatively affects the price of American or US companies and CEO duality, audit committee, economic leverage, corporation length, go back on belongings and insider holdings definitely effect the price of American companies. Panday (2012) says that the variance and covariance and consequently beta depend upon 3 essential elements such as; the character of business, the running leverage and economic leverage. Nesrullah et al (2014) research impact of economic leverage and funding diversification on income- growing incomes control.

The effects display that economic leverage coefficient is significant at degree of 95% of confidence, consequently, it is able to be concluded that economic leverage has a power on income-growing income control. Entol and Scocheong (2008) look at the impact of economic leverage on profitability and threat of Restaurant companies.

They locate that economic leverage does now no longer affect the restaurant companies' profitability.

It is noteworthy that the signal of economic leverage is high-quality which means that greater leveraged companies had greater earnings on common although it

becomes now no longer statistically significant. Nazia and Saira (2014) research economic leverage and organization cost, an empirical proof of Pakistan. The observation showed that discovered out that well-known and admin rate into to income ratio is negatively associated with all 4 leverage ratio. Tavani (2012) investigates effect of operating capital control coverage and economic leverage on economic overall performance. The observation suggests that the sector in the study is affected by the leverage so performance has the negative impact relating to that.

Askarian (2014) examines the research impact of monetary leverage and surroundings hazard on overall performance corporations of indexed corporations in Tehran inventory exchange. The end result suggests that there may be a bad relation among monetary leverage and coins glide in line with percentage and among variables marketplace hazard and financial hazard with unfastened coins glide in line with percentage superb big.

It additionally suggests that monetary leverage, marketplace hazard and financial hazard with go back of fairness have superb big relation or effect. Gibson, et al (2002) of their examine of European countries, located a big bad dating among the monetary leverage and go back on assets and income margin. Deshomask (2006) in Malaysia additionally located a bad effect among monetary leverage and internet income margin. Hauong and Soung (2005) research on Chinese corporations located a bad dating among long-time period debt and go back on assets, in addition to among all of the legal responsibility and go back of assets.

Bergor and Banecoersi (2007) proof that neither excessive stage of monetary leverage nor small capital of the company, are companion with better performance of company's overall performance. Rao et al. (2009) additionally verify the bad effect among leverage and overall performance end results. Jolinak (2008) examines the impact of monetary leverage and unfastened coins glide and organization boom on income management.

The consequences suggest that organization experiencing an growth in monetary leverage for the duration of a 5(five) year duration regularly as compared to the ones which had excessive leverage diploma withinside the identical duration has carried out much less income management. Aclock, et al (2014) examines the

position of monetary leverage within side the overall performance of personal fairness actual total budget. The consequences suggests that budget overall are not able to supply big superb out overall performance on the premise of managerial talent this is unrelated to the publicity to the variant within side the underlying marketplace go back.

It additionally famous that the effect of transaction costs, fees and different marketplace frictions which can be mainly regular within side the direct actual property funding industry, given the distinctly low stage of liquidity of the underlying assets. It in addition suggests that extra fund go back were about proportional to the extra marketplace go back, implying that those fund gives their traders effective publicity to the overall performance of the underlying assets markets.

2.2 Hypothesis

Effect of independent variables on dependent variable

H1. Financial Leverage has positive effect on FP linearly

H2. Financial Leverage has positive and negative effect on FP

Effect of control variables on dependent variable H3. Firm Size has positive effect on FP.

H4. Revenue growth has positive effect on FP

H5. Education of directors' positive effect on FP

H6. Inflation has negative effect on FP

H7. GDP growth positive effect on FP

Chapter 3

Research Methodology

3.1 Population and Sample Size

Secondary data is collected from the financial statements of which include 9 cement industry firms out of 25 listed cement firms on Pakistan stock exchange. It represents 36% of the total cement firms listed on stock exchange, 10 food and personal care products industry firms out of 21 total listed firms in this industry which represents 47.6% of the total food and personal care products and 9 automobile assemblers out of 15 which represent 51 % industries firm of total population. These firms are chosen because these represent the firms that were chosen randomly of the related industry, data is taken from the Pakistan stock exchanges official website and some other stock related websites. Total firms selected are 28, and from 2005 to 2020 there is 16 years' data which makes 16 observations per company per independent or dependent variable factors, so total observations are 2,272. Data that was taken was panel data.

3.2 The Model

Models are given below

Model 1 (with respect to ROA as financial performance)

$$FP(ROA)_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 LEV_{it}^2 + \beta_3 FIRM_{it} + \beta_4 REVGR_{it}$$
$$+\beta_5 EDUDIR_{it} + \beta_6 INF + \beta_7 GDPG_{it} + \varepsilon_{it} \tag{3.1}$$

Model 2 (with respect to Tobin's Q as financial performance)

$$FP_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 LEV_{it} + \beta_3 FIRM_{it} + \beta_4 REVGR_{it}$$
$$+ \beta_5 EDUDIR_{it} + \beta_6 INF + \beta_7 GDPG_{it} + \varepsilon_{it}$$

(3.2)

Where

$LEV_{I,t}$ = fDEBT to Equity ratio for firm I in year t.

LEV_{it}^2 = DEBT to Equity ratio square for firm I in year t.

$FIRMI_{it}$ = Size of the firm I in year t.

$REVGRI_{it}$ = Revenue growth for firm I in year t.

$EDUDIR_{it}$ = Education of the directors in firm I in year t.

INF_{it} = INFLATION in the country of firm I in year t.

ε_{it} = error term

3.3 Construction of the Variable

3.3.1 Dependent Variable

Financial performance has been measured by two variables. The one is market-based variable i.e., Tobins Q (TOQ) and other variable is accounting base measure i.e., ROA. TOQ is the market-based variable to measurement of the financial performance for the corporations. It is derived by total fair value of the firm divide it by the total worth of the assets. This is explanatory or dependent variable

$$TobinsQ = Market\ capitalization/net\ book\ value\ of\ assets$$

$$Marketcapitalization = NO\ of\ avg\ shares\ outstanding\ in\ the\ year \times market$$
$$value\ of\ share$$

ROA, the return of the assets which is accounting based measure and it is derived by the profit before interest and taxes (P.B.I.T) divided by the capital employed (capital plus non-current liabilities).

$$Profitability(ROA) = \frac{NetIncome}{T.Assets}$$

ROA is used explanatory variable in this research which was calculated as the ratio of net of revenue after tax divide it by total assets. This is explanatory variable.

These two different variables are selected because T.O.Q represent fair value based operational performance and Return over assets represent accounting policies based financial operational ratio results. Hence comparison of both can give us pure analysis that will not be affected by different accounting policies or provisions.

3.3.2 Independent Variable

Financial leverage (FL) is the measure of the firm's indebtedness, total debt divided by equity of the firm, it is independent variable.

$$FL = Total\ debt/equity$$

In the research the effect of financial leverage has been measured by linearly along with non-linearly. The nonlinear relationship has been derived by square of financial leverage. Second financial leverage is the measure of the firm's indebtedness, total debt divided by asset of the firm, it is independent variable.In research measured the impact of the independent variable on the two different measures separately.

Leverage is the independent factor it is measured with two different variables one is the debt over equity and other is debt divided by total assets. So leverage is taken for two variables to see equity and total asset both having impact on financial performance. Beta is the coefficient that describes the relation of the variables in regression equation.

3.3.3 Control Variables (Firm Specific)

Firm Size

Firm size is taken as a control variable with some other control variables. It is measured as a natural log of the sale. It is used in previous studies and researches firm size gives economies of the scale through which company can exploit resources best in their way. It is measured in variety of ways like goods or services produced or capital invested, value of product etc. It is an inner characteristic of the organization Firm size gives the company economies of scale through which it can achieve the higher production and hence low cost per product as compared to competitor hence good performance if firm size is too small or too large then firm performance will be low.

Revenue Growth

Revenue growth is also a control variable it is the efficient operations that an organization runs. Formula used for it is:

$$\textbf{RevenueGrowth} = (\textbf{Presentrevenue}/\textbf{Pastrevenue})^{\textbf{1/n}} - \textbf{1}$$

If an organizations operation is good and it is in the growing phase of its lifecycle than growth will be evident but if there is decline stage of a product or saturation than revenue will not grow hence organization will not show good performance.

Education of Directors

Education of directors these are also a strength factor for organization, educated directors have more ability to run organizations better and to take off from difficult situation better. Education of the directors is basically taken as a percentage of the graduates in the total board of directors, it is also used in the previous researches, education gives new ways and to resolve previous difficult situations for the firm so it is taken as the control variable. The method used for education of dir is under.

Board of Directors Education: Percentage of directors having graduation

3.3.4 Control Variables (Macro-Economic)

In this research inflation and GDP are chosen as macro-economic variables.

Inflation

In research nominal inflation data has been taken for sixteen years as control variable.

GDP Growth

In research Pakistan real GDP data has been taken for sixteen years as control variable. Inflation and GDP growth are the macro economic factors that present the external environment, market condition, booms and bust in the economy and these all factors are the basic elements that describe the platform on which conducting the business.

3.4 Estimation Technique

3.4.1 Models for Estimation of Panel Data

For panel data there are three types of tests pooled model, random effect model and fixed effect model. Hauseman test determine that which type of estimation model data will be used.

i **Pooled Ordinary least square model**

Pooled regression model is that model that has constant coefficients, with respect to both intercepts and slopes. Researchers using this method can pool all of the data and run an ordinary least squares regression model.

ii **Fixed effects model**

Fixed effects model is a statistical model in which the model parameters are fixed or non-random quantities. This category means that data group could be modeled as fixed or random effects for each data groups.

iii **Random effects model** It is a kind of linear model, which suppose that the data being analyzed is drawn from series of different populations whose differences relate to that series. In econometrics, random effects models are used in panel analysis of hierarchical or panel data when one assumes no fixed effects (it allows for individual effects).

3.4.2   Diagnostic Test

Diagnostic tests are performed to check the reliability of the data whether it is BLUE or not. BLUE stands for Best, Linear, Unbiased estimators, which means that reliable data is that which satisfy all the assumptions of the regression, otherwise without assumptions results of regression did not remain valid or reliable.

Some of the tests are given below,

i **Hetroskedsticity**

It is OLS regression assumption that residuals of the regression of data will have the same pattern without wide variations. Residuals will be homoskesdastic than regression will be valid , there are many test for this Breusch–Pagan test and white tests are more common.

ii **Multicollinearity**

Multicollinearity is the presences of high inter-correlations among two or more independent variables in a multiple regression model. It is measured by Pearson bi-variate correlation. Variance inflation factor in also is also its measure.

iii **Endogeneity**

If explanatory variable is related to the error term than it is called endogenity and it is measured by the Hausman Test

Chapter 4

Results and Discussion

4.1 Descriptive Statistics

The descriptive statistical analysis for all variables of this study about for the length of 2005 to 2020. The imply value represents the mean value of variables and standard deviation measure of the dispersion from the mean. The max value identifies the highest value and minimal suggests the lower value of data.

TABLE 4.1: Descriptive Statistics

	Mean	Std*	Median	Mode	Std Dev	Var*	Skew	Range	Min	Max
TOQ	1.465	0.101	0.752	0.01	2.022	4.088	2.788	14.187	0.016	14.203
ROA	1.279	0.039	1.215	1.036	0.786	0.618	0.461	4.346	0.001	4.347
Lev	2.034	0.139	1.141	2	2.781	7.732	4.052	21.965	0.007	21.972
Lev2	11.988	2.314	1.492	4	46.277	21.522	7.168	482.766	0	482.766
Rev g*	1.729	0.922	0.253	1	18.437	33.926	14.056	262.27	-0.983	261.287
BOD	8.881	0.536	1	1	10.726	115.048	0.622	25.216	0.45	25.666
FS	14.316	0.54	21.242	23.775	10.8	116.645	-0.539	25.615	-0.066	25.548
Infl	0.011	0.002	0.011	0.01	0.05	0.002	-12.424	0.967	-0.84	0.127
GDP	-0.006	0.002	-0.006	-0.05	0.041	0.002	0.211	0.115	-0.05	0.065

Where: Std= Std Error,Rev g* = Rev growth, Var* = Sample Var*

Discussion on the Descriptive Statistics

As designated in table 4.1, the mean value of return on assets for 448 observations was 0.117 with a Std.deviation of 0.30 approx and minimal and maximum values of .00074 and 4.35 correspondingly. The mean value for TOQ was 0.1417252 with a widespread deviation of 1.252934 and minimum and most values of 0.128 and 14.20 respectively for 448 observations. From the outcomes results proven in table

1, the mean value of financial leverage is 5.54016. This shows that, on average, those 3 industries of the non-financial area that organizations are listed in the PSEX have been incredibly geared.

The utmost proportions in their possessions have been funded via way of means of long time debt. The widespread deviation of 57.28252 denotes a wonderful variation in financial leverage as evidenced via way of means of the fact that the minimal found financial leverage was zero whilst the most changed into 4.34.

According to the information 2005-20, the outcomes in desk B in addition suggest that, overall debt to overall asset ratio had an average price of zero.3210174 with minimal and a most price of zero and 2.762423 respectively. This commentary shows that the organizations used much less modern liabilities to finance belongings build-ups. These outcomes recommend that non-economic organizations investigated accompanied a conservative financing running capital control coverage. The most, price of 2.76234, however, shows that there has been a agency that had followed an exceptionally competitive financing control coverage wherein the price of modern debt changed into nearly 3 instances the price of overall belongings.

The outcomes output proven in desk 1 suggest that the suggest price of company length changed into zero.497626 with minimal and most values of 13.30 and 25. sixty-six respectively. The suggest price shows shape length isn't always too massive nor to low however corporations length arrived via way of means of herbal log of sales suggests that organizations are medium in length. During the length protected via way of means of the take a look at from 2005 to 2020, the Pakistan 's inflation expanded on common via way of means of 4.580205 with minimal and most boom quotes of -.0697and .1269 respectively. GDP boom changed into .487808 for Pakistani financial system for the chosen length and min and max increase changed into 1.35 and 1. seventy-six respectively.

Education of director is continued and most and minimal schooling is min. forty-five and max 1 its suggest price of zero.685 shows that towards 1 method one hundred percentage board of administrators are graduates so .685 is near this so stage of schooling is .685 % same to graduate widespread. This evaluation of descriptive records offers us the perception approximately the validity of the information taken if there are healthful descriptive stats than take the information

for regression or in any other case rejects or amends the information via way of means of eliminating outliers and making dummy variables etc. So make it extra complex via way of means of concluding from those arguments that as indicated in desk B, the suggest price of go back on belongings for 448 observations changed into zero.1172809 with a widespread deviation of 0.2963635 and minimal and most values of .0075 and 4.34 respectively.

The positive return on assets shows that the organizations have been on average profitable despite the fact that a few organizations have been running at a loss as meditated with inside the minimal found price of go back on belongings. The mean value for TOQ changed into 0.1417252 with a standard deviation of 1.252934 and minimal and most values of zero.128 and 14.202167 respectively for 281 observations. The bad minimal price commentary for go back on equity means that a few organizations have been running at a loss. From the outcomes results proven in desk 1, the suggest price of economic leverage is 5.54016. This shows that, on common, those 3 industries of the non-economic area that organizations are indexed within side the PSEX have been relatively geared. The finest proportions in their sources have been financed via way of means of long time debt. The widespread deviation of 56.28252 indicates a wonderful version in economic leverage as evidenced via way of means of the truth that the minimal found economic leverage changed into zero whilst the most changed into 817. 3594.

According to the information 2005-20, the outcomes in desk B in addition suggest that, overall debt to overall asset ratio had an average price of zero.3210174 with minimal and a most price of zero and 2.762423 respectively. This commentary shows that the organizations used much less modern liabilities to finance belongings build-ups. These outcomes recommend that non-economic organizations investigated accompanied a conservative financing running capital control coverage. The most, price of 2.76234, however, shows that there has been a agency that had followed an exceptionally competitive financing control coverage wherein the price of modern debt changed into nearly 3 instances the price of overall belongings. The outcomes output proven in desk 1 suggest that the suggest price of company length changed into zero.497626 with minimal and most values of zero.0002 and 9.616521 respectively.

The suggest price shows shape length isn't always too massive nor to low however

corporations length arrived via way of means of herbal log of sales suggests that organizations are medium in length. During the length protected via way of means of the take a look at from 2005 to 2020, the Pakistan's inflation expanded on common via way of means of 4.580205 with minimal and most boom quotes of 1.528 and 6.99329 respectively. GDP boom changed into .487808 for Pakistani financial system for the chosen length and min and max boom changed into 1.35 and 1. seventy-six respectively. Education of director is continued and most and minimal schooling is min. forty-five and max 1 its suggest price of 0.685 shows that towards 1 method one hundred percentage board of administrators are graduates so .685 is near this so stage of schooling is .685 % same to graduate widespread. These evaluation of descriptive records offers us the perception approximately the validity of the information taken if there are healthy descriptive stats than take the information for regression or in any other case do now no longer receive. However alternatively we adjust the data by removing outliers and making dummy variables etc.

4.2 Correlation Analysis (Pearson Bivariate Correlation)

As above mentioned in Table 4.2, the correlation coefficients for all variables were less than 0.8 which imply that the study data 2005-2020 of the selected firms did not exhibit severe multi-collinearity as recommended by (Gujrati, 2003; Cooper & Schindler, 2008). Correlation or multi-correlaty is reduced by the different models of the regression.

4.3 Results of the Diagnostic Tests

Heteroskedasticity

Heteroskedasticity is the basic assumption of the OLS regression in which the

TABLE 4.2: Correlation Analysis Matrix

Variables	ROA	TOQ	FL Square	FL	Firm Size	Rev growth	Edu of dir	Infl	GDP gr
ROA	1								
TOQ	0.0141	1							
Flsquare	0.0119	0.4972	1						
FL	0.1190	0.0296	-0.0293	1					
Firmsize	0.0216	0.0025	-0.1348	0.0119	1				
Rev growt	0.0407	0.2047	-0.0364	0.0861	-0.0780	1			
eduofdir	0.0373	0.2013	-0.0398	0.0827	-0.0034	0.0042	1		
Infl	0.0328	0.1968	-0.0443	0.0782	-0.0079	0.0045	0.0068	1	
GDP	0.0054	0.0579	0.0542	-0.0931	0.0076	0.0019	0.0020	0017	1

data should not be hetro which means that the variance of the residuals is widely distributed hence it creates problem in the data for validity of the regression estimates, in hetro data it is said that results of these data will not be BLUE which means best, linear unbiased estimate.

Breusch–Pagan Test

It is a test to measure the hetroskedasticity in the data , residuals are distributed without the higher variance so that's why there is homoskedasticity in the data.

Running regression on the data assuming in the null hypothesis that data is homosekdastic and then performing tests on the residual terms.

CHISQ.Distribution of residual terms (Degree of freedom * LM) = p-value

Similalrly

F = (Rsquare/ df1) / (1-Rsquare)/df2

F Distribution. Residual term (F*Df1*Df2) = P-value

With the p-value of .52 and .53 it is clear that data is not hetro. As the alternative hypothesis is rejected so we accepted the null hypothesis.

Multicollinearity Test

TABLE 4.3: Results of Multicollinearity Test

Variable	inflation factor	Tolerance
Leverage Square	1.1900	0.7900
Firm size	1.1200	0.8400
Rev growth	1.1000	0.8500
edu of dir	1.0700	0.8700
Infl	1.0700	0.8800
GDP	1.0400	0.9000
Mean VIF	1.0833	

VIF for a regression model variable is equal to the ratio of the overall model variance to the variance of a model that includes only that single independent variable. Variance inflation factor, VIF is a measure of the amount of multicollinearity in a set of multiple regression variables. So there is no multicollinearity.

4.4   Result of Hausman Test

The random effects model is used if the individual specific components are assumed to be random with respect to the explanatory variables. The fixed effect model, on the other hand, assumes the individual specific components are independent with respect to the explanatory variables. The random effects model is used if the individual specific components are assumed to be random with respect to the explanatory variables. The fixed effect model, on the other hand, assumes the individual specific components are independent with respect to the explanatory variables. The fixed effect model, on the other hand, assumes the individual specific components are independent with respect to the explanatory variables. The random effects model is used if the individual specific components are assumed to be random with respect to the explanatory variables. According to Mills, Morling & Tease (1994) panel-data models are often tested using either the fixed effects model or the random effects model. The random effects model is used if the individual specific components are assumed to be random with respect to the explanatory variables. The fixed effect model, on the other hand, assumes the individual specific components are independent with respect to the explanatory variables.

Hausman (1978 developed a test for deciding between the two types of models. The test detects endo-geneity problems in a regression model. Having endogenous variables in a model will cause the ordinary least squares estimators (OLS) to fail, as this is an infringement of one of the assumptions of OLS. The test is set so that it looks for significant correlation between the error terms and the repressors in the model. The null hypothesis supposes there is no correlation between error terms and the explanatory variables. The random effects model is used if the individual specific components are assumed to be random with respect to the explanatory variables. The fixed effect model, on the other hand, assumes the individual specific components are independent with respect to the explanatory variables. According to Mills, Morling & Tease (1994) panel-data models are often tested using either the fixed effects model or the random effects model. Having endogenous variables in a model will cause the ordinary least squares estimators (OLS) to fail, as this is an infringement of one of the assumptions of OLS. Hence,

it proposes the following two hypotheses:

$H_0 =$Random effect model is the appropriate model.

$H_1 =$Fixed effect model is the appropriate model.

If the p-value of the test is found to be less than 5%, the null hypothesis is rejected in favor of the alternative hypothesis, and not otherwise. If the p-value is less than 5%, what this means is that there is not much difference between the mean effects of the two models, however, since the random effect model is more efficient of the two models. On the other hand, if reject the null hypothesis in favor the alternative hypothesis, this would mean that the difference between the mean effects of the two models is sufficiently large and now random effects model is not consistent more. Hence, switch to the alternative model. The Table A gives the result of the Hausman specification test.

TABLE 4.4: Results of Hausman Test

Summary of the test	Statistics	Degree of freedm	P value
Cross section F	22.631132	-1,342,099	0.0718

Results of the test indicate that Chi square value of cross section is 22.661186 having p-value of 0.0718, Since the p-value is not significant for the test, reject the null hypothesis and argue that the fixed effect model is suitable for the panel data under the study, according to (Ehsan & Ullah, 2013), the fixed effects model is more sutiable for the analysis in companies from different industries are taken." This is, actually the case in this study, therefore, this explains the result of the Hausmn test.

4.5 Results of the Regression Equation (Combined Cement, Food & Personal Care and Auto Industries)

4.5.1 Model 1

Effect of $(Lev), (Lev)^2$ and other control variables on the Financial performance (ROA)

TABLE 4.5: Results of Financial leverage on Firm Performance of all Industries

With ROA					With Tobins Q (TOQ)				
SUMMARY OUTPUT					SUMMARY OUTPUT				
Regression Statistics					*Regression Statistics*				
Multiple R	0.522				Multiple R	0.361			
R Square	0.272				R Square	0.13			
Adjusted R Square	0.259				Adjusted R Square	0.114			
Standard Error	0.677				Standard Error	1.903			
Observations	2272				Observations	2272			
	Df	*SS*	*MS*	*Signif F*		*Df*	*SS*	*MS*	*Signife F*
Regression	167	67.095	9.585	5.97E-24	Regression	167	211.987	30.284	1.55E-09
Residual	2020	179.4	0.458		Residual	2020	1419.163	3.62	
Total	2187	246.495			Total	2187	1631.15		
	Coefficients	*Std Error*	*t Stat*	*P-value*		*Coefficients*	*Std Error*	*t Stat*	*P-value*
Intercept	-1.816	0.447	-4.058	0	Intercept	-4.278	1.258	-3.399	0.001
Lev	-0.024	0.015	-1.636	0.103	Lev	0.065	0.041	2.567	0.118
Lev 2	-0.001	0.001	-1.094	0.275	Lev 2	0.004	0.002	2.597	0.111
Rev G	-0.001	0.002	-0.388	0.699	Rev G	0.008	0.005	-1.548	0.122
BOD	0.15	0.019	7.76	0	BOD	0.194	0.054	3.582	0
FS	0.126	0.019	6.577	0	FS	0.262	0.054	4.862	0
Infl	1.748	0.729	2.398	0.017	Infl	4.077	2.05	1.989	0.047
GDP	-0.993	1.376	-0.722	0.471	GDP	-5.706	3.869	-1.475	0.141

Note: At 5 % level of significance.

4.5.2 Model 2

Effect of $(Lev), (Lev)^2$ and other control variables on the market based Financial performance (TOQ)

4.5.3 Result of Model 1(ROA)

All the independent variables are positively related to the ROA which means that (Lev)2 is also positively related because it might be giving the benefit to the organization through better utilization of loan and getting tax benefits or etc., but inflation is negatively correlated which means that increase in inflation causes the financial performance to decrease, R Square is 21 percent which means that independent variables are describing the dependent variable by 21percent , F state is healthy more than 1 which means that it is rejecting the null hypothesis , t-statistic at 5 % significance level is also satisfactory as all values are above the point(2.064) required to reject the null hypothesis ,hence alternative hypothesis

for this model are accepted which indicate that all these independent variables have impact on the financial performance.

All the independent variables or factors are positively correlated, and T value, f-stat reject the null hypothesis, R square explains only about 7 % about the dependent variable, so total debt to total asset ratio has less describes the dependent variable as compared to (Lev)2 .our these result show the significance .

4.5.4 Results of Model 2(Tobin's Q)

Here all the independent factors are correlated R square is only 4 % explaining the dependent variable it means that the Pakistani market is not efficient and market is not reflecting the all factors to indicate its true performance, during the data preparation many companies were overvalued in the stock market and their capitalization was not reflecting their true assets, some companies were 66 times higher than the actual assets to which it is belonging.

All the factors except inflation were positively correlated but again R square is low which is almost 2 to 3 percent which means that Tobin 's Q is not efficient measure here because it is not explained well by all the control variables taken because of inefficient markets. Pakistani market is weak and inefficient from the perspectives of the market efficiency theory.

4.6 Results of the Regression Equation Industry Wise

Here we analyze the financial performance of each industry wise by regression with two models.

4.6.1 Model 1

Effect of (LEV), (Lev)2 and other control variables on the financial performance (TOQ)

4.6.2   Model 2

Effect of (LEV), (Lev)2 and other control variables on the Financial performance (ROA)

4.7   Cement Industry

4.7.1   With Tobins Q (TOQ)

R square is .19 which indicates that overall independent variable which is Leverage is describing the dependent variable TOQ 19 %,, F stat is slightly above 3.95 which indicates that model chosen for regression was fit for the purpose.T stat of the leverage is also above 2 which means that the results are significant and showing the positive relationship. Leverage is showing intercept or beta coefficient of .23 and t stat is above the threshold which is 2.47 it is showing that t stats is showing significant relation with the TOQ. Hence direction of the results is positive which means that results are positive and there is positive relationship with the leverage and TOQ. If there were results negative than we would say that direction of results is negative. Leverage square is also showing a positive relationship .015 although coefficient is less high but its t stat is showing a healthy picture . Revenue growth in the sector is negative in most of the years which shows that it has some difficulties so intercept is negative and it is showing negative relation in the sector t-stat is significant. BOD is the dummy variable its intercept is showing the value of .4 which is high value, similarly it is significant with respect to the t-stat and is within the threshold limit. Firm size is the indicator of the more good results on profitability here the intercept is good with the value of .05 and the stat is above 2 which is in the threshold. Inflation is macroeconomic factor and it is negatively related to the profitability and t-stat and other results are showing its negative direction. GDP growth is showing the negative results although its stats is significant.

4.7.2   With ROA

R square is .50 which means that independent variable leverage is describing the dependent variable which is ROA , F stat is 12 which is above 3.95 which means that the model of the equation is accurate and valid , t-stat is above the +2 and below -2 threshold limit which means that results are significant. With ROA results are also significant but the result are showing more strong relation as compared to TOQ. Similarly, under ROA results are better than the TOQ stats which is due to the accounting profit. Rev growth shows with respect to ROA it is showing little better profitability and results, all figures are significant and positive in direction. BOD figures are better with ROA model as this shows positive relationship as compared to with respect to TOQ. Firm size is the indicator of the more good results on profitability here the intercept is good with the value of .05 and the stat is above 2 which is in the threshold. Inflation is macroeconomic factor and it is negatively related to the profitability and t-stat and other results are showing its negative direction. GDP growth is showing the negative results although its stats is significant.

TABLE 4.6.1: Regression Results of leverage & leverage Sq and Other Control on TOQ and ROA

With Tobins Q (TOQ)				With ROA			
Regression Statistics				*Regression Statistics*			
Multiple R	0.437			Multiple R	0.708		
R Square	0.191			R Square	0.501		
Adjusted R Square	0.127			Adjusted R Square	0.461		
Standard Error	0.451			Standard Error	0.193		
Observations	96			Observations	96		
	df	*SS*	*MS*	*F*	*df*	*SS*	*MS*	*F*
Regression	7	4.22	0.603	3.969	Regression	7	3.297	0.471	12.615
Residual	88	17.869	0.203		Residual	88	3.286	0.037	
Total	95	22.089			Total	95	6.583		

	Coefficients	*Standard Error*	*t Stat*	*P-value*		*Coefficients*	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.53	1.314	-0.403	0.688	Intercept	0.921	0.563	1.636	0.106
Lev	0.233	0.094	2.478	0.015	Lev	-0.144	0.04	-1.57	0.001
Lev 2	0.015	0.011	1.36	0.177	Lev 2	0.014	0.005	2.832	0.006
Rev G	-0.15	0.164	-0.91	0.365	Rev G	0.12	0.07	2.696	0.093
BOD	0.449	0.357	1.257	0.212	BOD	1.054	0.153	2.879	0
FS	0.057	0.056	1.021	0.31	FS	-0.037	0.024	-2.548	0.125
infl	0.369	0.577	0.64	0.524	Infl	0.212	0.247	2.856	0.394
GDP	-1.979	4.072	-1.468	0.146	GDP	-5.718	1.746	-3.274	0.002

Note: *At 5 % level of significance.*

4.8 Food and Personal Care Industry

4.8.1 With Tobins Q (TOQ)

F stat is above 3.95 and it is 4.64 sp model is valid , t stat is significant for FL (-1.20) and Fl square (2.046) , similarly R square is .17 which means that it is describing the variable only 17 % . Leverage is showing intercept or beta coefficient of .23 and t stat is above the threshold which is 2.47 it is showing that t stats is showing significant relation with the TOQ. Hence direction of the results is positive which means that results are positive and there is positive relationship with the lev and TOQ. If there were results negative than we would say that direction of results is negative. Leverage square is also showing a positive relationship .015 although coefficient is less high but its t stat is showing a healthy picture . Revenue growth in the sector is negative in most of the years which shows that it has some difficulties so intercept is negative and it is showing negative relation in the sector t-stat is significant. BOD is the dummy variable its intercept is showing the value of .4 which is high value, similarly it is significant with respect to the t-stat and is within the threshold limit.

TABLE 4.6.2: Regression Results of leverage & leverage Sq and Other Control on TOQ and ROA

With Tobins Q (TOQ) SUMMARY OUTPUT with ToQ *Regression Statistics*					With ROA SUMMARY OUTPUT with ROA *Regression Statistics*				
Multiple R	0.413				Multiple R	0.818			
R Square	0.171				R Square	0.669			
Adjusted R Square	0.132				Adjusted R Square	0.643			
Standard Error	2.534				Standard Error	0.365			
Observations	160				Observations	96			
	df	*SS*	*MS*	*F*		*df*	*SS*	*MS*	*F*
Regression	7	200.583	28.655	4.464	Regression	7	23.712	3.387	25.439
Residual	152	975.66	6.419		Residual	88	11.718	0.133	
Total	159	1176.242			Total	95	35.429		
	Coefficients	*Standard Error*	*t Stat*	*P-value*		*Coefficients*	*Standard Error*	*t Stat*	*P-value*
Intercept	-8.576	6.253	-1.371	0.172	Intercept	1.465	0.948	1.546	0.126
FL	-0.274	0.227	-1.207	0.229	FL	-0.114	0.039	-1.9	0.005
FL2	0.025	0.012	2.047	0.042	FL2	0.005	0.002	2.217	0.029
Reve gr	0.005	0.007	0.681	0.497	Reve gr	-0.003	0.001	-1.102	0.003
bod	0.444	5.278	0.084	0.933	bod	-3.818	0.769	-196309	0
firm size	0.488	0.125	3.912	0	firm size	0.139	0.02	6.88	0
infl	1.93	14.938	0.129	0.897	infl	1.546	2.164	0.715	0.477
gdp	11.292	7.226	1.563	0.12	gdp	17.881	2.218	8.061	0

Note: At 5 % level of significance.

Firm size is the indicator of the more good results on profitability here the intercept is good with the value of .05 and the stat is above 2 which is in the threshold. Inflation is macroeconomic factor and it is negatively related to the profitability and t-stat and other results are showing its negative direction. GDP growth is

showing the negative results although its stats is significant.

4.8.2   With ROA

F stat is 25.43 which is good indicator of good model , R square is .669 which means that 66.9 % dependent variable was described by the independent variable .t-stats are significant for all variables fulfilling the threshold criteria of +2 above or -2 lower which means that ROA based results are more inclined toward the profitability as compared to TOQ.

4.9   Automobile Industry

4.9.1   With Tobins Q (TOQ)

t-stats are in the threshold of significance, F stat is also good all t-stat significant variables are negative only Firm size is positive which means that all other variables have negative relation in the automobile industry, if all factors increase than profitability decrease and vice versa square is .19 which means that 19 % ROA is described by the all independent variables.

4.9.2   With ROA

F stat is good which indicates the model chosen is fit for the purpose, t stat is significant as it is in the threshold , R square is .65 which is describing the all given independent variables are defining 65 % to ROA , firm size , inflation and GDP are the positive related independent variables which means that with increase of these factors profitability is increasing in the automobile sector with respect to ROA and it is decreasing with FL and FL square and BOD increase.

TABLE 4.6.3: Regression Results of leverage & leverage Sq and Other Control on TOQ and ROA

	With Tobin's Q (TOQ) SUMMARY OUTPUT					With ROA SUMMARY OUTPUT			
Regression Statistics						*Regression Statistics*			
Multiple R	0.437				Multiple R	0.809			
R Square	0.191				R Square	0.655			
Adjusted R Square	0.156				Adjusted R Square	0.64			
Standard Error	0.948				Standard Error	0.522			
Observations	144				Observations	144			
	df	*SS*	*MS*	*F*		*df*	*SS*	*MS*	*F*
Regression	6	29.084	4.847	5.395	Regression	6	70.915	11.819	43.399
Residual	137	123.097	0.899		Residual	137	37.311	0.272	
Total	143	152.181			Total	143	108.226		
	Coefficients	*Standard Error*	*t Stat*	*P-value*		*Coefficients*	*Standard Error*	*t Stat*	*P-value*
Intercept	1.181	1.65	0.716	0.475	Intercept	-5.491	0.908	-1.046	0
FL	-0.043	0.031	-1.391	0.167	FL	-0.011	0.017	-0.628	0.531
FL square	-0.002	0.002	-1.021	0.309	FL square	-0.001	0.001	-1.609	0.11
BOD	-1.314	0.612	-1.148	0.034	BOD	-0.927	0.337	-1.752	0.007
firm size	0.072	0.054	2.321	0.189	firm size	0.32	0.03	10.729	0
inflation	-7.88	4.138	-1.904	0.059	inflation	4.422	2.278	1.941	0.054
GDP	-9.992	7.639	-1.308	2.193	GDP	10.971	4.205	2.609	0.01

Note: At 7 % level of significance.

Overall Discussion

Only automobile industry is showing the opposite direction of the relation with respect to hypotheses of leverage but other variables with respect to TOQ and ROA in the cement and Food and personal care industries are showing the

positive results which means that Cement and Food and personal care industries are establishing our results.

Chapter 5

Conclusion and Recommendations

5.1 Main Results

Financial leverage with respect to accounting based measure i.e, ROA (total debt to assets), are positively correlated to the forms in the cement, food and personal care products and automobile industry where the utilization of the debt is efficient and it did not impact on their performance negatively rather it boosts and increases their performance. These industries are related to products which are highly valuable by the customers like cement, automobiles and food. In the previous studies it was shown that financial leverage makes it difficult to perform the operations, hence here it is proof according to trade off theory (tax deductible debt interest saves and reduces the tax expense. Hence it is beneficial and pecking order theory (to fund internally first, to boost financial performance).

Result of the regression analysis has concluded over hypothesis by proving and making the bridge between our theoretical framework of the theories of capital structure and the results obtained hence it provides us insight that our results are based on the solid theory rather than just mathematical model. So in short, Financial leverage and total debt to assets are positively correlated to the forms in the cement, food and personal care products and automobile industry where the utilization of the debt is efficient and it did not impact on their performance

negatively rather it boosts and increases their performance, because these industries are related to products which are highly valuable by the customers like cement, automobiles and food .in the previous studies it was shown that financial leverage makes it difficult to perform the operations hence here it is proofed according to trade off theory (tax deductible debt interest saves and reduces the tax expense hence it is beneficial) and pecking order theory (to fund internally first to boost financial performance) Result of the regression analysis has concluded over hypothesis by proving and making the bridge between our theoretical framework of the theories of capital structure and the results obtained hence it provides us insight that our results are based on the solid theory rather than just mathematical model.

5.2   Research Limitations

This research has some limitations, it is related to only three industries cement, food and personal care products and automobile industry, and 9 companies are taken from each industry on random basis, so any other combination of the companies from the same industry or other industries may have different impact. Similarly, ROA and Tobin 's Q are there financial performance measures. While this research work, has reflected firms in three and fragment of the stock exchange commodity, more readings might deliberate the use of a bigger sample and an arbitrary choice process, predominantly, the separated or in different parts sampling procedure which will split the firms based on their level of capital which is the medium of capital or low intensity capital and high intensity capital companies, so as to regulate the actual value of ideal capital structure mix for each of the 3 categories.

Company or entity have to, place in order the purchase of fixed assets has it has established to devise an important profitable consequence on firm value, as it may perhaps to be indispensable for the entity to accompaniment upturn in average total assets with stable surge in net income permissible to accomplish ample or extra satisfactory Return over the Asset employed in the business (R.O.A), so with varying control variables it will add up to the standard for the new research

dimensions in the field of capital structure optimization.

The entities or the corporations listed on the Pakistan stock exchange market, ought to arrange the procurement of fixed assets has it has proven to have a significant positive effect on firm value just as it may be necessary for the firms to complement increase in average total assets with steady increase in Net income in order to achieve much more favorable Return over the assets (R.O.A), so with varying control variables it will add up to the standard for the new research dimensions in the field of capital structure optimization. The corresponding research has reflected entity in the three (3) parts of the stock exchange commodity market, more findings, possibly ponder the usage of a greater section of the population, and a haphazard choice technique principally the departed or in different pieces selection technique of sample from population which will divide the firms based on their level of capital which is mid- or medium capital, low capital and high capital companies so as to determine the actual value of optimal capital structure for each of the 3 classes. This research has some limitations, it is related to only three industries cement, food and personal care products and automobile industry, and 9 companies are taken from each industry on random basis, so any other combination of the companies from the same industry or other industries may have different impact.

The firm should give priority the acquiring of tangible assets has it has proven to have a significant positive effect on firm value just as it may be necessary for the firms to complement increase in average total assets with steady increase in Net income in order to achieve much more favorable Return on Asset (ROA), so with varying control variables it will add up to the standard for the new research dimensions in the field of capital structure optimization. Although this study has considered firms in three and segment of the stock market, further studies may consider the use of a larger sample and a random selection method particularly the stratified sampling technique which will divide the firms based on their level of capitalization which is mid-capitalization, low-capitalization and high-capitalization companies so as to determine the actual value of optimal capital structure for each of the three classes. This research has some limitations, it is related to only three industries cement, food and personal care products and automobile industry, and

9 companies are taken from each industry on random basis, so any other combination of the companies from the same industry or other industries may have different impact.

5.3   Recommendations

Mix of other variables can be taken like interest rate cover and dividend rate cover ratios to see further the impact on the financial performance. Random selection can be also changed to some criteria based sampling like turnover threshold etc, this research can further be enhanced by including the short term liquidity and taking short term debt as the separate model to check the impact on the financial performance. Similarly control variables can also be changed or added to see the impact of those factors like working capital.

Future dimensions of the research in the capital structure as well as other fields like corporate finance and business development etc. can also be included to see the wider aspect of the areas to arrive at a point where all factors join together or not it tells about the synergy that whiter it exists or not in the factors to boost the sales or profitability.In the every dimension research sometime affirms the consistency of a theoretical framework in some different area like region, geography, sector or industry etc, current research is also a way of applying it in particular sector with certain limitations so this will provide acceptance or rejection to the particular theorem.

In current era of globalization of the world, enterprise overall performance represents one of the maximum essential signs measuring how a success and aggressive an organization is. Business overall performance must be measured that allows you to preserve the organization a success in modern-day and destiny time as well. The key mission is to set nicely the signs measuring the enterprise overall performance. To fulfill this mission, specifically monetary signs are normally used.

This take a look at makes use of conventional degree of monetary overall performance, i. e. go back on fairness (ROE). Fradenberg (2013) states that excessive go back on equity is an end result of low indebtedness. This argument is economically

grounded within side the pecking order principle hypothesis, wherein corporations prefer financing thru retained profits to debt financing.

Although worthwhile organizations could growth their indebtedness that allows you to take gain of the tax shield, empirical research normally do now no longer verify this. A poor effect of indebtedness on enterprise profitability is a first-rate argument in opposition to the validity of the trade-off principle. Leverage refers to financing techniques of an organization and its cap potential to satisfy its monetary obligations, and is measured through the debt ratio (overall debt to overall belongings ratio), the debt to fairness ratio, and the income impact of monetary leverage.

The professionals and cons of company debt have already been very well analyzed through many authors. Beranke (1991) studied the subject from each the microeconomic and the macroeconomic perspectives. His argument for a better leverage is that it imposes field on managers of the corporation, main to a extra efficiency; better stages of debt can also additionally growth the willingness of insiders to paintings tough and make income-maximizing decisions.

On the opposite hand, a better leverage will increase financial disaster risk. Beranke emphasized the distinction among the microeconomic and macroeconomic perspectives; from the latter, we're involved now no longer best with the outcomes of monetary misery at the distressed company itself, however additionally with the outcomes of the distressed company's moves on different corporations. Many empirical researches tested the connection among organization returns and leverage. Those research use numerous enterprise overall performance and leverage measures, and try to outline the mutual courting among the returns and using debt through statistical techniques, through the regression evaluation in particular. The person overall performance measures normally constitute the dependent variable and decided on measures of leverage constitute the unbiased variables.

The comparison of the consequences of those researches is similarly extensively decreased through the use of various statistical samples and specific methodologies. Therefore, research that verify a poor courting of profitability and indebtedness in addition to research confirming a wonderful courting may be observed amongst empirical research across the world. Majority of performed empirical research

observed a poor courting among organisation returns and leverage. For example, Araditti (1969), Haill and Wiess (1968), Bakar (1974), Bradley, Jarall (1985), observed a good sized poor courting among leverage and inventory returns, and basically emphasized the dependence at the enterprise sector.

On the opposite hand, numerous researches observed a wonderful courting among leverage and returns and confirmed that returns growth with leverage, e.g. Hamdai (1970). The conflicting empirical proof can also additionally end result from using specific definitions of leverage, inventory returns, methodologies, and samples (Nutin and Patel , 2014) analyzed the effect of capital shape or monetary leverage on company monetary overall performance on a pattern of 323 indexed Indian production organizations on Mumbai Stock Exchange (B.S.E). They observed out that monetary leverage has no effect at the company's monetary overall performance parameters of go back on asset and Tobin's Q. However, they discovered a poor and good sized correlation with go back on fairness

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Appendix A

List of the listed firms (data of these firms was taken from 2005 to 2020 Sixteen years total)

ACPL	Attock Cement Pakistan Limited
BWCL	Bestway Cement Limited
CHCC	Cherat Cement Company Limited
DGKC	D. G. Khan Cement Company Limited
MLCF	Maple Leaf Cement Factory Limited
FCCL	Fauji Cement Company Limited
FECTC	Fecto Cement Limited
GWLC	Gharibwal Cement Limited
JVDC	Javedan Corporation Limited
	Food and pers care products
CLOV	Clover Pakistan Limited
GLPL	Gillette Pakistan Limited
NESTLE	Nestle Pakistan Limited
MFFL	Mitchell's Fruit Farms Limited
ISIL	Ismail Industries Limited
RMPL	Rafhan Maize Products Limited
SCL	Shield Corporation Limited
SHEZ	Shezan International Limited
TREET	Treet Corporation Limited
UPFL	Unilever Pakistan Foods Limited
	Automobile industry
AGTL	Al-Ghazi Tractors Limited
ATLH	Atlas Honda Limited
DFML	Dewan Farooque Motors Limited
GHNI	Ghandhara Industries Limited
GHNL	Ghandhara Nissan Limited
HINO	Hinopak Motors Limited
HCAR	Honda Atlas Cars (Pakistan) Limited
INDU	Indus Motor Company Limited
PSMC	Pak Suzuki Motor Company Limited

Data

Financial leverage: Debt divided by Equity

Co	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ACPL	0.606	0.65	0.7036	0.6624	0.4594	0.30832	0.33539	0.343	0.34718	0.412	0.3693	0.38093	0.7333	0.77548	0.7805	0.78548
BWCL	1.509	2.909	2.9088	2.7068	2.43524	3.01405	1.68035	1.057	0.69049	0.4583	1.4492	0.91577	0.7117	0.78148	0.7865	0.79148
CHCC	0.838	0.709	0.5798	1.0306	1.09112	1.16273	1.30097	0.715	0.36563	0.3221	0.1791	0.69165	0.7977	1.73136	1.7364	1.74136
DGKC	0.934	0.78	0.5253	0.7285	1.04236	0.77404	0.64386	0.539	0.32352	0.1913	0.1942	0.26807	0.4475	0.58022	0.5852	0.59022
MLCF	0.659	1.575	1.6061	2.1278	2.81983	5.31196	9.75232	7.548	3.7812	2.2731	1.4181	0.91176	1.0025	1.28992	1.2949	1.29992
FCCL	1.541	0.888	0.7136	0.3415	1.2131	1.78648	1.92453	1.208	0.90163	0.861	0.7526	0.59311	0.4101	0.41781	0.4178	0.41781
FECTC	1.104	0.99	1.2164	1.5991	1.22193	2.23962	2.01952	1.405	0.75952	0.6365	0.4559	0.26079	0.2378	0.24215	0.2421	0.24215
GWLC	1.172	1.114	3.902	4.2647	6.91987	20.5787	15.6353	20.33	6.75779	4.8779	2.9259	1.85681	1.6995	1.51417	1.5142	1.51417
JVCL	1.597	0.93	3.0704	4.0027	2.55276	3.62845	3.58769	4.615	8.93475	3.4521	5.3948	4.05853	2.5393	1.59448	1.5945	1.59448
CLOV	0.588	0.832	0.8128	0.6573	1.04014	1.06039	1.0543	0.261	0.02408	0.0088	0.0073	0.03042	0.0268	0.55649	0.5615	0.56649
GLPL	0.473	0.365	0.3646	0.6808	0.72065	0.52271	0.97934	0.834	0.79178	0.9237	0.9068	0.48768	1.7433	0.59027	0.5953	0.60027
NESTLE	3.515	4.108	2.8545	2.8015	3.19859	3.11192	3.62138	3.401	3.40921	3.0966	2.8984	4.76276	11.59	16.034	16.039	16.044
MFFL	0.932	1.04	1.2028	1.7657	1.69754	1.14345	1.12629	0.882	0.75548	1.421	1.3892	1.61591	2.1199	6.1348	6.1398	6.1448
ISIL	3.319	4.406	4.4998	6.1382	6.81529	2.75356	3.09934	2.775	2.45189	2.5655	2.5913	2.43457	2.5459	2.19562	2.2006	2.20562
RMPL	0.373	0.293	0.304	0.4612	0.32357	0.46551	0.40781	0.504	0.41524	0.3322	0.2512	0.26019	0.361	0.28585	0.2859	0.28585
SCL	0.615	0.855	0.7906	0.7751	0.74126	0.90942	1.0415	0.968	0.73727	0.7856	1.2653	1.18215	1.3557	1.12068	1.1207	1.12068
SHEZ	0.544	0.665	1.2619	1.3108	1.72015	1.76904	2.44587	1.95	1.82736	1.8105	0.9764	0.78141	0.7419	0.83269	0.8327	0.83269
TREET	0.721	0.878	0.6667	1.0284	2.16407	2.0587	2.1782	2.022	1.82828	1.5939	0.9456	0.66534	1.2465	1.52227	1.5223	1.52227
UPFL	2.144	2.513	3.0833	2.8294	2.47168	2.79211	2.82944	2.5	4.17242	3.4243	1.6315	1.55862	21.488	2.1096	2.1096	2.1096
AGTL	1.359	1.05	0.7728	0.6004	0.36177	0.20485	0.26404	0.195	0.19558	0.1681	0.1681	0.38246	1.7666	3.95507	3.9551	3.95507
ATLH	1.931	1.925	1.7006	1.5571	1.25368	1.18979	1.08143	1.022	0.83142	0.8153	0.1398	0.85137	0.9342	0.98912	0.9891	0.98912
DFML	3.853	3.715	3.0804	4.5108	5.51082	6.51082	3	3	3	3	3	2	2	2	2	2
GHNI	2	2	10.652	8.8377	21.9719	11.72	13.2482	17.86	11.984	9.7166	4.7909	3.1764	3.7093	1.54739	1.5474	1.54739
GHNL	5.31	4.376	2.207	2.0727	3.858	4.30713	3.6712	3.574	2.86188	3.1666	1.8029	1.54874	1.139	0.57628	0.5763	0.57628
HINO	1.713	1.911	1.6007	1.6007	2.00173	2.81878	2.07738	3.376	2.24014	2.5298	1.9682	2.12889	2.2372	1.73418	1.7342	1.73418
HCAR	4.631	2.391	2.4028	1.1107	2.51578	3.53587	5.30424	7.279	9.89274	4.1511	1.7201	1.04068	2.9392	2.44445	2.4444	2.44445
INDU	1.725	1.528	0.9474	0.4569	1.00889	1.15595	0.90052	0.621	0.41897	0.3111	1.0969	1.08244	1.0476	1.22965	1.2297	1.22965
PSMC	1.396	1.019	0.5169	0.1981	0.23246	0.3278	0.52364	0.351	0.34945	0.474	0.5176	0.4438	0.7229	1.10413	1.1041	1.10413

Tobin's Q: Market value of firm divided by book value of all assets (Replacement cost of company)

Market value of firm=market capitalization = no of ordinary shares during the year * share price at the end of the year

Co	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ACPL	0.76	0.71	0.8	0.5	0.38	0.51	0.34	0.5	0.89	1.26	1.49	1.58	1.38	0.49	0.36	0.62
BWCL	0.78	0.88	1.11	0.44	0.29	0.17	0.24	0.49	0.94	1.44	1.2	1.29	1.59	0.82	0.65	0.68
CHCC	0.58	0.86	1.01	0.39	0.18	0.12	0.11	0.06	0.72	0.77	1.62	1.37	1.69	0.51	0.16	0.51
DGKC	0.47	0.4	0.52	0.3	0.19	0.18	0.19	0.34	0.58	0.53	0.84	1	0.86	0.41	0.2	0.31
MLCF	0.5	0.39	0.38	0.15	0.06	0.04	0.03	0.07	0.35	0.48	1.29	1.69	1.46	0.43	0.2	0.26
FCCL	0.72	1.08	1.08	0.56	0.21	0.12	0.09	0.24	0.58	0.05	1.52	1.68	2.04	1.09	0.75	0.8
FECTC	66.04	50	29.55	16.3	14.24	5.9	5.45	13.75	48.01	54.62	12.63	115.5	109.8	41.76	19.5	20.61
GWLC	0.17	0.5	0.37	0.43	0.32	0.19	0.25	0.16	0.34	0.46	0.68	1	0.84	0.37	0.18	0.29
JVCL	0.28	1.19	1.35	1.35	0.17	0.2	0.28	0.18	0.15	0.12	0.29	0.3	0.32	0.29	0.01	0.5
CLOV	1	0.77	1.02	4.42	0.76	0.54	0.78	0.65	0.72	0.98	1.09	2.12	2.65	5.01	1.97	2.91
GLPL	3.43	6.19	7.25	5.79	1.58	2.07	1.52	1.53	6.15	6.1	3.72	5.13	4.2	5.44	2.54	3.01
NESTLE	2.72	3.87	4.42	4.46	2.8	3.33	7.06	3.58	5.64	7.15	8.98	6.52	7.93	7.83	4.59	4.58
MFFL	0.47	0.44	0.42	0.62	0.22	0.27	0.33	1.07	2.72	3.71	2.67	1.65	1.42	1.4	0.51	0.46
ISIL	0.34	0.23	0.16	0.14	0.18	0.48	0.45	0.55	0.9	0.77	0.92	0.63	1	1.13	1.08	0.94
RMPL	1.75	2.29	5.5	4.47	2.37	1.46	2.93	2.81	3.95	8.45	6.44	4.06	3.78	4.18	3.11	3.84
SCL	0.24	0.31	0.2	0.44	0.2	0.15	0.25	0.35	0.52	0.83	1.4	3.36	3.2	1.15	0.85	1.03
SHEZ	1.54	0.33	1.31	2.43	0.66	0.69	0.63	0.83	4.18	4.42	0.96	1.06	1.17	0.84	0.42	0.42
TREET	0.05	0.25	0.03	0.02	0.02	0.24	0.25	0.22	0.35	0.5	0.35	0.54	0.47	0.31	0.14	0.16
UPFL	0.64	2.28	1.52	1.4	1.56	0.91	1.22	1.87	12.78	14.2	10.65	6.84	8.91	8.58	5.61	10.39
AGTL	0.65	0.89	1.33	1.22	0.7	0.84	0.86	0.69	0.66	1.53	2.84	5.27	6.33	5.81	2.67	3.07
ATLH	0.06	0.36	0.32	0.52	0.44	0.51	0.6	1.19	1.58	2.41	3.62	2.58	1.71	1.04	1.25	1.56
DFML	0.09	0.23	0.18	0.02	0.03	0.06	0.05	0.12	0.2	0.32	0.44	1.05	1.13	0.26	0.25	0.23
GHNI	0.03	0.05	0.25	0.14	0.04	0.07	0.03	0.02	0.05	0.1	0.23	0.84	0.81	0.63	0.15	0.21
GHNL	0.25	0.41	0.7	0.31	0.06	0.07	0.04	0.06	0.12	0.47	1.1	1.53	2.33	1.39	0.4	0.48
HINO	0.4	0.42	0.92	0.39	0.32	0.25	0.21	0.22	1.1	1.38	1.45	1.68	1	0.19	0.21	0.22
HCAR	0.07	0.18	0.31	0.79	0.18	0.21	0.14	0.17	0.41	1.08	2.24	3.16	2.39	0.77	0.36	0.47
INDU	0.58	0.95	1.53	1.14	0.41	0.76	0.64	0.7	0.97	1.62	1.95	1.28	2.19	1.36	1.18	0.96
PSMC	0.19	0.51	1.52	0.58	0.32	0.34	0.22	0.37	0.51	0.79	0.96	0.83	1.25	0.53	0.31	0.22

Market Capitalization = No of ordinary shares (Avg) multiply by the closing share price value of the share

Co	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ACPL	2,577	3,448	4,640	2,923	2,661	3,574	2,648	4,444	9,524	15,051	18,190	22,781	28,631	12,835	9,880	17,110
BWCL	7,017	15,846	20,042	11,243	8,320	4,652	7,008	14,189	37,341	59,677	74,683	100,628	130,132	78,103	61,414	64,395
CHCC	1,872	3,093	3,556	1,704	852	580	566	1,864	3,662	4,984	15,372	21,120	31,794	15,612	4,891	15,455
DGKC	8,525	13,761	26,944	15,527	8,230	8,386	9,678	17,253	36,666	38,537	62,550	83,457	93,389	50,160	24,771	37,385
MLCF	5,247	7,389	8,804	3,935	1,537	1,121	1,053	2,370	11,214	15,368	40,182	53,961	56,768	25,535	12,022	15,407
FCCL	4,475	6,710	6,885	7,016	4,569	3,154	2,856	7,494	17,691	1,331	46,416	49,397	56,600	31,529	21,704	23,250
FECTC	26,625	98,445	61,550	36,341	37,088	18,424	16,939	45,496	161,267	212,656	53,733	470,860	529,196	218,390	101,978	107,783
GWLC	414	2,133	3,008	4,487	3,687	2,414	3,146	2,001	4,383	7,057	10,807	18,112	18,252	8,374	4,143	6,516
JVCL	279	1,149	1,740	1,854	1,005	1,932	2,678	1,971	1,708	1,550	4,056	3,898	4,572	6,010	267	10,391
CLOV	336	360	584	2,776	548	411	636	744	631	828	805	401	475	1,543	608	896
GLPL	1,154	2,131	2,496	2,565	991	1,229	1,097	1,199	7,486	8,448	5,952	5,472	6,010	4,608	2,153	2,551
NES-TLE	24,035	50,002	70,065	74,373	52,125	76,414	248,294	182,037	294,727	370,053	442,204	331,052	462,566	521,520	306,110	305,430
MFFL	226	215	245	444	157	175	252	871	2,520	5,198	3,650	2,331	2,226	2,087	767	691
ISIL	595	535	607	661	1,021	3,128	3,773	4,991	8,690	8,892	13,135	13,034	22,332	26,160	24,840	21,694
RMPL	6,096	8,082	21,706	23,377	12,562	10,634	24,242	29,042	47,106	108,990	94,003	66,687	63,269	70,658	52,647	64,886
SCL	188	308	219	577	277	238	483	777	1,188	2,243	956	2,395	2,660	975	727	878
SHEZ	271	328	381	729	238	296	392	522	2,901	3,239	3,278	3,449	4,138	3,542	1,797	1,781
TREET	94	52	70	58	55	921	1,155	1,146	1,845	3,371	3,539	6,193	7,366	5,473	2,419	2,862
UPFL	3,740	4,629	12,281	22,304	17,778	12,333	19,418	34,367	29,718	49,226	47,053	31,571	36,372	50,959	33,315	61,724
AGTL	4,677	6,488	9,064	8,662	5,152	6,434	7,328	6,531	6,504	15,274	28,409	24,463	37,242	39,416	18,143	20,861
ATLH	360	2,734	2,585	4,543	3,319	4,356	5,759	13,030	19,019	34,639	38,157	52,565	43,948	33,038	39,708	49,635
DFML	538	1,792	1,225	129	149	257	231	488	807	1,078	1,540	3,674	3,973	924	895	832
GHNI	25	105	567	303	80	184	88	69	196	359	759	4,324	6,924	7,528	1,851	2,580
GHNL	660	1,166	1,675	955	213	235	124	160	304	1,603	3,943	6,226	8,979	8,086	2,345	2,808
HINO	1,265	1,734	4,501	1,922	1,615	1,431	938	1,465	5,564	10,374	11,893	16,245	10,016	2,687	3,047	3,224
HCAR	791	1,663	2,535	5,374	1,835	1,861	1,435	1,571	6,245	13,293	31,228	51,278	122,808	45,180	21,180	27,525
INDU	7,074	15,013	23,973	15,724	8,467	20,623	17,292	19,263	24,445	42,281	98,171	73,848	140,065	111,691	96,285	78,404
PSMC	3,603	11,277	32,262	9,859	5,588	6,524	5,148	7,879	12,240	22,541	35,875	31,451	63,865	32,375	18,843	13,324

ROA: Return divided by total assets

year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ACPL	0.76	0.71	0.79	0.85	1.22	1.09	1.1	1.2	1.07	1.05	1.07	0.96	0.71	0.64	0.68	0.66
BWCL	0.39	0.25	0.25	0.29	0.52	0.47	0.45	0.62	0.6	0.7	0.49	0.59	0.63	0.56	0.59	0.58
CHCC	0.75	0.67	0.74	0.69	0.96	0.71	0.79	1.16	1.24	1	0.69	0.46	0.51	0.47	0.49	0.48
DGKC	0.29	0.23	0.12	0.24	0.42	0.35	0.37	0.45	0.39	0.36	0.35	0.36	0.28	0.25	0.26	0.26
MLCF	0.41	0.3	0.16	0.3	0.59	0.52	0.39	0.47	0.54	0.59	0.66	0.73	0.62	0.44	0.53	0.48
FCCL	0.29	0.69	0.54	0.28	0.25	0.18	0.15	0.38	0.53	0.6	0.61	0.68	0.74	0.73	0.73	0.73
FECTC	1.21	1.25	1.06	1.04	1.27	0.93	1.06	1.31	1.37	1.21	1.12	1.23	1.06	0.94	0.94	0.94
GWLC	0.61	0.37	0.06	0.05	0.11	0.16	0.26	0.4	0.48	0.56	0.6	0.58	0.52	0.5	0.5	0.5
JVCL	1.41	1.79	0.86	0.87	0.28	0.06	0.06	0.06	0.21	0.15	0.09	0.09	0.17	0.12	0.12	0.12
CLOV	1.75	1.6	0.15	1.73	1.43	1.63	1.65	0.02	0.03	0.05	0.04	0.06	0	0.51	0.26	0.38
GLPL	2.07	1.64	1.64	2.7	1.16	1.34	1.43	1.8	1.45	1.49	1.3	1.78	1.28	2.16	1.72	1.94
NES-TLE	1.94	1.7	1.78	2.05	2.21	2.24	1.84	1.55	1.65	1.86	2.09	2.21	2.09	1.87	1.98	1.93
MFFL	1.68	1.56	1.5	1.44	1.76	2.1	2.35	2.31	2.25	1.39	1.24	1.19	1.21	1.09	1.15	1.12
ISIL	0.95	0.78	0.66	0.79	0.92	1.01	0.93	1.02	1.05	0.93	0.86	0.83	0.88	1.04	0.96	1
RMPL	1.49	1.74	1.92	2.06	2.15	1.92	2.21	1.89	1.99	1.95	1.69	1.53	1.55	1.75	1.75	1.75
SCL	1.43	1.53	1.28	1.48	1.37	1.55	1.33	1.68	1.75	1.6	2	2.09	2.03	1.77	1.77	1.77
SHEZ	1.77	1.79	1.94	1.89	2.01	2.18	2.17	2.31	2.49	2.52	1.83	2.18	2	1.97	1.97	1.97
TREET	0.69	0.61	0.42	0.45	0.44	0.48	0.49	0.54	0.65	0.62	0.39	0.42	0.34	0.34	0.34	0.34
UPFL	3.12	3.26	2.89	3.25	3.34	3.31	3.25	3.25	2.99	2.25	1.94	2.05	2.63	2	2	2
AGTL	1.07	1.24	1.33	1.43	2.14	1.95	1.18	1.56	0.94	0.88	0.88	2.61	3.21	2.86	2.86	2.86
ATLH	2.32	2.28	2.07	2.4	1.84	3	3.38	3.47	3.52	3.1	4.35	2.7	2.52	2.43	2.43	2.43
DFML	1.39	1.17	1.05	0.9	0.24	0.24	0.04	0	0	0.29	0.02	0.01	0.02	0.01	0	0.01
GHNI	1.29	0.68	0.82	0.87	0.68	0.74	0.49	0.56	0.68	0.66	0.98	1.13	1.25	1.39	1.39	1.39
GHNL	1.32	1.55	1.21	1.2	0.61	0.71	0.86	0.51	0.73	0.76	1.52	1.23	1.26	0.38	0.38	0.38
HINO	2.01	1.54	1.59	1.59	2.43	1.94	2.04	1.31	1.49	1.22	1.54	1.87	2.23	1.84	1.84	1.84
HCAR	1.41	2.79	2.05	2.16	1.42	1.77	2.08	1.75	2	3.18	2.71	2.47	1.22	1.56	1.56	1.56
INDU	2.26	2.23	2.49	3.01	1.83	2.21	2.3	2.79	2.54	2.19	1.92	1.89	1.76	1.71	1.71	1.71
PSMC	1.89	2.14	2.4	2.34	1.49	2.22	2.26	2.74	2.14	1.89	2.26	2.02	1.76	1.95	1.95	1.95

Revenue Growth = (Present revenue/ Past revenue)1/n -1

Co	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ACPL	0.606	0.65	0.7036	0.6624	0.4594	0.30832	0.33539	0.343	0.34718	0.412	0.3693	0.38093	0.7333	0.7755	0.7805	0.78548
BWCL	1.509	2.909	2.9088	2.7068	2.43524	3.01405	1.68035	1.057	0.69049	0.4583	1.4492	0.91577	0.7117	0.7815	0.7865	0.79148
CHCC	0.838	0.709	0.5798	1.0306	1.09112	1.16273	1.30097	0.715	0.36563	0.3221	0.1791	0.69165	0.7977	1.7314	1.7364	1.74136
DGKC	0.934	0.78	0.5253	0.7285	1.04236	0.77404	0.64386	0.539	0.32352	0.1913	0.1942	0.26807	0.4475	0.5802	0.5852	0.59022
MLCF	0.659	1.575	1.6061	2.1278	2.81983	5.31196	9.75232	7.548	3.7812	2.2731	1.4181	0.91176	1.0025	1.2899	1.2949	1.29992
FCCL	1.541	0.888	0.7136	0.3415	1.2131	1.78648	1.92453	1.208	0.90163	0.861	0.7526	0.59311	0.4101	0.4178	0.4178	0.41781
FECTC	1.104	0.99	1.2164	1.5991	1.22193	2.23962	2.01952	1.405	0.75952	0.6365	0.4559	0.26079	0.2378	0.2421	0.2421	0.24215
GWLC	1.172	1.114	3.902	4.2647	6.91987	20.5787	15.6353	20.33	6.75779	4.8779	2.9259	1.85681	1.6995	1.5142	1.5142	1.51417
JVCL	1.597	0.93	3.0704	4.0027	2.55276	3.62845	3.58769	4.615	8.93475	3.4521	5.3948	4.05853	2.5393	1.5945	1.5945	1.59448
CLOV	0.588	0.832	0.8128	0.6573	1.04014	1.06039	1.0543	0.261	0.02408	0.0088	0.0073	0.03042	0.0268	0.5565	0.5615	0.56649
GLPL	0.473	0.365	0.3646	0.6808	0.72065	0.52271	0.97934	0.834	0.79178	0.9237	0.9068	0.48768	1.7433	0.5903	0.5953	0.60027
NESTLE	3.515	4.108	2.8545	2.8015	3.19859	3.11192	3.62138	3.401	3.40921	3.0966	2.8984	4.76276	11.59	16.034	16.039	16.044
MFFL	0.932	1.04	1.2028	1.7657	1.69754	1.14345	1.12629	0.882	0.75548	1.421	1.3892	1.61591	2.1199	6.1348	6.1398	6.1448
ISIL	3.319	4.406	4.4998	6.1382	6.81529	2.75356	3.09934	2.775	2.45189	2.5655	2.5913	2.43457	2.5459	2.1956	2.2006	2.20562
RMPL	0.373	0.293	0.304	0.4612	0.32357	0.46551	0.40781	0.504	0.41524	0.3322	0.2512	0.26019	0.361	0.2859	0.2859	0.28585
SCL	0.615	0.855	0.7906	0.7751	0.74126	0.90942	1.0415	0.968	0.73727	0.7856	1.2653	1.18215	1.3557	1.1207	1.1207	1.12068
SHEZ	0.544	0.665	1.2619	1.3108	1.72015	1.76904	2.44587	1.95	1.82736	1.8105	0.9764	0.78141	0.7419	0.8327	0.8327	0.83269
TREET	0.721	0.878	0.6667	1.0284	2.16407	2.0587	2.1782	2.022	1.82828	1.5939	0.9456	0.66534	1.2465	1.5223	1.5223	1.52227
UPFL	2.144	2.513	3.0833	2.8294	2.47168	2.79211	2.82944	2.5	4.17242	3.4243	1.6315	1.55862	21.488	2.1096	2.1096	2.1096
AGTL	1.359	1.05	0.7728	0.6004	0.36177	0.20485	0.26404	0.195	0.19558	0.1681	0.1681	0.38246	1.7666	3.9551	3.9551	3.95507
ATLH	1.931	1.925	1.7006	1.5571	1.25368	1.18979	1.08143	1.022	0.83142	0.8153	0.1398	0.85137	0.9342	0.9891	0.9891	0.98912
DFML	3.853	3.715	3.0804	4.5108	5.51082	6.51082	3	3	3	3	3	2	2	2	2	2
GHNI	2	2	10.652	8.8377	21.9719	11.72	13.2482	17.86	11.984	9.7166	4.7909	3.1764	3.7093	1.5474	1.5474	1.54739
GHNL	5.31	4.376	2.207	2.0727	3.858	4.30713	3.6712	3.574	2.86188	3.1666	1.8029	1.54874	1.139	0.5763	0.5763	0.57628
HINO	1.713	1.911	1.6007	1.6007	2.00173	2.81878	2.07738	3.376	2.24014	2.5298	1.9682	2.12889	2.2372	1.7342	1.7342	1.73418
HCAR	4.631	2.391	2.4028	1.1107	2.51578	3.53587	5.30424	7.279	9.89274	4.1511	1.7201	1.04068	2.9392	2.4444	2.4444	2.44445
INDU	1.725	1.528	0.9474	0.4569	1.00889	1.15595	0.90052	0.621	0.41897	0.3111	1.0969	1.08244	1.0476	1.2297	1.2297	1.22965
PSMC	1.396	1.019	0.5169	0.1981	0.23246	0.3278	0.52364	0.351	0.34945	0.474	0.5176	0.4438	0.7229	1.1041	1.1041	1.10413

Board of Directors Education: Percentage of directors having graduation

Post et al. (2011), Le and Sundaramurthy (2009), Baghat et al. (2011)

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ACPL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BWCL	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857	0.857
CHCC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DGKC	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
MLCF	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
FCCL	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
FECTC	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
GWLC	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
JVCL	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CLOV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GLPL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NESTLE	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875
MFFL	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875	0.875
ISIL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
RMPL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SCL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SHEZ	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TREET	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UPFL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AGTL	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
ATLH	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
DFML	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GHNI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GHNL	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
HINO	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
HCAR	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
INDU	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PSMC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Firm Size: Natural log of sales

year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ACPL	21.674	21.968	22.241	22.331	22.865	22.76	22.87	23.088	23.166	23.253	23.295	23.414	23.356	23.55	23.453	23.501
BWCL	21.986	22.237	22.237	22.736	23.419	23.314	23.313	23.602	23.904	24.089	24.141	24.667	24.546	24.691	24.619	24.655
CHCC	21.599	21.613	21.686	21.826	22.242	21.967	22.169	22.42	22.563	22.588	22.605	22.99	22.68	23.39	23.035	23.212
DGKC	22.387	22.797	22.583	23.245	23.616	23.513	23.645	23.857	23.939	24.002	23.985	24.129	24.115	24.146	24.131	24.139
FCCL	21.769	22.179	21.965	21.989	22.394	22.313	22.28	23.168	23.494	23.587	23.649	23.721	23.74	23.775	23.775	23.775
FECTC	21.317	21.628	21.512	21.565	21.92	21.789	21.918	22.192	22.247	22.276	22.288	22.339	22.359	22.313	22.313	22.313
GWLC	21.108	21.186	20.073	20.073	20.947	21.472	21.925	22.328	22.553	22.869	22.985	23.077	23.141	23.164	23.164	23.164
JVCL	21.053	21.269	20.825	20.893	21.207	20.229	20.229	20.229	21.597	21.353	20.955	20.929	21.627	21.631	21.631	21.631
MLCF	22.18	22.465	22.035	22.779	23.448	23.336	23.294	23.462	23.577	23.666	23.754	23.901	23.877	23.97	23.924	23.947
CLOV	20.188	20.435	18.286	20.805	20.758	20.939	21.017	16.915	17.157	17.542	17.228	13.304	16.215	18.873	17.544	18.209
GLPL	20.362	20.149	20.149	20.902	20.405	20.496	20.756	21.066	21.294	21.446	21.456	21.33	21.366	21.327	21.347	21.337
NESTLE	23.565	23.816	24.064	24.255	24.441	24.665	24.895	25.094	25.18	25.292	25.358	25.529	25.445	25.548	25.497	25.523
MFFL	20.505	20.438	20.58	20.761	20.969	21.043	21.308	21.357	21.458	21.389	21.252	21.361	21.242	21.211	21.226	21.218
ISIL	21.22	21.328	21.635	22.005	22.376	22.6	22.769	22.951	23.043	23.101	23.228	23.699	23.557	23.897	23.727	23.812
RMPL	22.371	22.536	22.749	23.098	23.159	23.356	23.629	23.695	23.888	23.927	23.927	23.945	23.982	24.11	24.11	24.11
SCL	21.036	21.31	21.5	21.627	21.727	21.984	22.164	22.345	22.459	20.946	20.946	21.16	21.231	21.241	21.241	21.241
SHEZ	19.343	19.569	19.736	19.91	20.008	20.309	20.537	20.782	20.921	22.643	22.643	22.643	22.692	22.739	22.739	22.739
TREET	20.925	20.946	20.647	20.877	21.177	21.319	21.548	21.76	21.947	22.098	22.098	22.278	22.401	22.531	22.531	22.531
UPFL	23.62	23.767	23.873	24.672	24.366	24.523	24.672	24.813	22.663	22.872	22.872	22.971	23.098	23.2	23.2	23.2
AGTL	22.77	22.923	22.929	23.037	23.481	23.427	23.037	23.417	22.949	22.896	22.896	23.216	23.661	23.687	23.687	23.687
ATLH	23.371	23.581	23.533	23.761	23.344	23.964	24.205	24.361	24.469	24.547	24.547	24.731	24.89	25.073	25.073	25.073
DFML	22.896	22.921	22.702	22.388	21.166	20.748	18.988	14.93	14.929	17.807	17.807	16.801	18.252	17.779	17.779	17.779
GHNI	20.73	21.133	21.35	21.342	20.996	21.459	21.213	21.4	21.758	21.915	21.915	22.486	23.097	23.543	23.543	23.543
GHNL	21.977	22.214	21.786	22.034	21.443	21.6	21.698	21.051	21.34	22.418	22.418	22.334	22.304	21.52	21.52	21.52
HINO	22.574	22.578	22.781	22.781	23.221	23.133	22.951	22.894	22.742	23.26	23.26	23.618	23.836	24.005	24.005	24.005
HCAR	23.532	23.967	23.56	23.412	23.373	23.487	23.815	23.533	24.134	24.355	24.355	24.414	24.863	25.24	25.24	25.24
INDU	24.041	24.285	24.388	24.447	24.357	24.819	24.846	25.067	24.879	25.293	25.293	25.412	25.444	25.666	25.666	25.666
PSMC	24.289	24.577	24.652	24.404	23.99	24.476	24.688	24.793	24.656	25.161	25.161	25.061	25.346	25.51	25.51	25.51

Pakistan Inflation Rate - Historical Data

Year	Inflation Rate (%)	Annual Change
2020	9.74%	-0.84%
2019	10.58%	5.50%
2018	5.08%	0.99%
2017	4.09%	0.32%
2016	3.77%	1.24%
2015	2.53%	-4.66%
2014	7.19%	-0.50%
2013	7.69%	-1.99%
2012	9.68%	-2.23%
2011	11.92%	-1.02%
2010	12.94%	-0.71%
2009	13.65%	-6.64%
2008	20.29%	12.69%
2007	7.60%	-0.32%
2006	7.92%	-1.14%
2005	9.06%	1.62%

Source https://www.macrotrends.net/countries/PAK/pakistan/inflation-rate-cpi

Pakistan GDP - Historical Data

Year	GDP	Per Capita	Growth
2020	$263.69B	$1,194	0.53%
2019	$278.22B	$1,285	0.99%
2018	$314.57B	$1,482	5.84%
2017	$304.57B	$1,465	5.55%
2016	$278.65B	$1,368	5.53%
2015	$270.56B	$1,357	4.73%
2014	$244.36B	$1,251	4.67%
2013	$231.22B	$1,209	4.40%
2012	$224.38B	$1,198	3.51%
2011	$213.59B	$1,165	2.75%
2010	$177.17B	$987	1.61%
2009	$168.15B	$958	2.83%
2008	$170.08B	$991	1.70%
2007	$152.39B	$908	4.83%
2006	$137.26B	$837	5.90%
2005	$120.06B	$749	6.52%

Source: https://www.macrotrends.net/countries/PAK/pakistan/gdp-gross-domestic-product

Financial Leverage Square

Co	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ACPL	0.2706	0.6496	0.7036	0.6624	0.4594	0.3083	0.3354	0.3428	0.3472	0.412	0.3693	0.3809	0.7333	0.7755	0.7805	0.7855
BWCL	1.5091	2.9088	2.9088	2.7068	2.4352	3.0141	1.6803	1.0568	0.6905	0.4583	1.4492	0.9158	0.7117	0.7815	0.7865	0.7915
CHCC	0.8381	0.7094	0.5798	1.0306	1.0911	1.1627	1.301	0.7145	0.3656	0.3221	0.1791	0.6916	0.7977	1.7314	1.7364	1.7414
DGKC	0.9335	0.7804	0.5253	0.7285	1.0424	0.774	0.6439	0.5392	0.3235	0.1913	0.1942	0.2681	0.4475	0.5802	0.5852	0.5902
MLCF	0.6589	1.5745	1.6061	2.1278	2.8198	5.312	9.7523	7.5477	3.7812	2.2731	1.4181	0.9118	1.0025	1.2899	1.2949	1.2999
FCCL	1.5407	0.8882	0.7136	0.3415	1.2131	1.7865	1.9245	1.2081	0.9016	0.861	0.7526	0.5931	0.4101	0.4178	0.4178	0.4178
FECTC	1.1035	0.9904	1.2164	1.5991	1.2219	2.2396	2.0195	1.4045	0.7595	0.6365	0.4559	0.2608	0.2378	0.2421	0.2421	0.2421
GWLC	1.1723	1.1136	3.902	4.2647	6.9199	20.579	15.635	20.331	6.7578	4.8779	2.9259	1.8568	1.6995	1.5142	1.5142	1.5142
JVCL	1.5965	0.9302	3.0704	4.0027	2.5528	3.6285	3.5877	4.6147	8.9348	3.4521	5.3948	4.0585	2.5393	1.5945	1.5945	1.5945
CLOV	0.588	0.8315	0.8128	0.6573	1.0401	1.0604	1.0543	0.2608	0.0241	0.0088	0.0073	0.0304	0.0268	0.5565	0.5615	0.5665
GLPL	0.473	0.3646	0.3646	0.6808	0.7207	0.5227	0.9793	0.8335	0.7918	0.9237	0.9068	0.4877	1.7433	0.5903	0.5953	0.6003
NESTLE	3.5154	4.1077	2.8545	2.8015	3.1986	3.1119	3.6214	3.4007	3.4092	3.0966	2.8984	4.7628	11.59	16.034	16.039	16.044
MFFL	0.932	1.0405	1.2028	1.7657	1.6975	1.1434	1.1263	0.882	0.7555	1.421	1.3892	1.6159	2.1199	6.1348	6.1398	6.1448
ISIL	3.3195	4.4058	4.4998	6.1382	6.8153	2.7536	3.0993	2.7755	2.4519	2.5655	2.5913	2.4346	2.5459	2.1956	2.2006	2.2056
RMPL	0.3733	0.2934	0.304	0.4612	0.3236	0.4655	0.4078	0.5036	0.4152	0.3322	0.2512	0.2602	0.361	0.2859	0.2859	0.2859
SCL	0.6146	0.8551	0.7906	0.7751	0.7413	0.9094	1.0415	0.9682	0.7373	0.7856	1.2653	1.1822	1.3557	1.1207	1.1207	1.1207
SHEZ	0.5444	0.6653	1.2619	1.3108	1.7202	1.769	2.4459	1.9496	1.8274	1.8105	0.9764	0.7814	0.7419	0.8327	0.8327	0.8327
TREET	0.7215	0.8775	0.6667	1.0284	2.1641	2.0587	2.1782	2.0216	1.8283	1.5939	0.9456	0.6653	1.2465	1.5223	1.5223	1.5223
UPFL	2.1435	2.5133	3.0833	2.8294	2.4717	2.7921	2.8294	2.4996	4.1724	3.4243	1.6315	1.5586	21.488	2.1096	2.1096	2.1096
AGTL	1.3586	1.0503	0.7728	0.6004	0.3618	0.2049	0.264	0.1946	0.1956	0.1681	0.1681	0.3825	1.7666	3.9551	3.9551	3.9551
ATLH	1.931	1.9246	1.7006	1.5571	1.2537	1.1898	1.0814	1.0222	0.8314	0.8153	0.1398	0.8514	0.9342	0.9891	0.9891	0.9891
DFML	3.853	3.7148	3.0804	4.5108	5.5108	6.5108	3	3	3	3	3	2	2	2	2	2
GHNI	2	2	10.652	8.8377	21.972	11.72	13.248	17.861	11.984	9.7166	4.7909	3.1764	3.7093	1.5474	1.5474	1.5474
GHNL	5.3102	4.376	2.207	2.0727	3.858	4.3071	3.6712	3.5743	2.8619	3.1666	1.8029	1.5487	1.139	0.5763	0.5763	0.5763
HINO	1.7126	1.9115	1.6007	1.6007	2.0017	2.8188	2.0774	3.3765	2.2401	2.5298	1.9682	2.1289	2.2372	1.7342	1.7342	1.7342
HCAR	4.6306	2.3913	2.4028	1.1107	2.5158	3.5359	5.3042	7.2795	9.8927	4.1511	1.7201	1.0407	2.9392	2.4444	2.4444	2.4444
INDU	1.7245	1.5284	0.9474	0.4569	1.0089	1.156	0.9005	0.6208	0.419	0.3111	1.0969	1.0824	1.0476	1.2297	1.2297	1.2297
PSMC	1.3955	1.0194	0.5169	0.1981	0.2325	0.3278	0.5236	0.3511	0.3495	0.474	0.5176	0.4438	0.7229	1.1041	1.1041	1.1041