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**“Impact of Capital structure on firm value and the moderating
role of covid-19”**



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Dedicated to

My Parents



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Abstract

The moderating role of Covid-19 in the relationship between capital structure and firm value in Pakistan, an emerging economy, is investigated in this study. To achieve this goal, 193 non-financial listed companies on (PSX) have been chosen from 2016 to 2021. Panel data analysis empirical findings show a strong relationship between capital structure and other control variables with firm value. According to the analysis findings, before the period of Covid-19, the capital structure had an inverse relationship with firm value.

Furthermore, firm size has an inverse relationship with firm value. On the other hand, profitability has a significant positive effect on firm value. So, when we investigated the impact of Covid-19 on firm value, we discovered that the value of non-financial firms increased during the Covid-19 period. The impact of the variables remained constant. Still, the intensity of the relationships between variables fluctuated. For example, during Covid-19, the inverse relationship between firm size and firm value decreased, and the positive relationship between firm profitability and firm value decreased. During Covid-19, the inverse relationship between firm value and capital structure remained unchanged.



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CHAPTER 1: INTRODUCTION

Background

This section explored the Determinants of Firm value, highlighting how the following determinant contribute to firm value in many aspects of the industry over a period. The Non-financial firms in Pakistan were examined, as well as we tried out to identify the impact of the following determinants on firm value during covid-19.

Introduction

In general, industry worth is a measure of total business value. Company management Primary goal is to maximize stockholder wealth through increasing the stock value. Increasing a business value, also known as a firm value, is one approach to increase its stock price. A corporation's value is defined by its management, policies, working conditions, and corporate ethics. The higher the price-book value, the more successful a company increases its owners' wealth and worth.

The company's market value to shareholders is a significant gauge of wealth. A company's financial leverage, size, and profitability play a sound role in maximizing shareholder wealth. The main goal of the industry is to increase the worth of shareowners. Shareowners' health mainly depends on the company's market worth; capital structure, firm size, and firm profitability play a vital role in increasing shareholder's wealth at the same time. On the other hand, the higher (debt) economic benefits will reduce the value of a company and increase the Bankruptcy chances. This risk occurs cos shareholders want more revenue cos of

High risk. So, we want the best capital arrangement to increase shareholders' worth and market worth in the company.

We can select the most convenient structure. A structure does not depend on 100% in equity or debt instrument; however, it is a combination of debt plus equity that increases its value, reducing bankruptcy Risk and financial costs. An additional concept presented by Majluff and Mayer in (1984), acknowledged as the "Pecking order theory", says that firms must use inner finance to raise capital and then use debt to finance capital. In the last, equity can use to generate money.

Modigliani and Miller introduced the theory of capital structure in 1958. They also suggested that if there is no corporate tax, the value of the leveraged company (depending on the tax) is the same as its value that is not considered equal (unlevered). This theory is named MM Preposition. Later, they introduced the MM Proposition 2, where they introduced the concept of corporate tax, in which a profitable company got the tax (benefits).

To increase the worth of shareowners. It is necessary; it correspondingly. It supports discovering and finding significant dynamics that improve the firm's worth—the importance of the company, which has strongly. It is affected by financial leverage.

Finding and developing the company's shares for general corporate purposes and achieving goals important to maximize value has all the potential elements that could affect the firm value is important to Investigate. Size of the firm and profitability of firm are the key factors affecting companies and their financial impact. A great example of defaulting scandal corporate governance is here. Enron, WorldCom, Tyco, and others, the early 2000s, the corporate scandals, including future regulations aimed at preventing similar problems in a wave of led.



Barney researcher (1991), "The higher the firm value, the more the industry is valued by relevant investors relevant To the funds that have been invested in the company". The higher a company's financial success, the greater it's worth." The more the business is worth, the larger the revenue, and the higher the share market returns, the higher the shareowner's value. The financing decisions brought about by financial management are established to enhance the company owner's worth, as indicated by the firms increasing value.

Leverage, managerial ownership, size, Firm profitability, (ROA), (DAR), (CR) and Dividend Pay-out Ratio are all aspects that investors consider when evaluating a company's ability to raise its firm value.

When there is a high profitability ratio, the firm's high profitability may be described accurately. The higher the profit ratio, the more accurately the company's high profitability can be described.

Weissenrieder (1999). Profitability refers to a firm's ability to earn money. Companies with high returns on investment will use relatively less debt, according to Blinch.

(2011). Cos of the high rate of return, most of the financial requirements can be met using funds created by internal enterprises. Furthermore, the financial debt to equity is a key indicator for determining the companies worth. The Leverage Ratio in this study is a DAR. According to Vatansever and Hepsen (2013), DAR is used to evaluate how much debt is utilized to finance a company's assets and how debt affects asset management. According to PWC (2017), the larger the debt ratio, the more likely the company will not satisfy its obligations. As a result, the loan must be managed wisely to optimize profit potential.

When establishing the firm's value, investors must also consider its size. The total assets, revenue, and capital of a firm can be used to assess its size, according to Thakur & Workman (2016). Compared to companies with small total assets, companies with significant assets have achieved and are thought to have great worth in a relatively stable period and can generate revenue.

In recent decades, the impacts of profitability on firm value have received much attention regarding financial decision-making. Businesses must identify the most cost-effective strategy for their investment plans while optimizing company value and shareholder wealth to survive and thrive in a highly competitive environment.

Internal and external finances might meet a company's financial demands. Cash dividends will lower cash dividends if internal funds are used. The more debt the company owns is expected to improve the manager-share owner's agency relationship by restricting free cash flow waste, enhancing monitoring, more pressure to perform associated with potential bankruptcy, and allowing management to control a larger percentage of outstanding shares. Previous studies have produced different results linked to elements that influence firm value, with different authors' perspectives.

Murni et al. (2018), profitability has an inverse impact on the firm worth. However, according to Arifianto and Chabachib (2016) discovered, profitability was positively impacted. According to Chen and Chen (2011), leverage has an inverse impact on a well worth. However, according to Khrisnan and Charumathi (2016), leverage positively affects firm value. Furthermore, according to Arifianto and Chabachib's research (2016), firm size positively impacts firm value, but firm size has an inverse relation, according to Hirdinis (2019).

Mutmainah (2015), firm size has a considerable effect on the firm worth, and according to Erlangga and Mawardi (2016) and Junior, firm size positively affects well worth.



Why financial leverage:

Leverage is the ratio of firm equity to its financial liabilities. This is a critical component of the company's financial strategy. Financial leverage also denotes using a company's financial resources at fixed costs. For example, the leverage of two shows two dollars of financial debt for one dollar of equity, allowing the company to use the debt to buy the assets.

The concept of financial leverage is common in business: Most are used to improve the revenue on the company's capital, especially when the company cannot increase operational efficiency and return on investment altogether. Since the income from the loan is higher than the interest to be paid as a debt, the company's total income will increase, contributing to increasing the shareholders' income in the end.

Leverage may be satisfactory or unsatisfactory. It is positive when revenue is higher than debt costs. However, it is negative if its income is lower than the fund's security cost. The provision of the loan is a significant source of financing to support the limited investment of the shareholders. It also contributes to the return on equity.

The financial leverage of the business is the amount of debt used to buy more property. Processes use a lot of pressure and avoid using equity financing. Therefore, it is for these loans to pay high levels of financial leverage and more difficult and increases the risk of failure.

The formula for financial leverage as a % of total debt to total equity is measured. Increase in debt as a percentage of the property, and then the financial leverage is also. Benefits associated with the loans that can be placed using large returns when availing loan expensed is positive. Many companies are existing shareholders for the acquisition, earnings per share, and stock rather than to reduce the financial leverage.

Financial leverage has two main benefits

- It improved corporate results. An entity with a disproportionate amount of influence over the company's financial assets may be able to earn.
- Preferential tax treatment. Many jurisdictions' taxes interest expenses are tax-deductible, minimum the cost of net debt.

That is enough to cover the interest expenses for the return of interest is not often that the relevant amount to the borrowers financial offers the possibility of disproportionate loss account. Revenue interest rates rise or fall other problems.

In other words, the easiest way is to use strategies that aim to increase profit and losses. Using existing assets to achieve higher returns can be a risky process and an important representative of the financial strategy and capital structure. Achieve the ability to generate a significant competitive advantage, despite the risks, as it can increase the speed of earning multiple revenues.

Importance of Leverage

Leverage provides the following benefits to companies:

- Capital structure is an important option that management can access to get the best financial and investment decisions.
- It offers a variety of financing sources that the company can achieve income goals.
- Leverage is also an important investment method as it helps to set standards for company expansion. For example, it can impose expansion restrictions when other investment returns are looking forward to being lower than the cost of debt.



Significance

A firm's worth is significant because a high worth correlates with higher shareowner wealth, Brigham dan Houston, (2006). Therefore, a higher stock price equals a better company value. The goal of shareholders is to improve the firm's worth. Cos a higher firm value equals greater shareholder wealth. Therefore, the stock price reflects the wealth of shareholders and the corporation due to investment decisions, finance, and asset management. The organizations aim in the upcoming time is to maximize the firm's worth. The level of wealth of the owners represents the high firm value. Investors' Investors' primary focus has shifted to the firm's worth. The firm value itself might reveal the extent of shareholder and investor prosperity. It signifies that its financial manager's success is measured by its value. From an investor's perspective, firm value is frequently linked to stock price, implying that a greater stock price equals a higher firm value. The company's main objective is to maximize assets or business value. Increasing shareholder wealth, which is linked to increasing business value, is one of the company's key objectives.

Problem statement

The data available on the present variables impacting the organizations worth of non-financial companies in Pakistan is very few. There has been very little research over the last decade in this field. To identify the impact of debt to equity, firm size, and Profitability on the firm worth and the moderating role of Covid-19 on firm worth of Pakistan's non-financial business sector using accounting ratios on new data from 2016 – 2021-Quarterly. There has also been inconsistency observed in the relationships between firm value and firm size, capital structure, Profitability.

In 2011 a researcher name of Chen and Chen conducted research on same variables and he found a negative relationship among the variables and in 20016 a researcher name of Khrisnan and Charumathi conducted a research on same variable and they found positive relationship among the variables.

Objective of Study

This investigation aims to conclude and investigate the impact of leverage, size of the firm, and Profitability on business worth and the moderating role of Covid-19 on firm worth in Pakistan's non-financial business sector using accounting ratios on quarterly data from 2016 to 2021. Therefore, the primary goal is to determine if the impact of capital structure, company size, and Profitability on firm value has increased or decreased throughout covid-19 of different non-financial industries.

Scope of Study

The research examined non-financial businesses in Pakistan that was still capable of operating their operations during the pandemic.

Limitation of Study

The researcher was unable to obtain information from non-financial businesses across the country due to time constraints.

Research Questions

As one of the first steps in research, the development of research questions is the foundation for the entire study. If research objectives are not defined, the researcher will likely be unable to conduct the research effectively. Therefore, research questions are Following relevant to this study.

- What is the relationship between capital structure and firm value?
- What is the relationship between firm size and firm value?
- What is the relationship between firm profitability and firm value?
- What is the impact of Covid-19 on firm value?



CHAPTER 2: LITERATURE REVIEW

This study refers to the findings of prior studies based on well-known financial theories like “trade-off theory, pecking order theory, agency Modigliani theory, and balancing theory”.

Measurement of Firm Value:

Tobin’s Q:

This ratio was formulated by James Tobin, who was a student at Yale University's, a Nobel winner in economics; he said the "accumulative market worth of all enterprises on the stock market should be nearly equivalent to their replacement costs".

Tobin's Q is the ratio of the market value measured by dividing total shares outstanding and liability with asset replacement cost. Firms with higher Tobin's Q usually have a strong brand image, good growth prospects, and also bigger intangible assets. The total market value of the firm can be calculated using market capitalization which is total share outstanding times with share price at current price.

Lower Tobin’s Q placed for the competitive and weaker industries. According to Chung and Pruitt suggest according to their research that the following Tobin’s Q formula is more comprehend the whole aspect which is:

Tobin’s Q = Market capitalization /Total Asset

There are several advantages of using Tobin’s Q ratio:

Tobin's Q provides a wide range of information and explains more phenomena in the firm such as the different cross-sectional in investment decisions. Classen and Fan, (2003) in Sukamulja, (2004) and Sudiyanto dan Puspitasari, (2010). The biggest drawback is that this ratio needs a big number of data, extra time, and energy to process all the data.

Debt Policy and Firm Value:

Capital structure decisions are one of several that corporate executives must make to ensure the company's operations continue. Financial decisions are focused on the leverage ratio that the firm must use. In addition, the capital structure decision must be made following the company's objectives, including enhancing firm value.

A good capital structure is a decision on funding or financing sources for the company's operations that comprises short-term debt, permanent debt, preferred stock, and ordinary shares. Managers must assess the firm's capital structure and understand the relationship with expected risks, performance, and company values. Brigham and Houston (2011) concluded that managers must optimize their firms' capital structure to maximize profitability and stock price.

The main goal of capital structure management is to integrate the sources of permanent finances so that stock prices, which represent the company's value, can rise. Internal capital (internal) and external capital (loans/debt) are the two main capital sources. When a corporation employs its capital, it reduces its reliance on outside investors, but its capital is not deductible from corporate taxes.

This investigation uses the leverage ratio to calculate capital structure (DER). The debt-to-equity ratio (DER) is used in corporate financing to reflect a company's ability to satisfy all of its commitments using just its resources. This ratio shows how much of the owner's capital can pay off external debts. The leverage ratio is another name for this ratio. For external parties, the ideal ratio is when capital exceeds or equals the amount of debt.

Capital Structure Theory analyses whether changes in capital structure affect the firm value if investment and payout decisions are constant/unchanged. Changes in capital structure, in other words, do not affect the company's value, meaning that there is no optimum capital structure. Every capital structure is advantageous. However, if changing the capital structure causes the company's value to change, the best capital structure will be found, and there will be an effect.



A good capital structure allows a company's value, or stock price, to be maximized.

Modigliani and Miller Theory

According to MM's view, a corporation's leverage has no bearing on its worth. The capital structure has no bearing on debt. Investors always favour assets that produce the same net income at the same risk, which leads to the arbitrage process.

Pecking Order Theory

This hypothesis explains why businesses will choose the most favoured funding source hierarchy. This approach is founded on asymmetric information, which means that management has access to more data than public financiers. In this situation, the investment will be made by a group of individuals interested in making capital investments. Investors will think that the firm's share price is inflated if the company uses shares (the riskiest external money). Lower stock prices will not harm shareholders for new shares. In contrast, the share of debt secured by the firm's ability to earn revenue in the upcoming can be sufficient. As a result, the debt market share received a favourable response.

Balancing Theory or Trade-off Theory

Trade-off hypotheses explain that borrowing money has advantages and disadvantages. Bankruptcy costs and agency costs occur in an imperfect equity and debt market. The more the chances of bankruptcy and the more the expense of bankruptcy, the more dependable the organization is when using a lot of debt. The best capital structure is determined by balancing the tax shield profit due to debt with financial distress, as per the trade-off theory.

Furthermore, the benefits and drawbacks of debt are balanced. Companies use balancing theory to locate more capital by obtaining loans from banks or issuing bonds. For example, optimal capital structure optimizes a company's price, which typically necessitates a lower debt ratio than the ratio that maximizes the expected price per share. Similarly, the credit factor, which makes it more difficult for businesses to work with high leverage, also will make it more difficult for them to do so (corporate debt is the category that endangers the company itself).

Chen (2002) also discovered that capital structure had a favourable but minor impact on business value. Chen also showed that if a corporation does not use debt in its capital structure, its value will rise. In contrast to a prior study by Arijit (2008), leverage was found to influence future opportunity increases in the company's value negatively. According to Paminto (2016), capital structure has a linear relationship with business value. The capital regression coefficient is -0.477, with a 0.000 level of significance. This shows that a company's capital structure has a detrimental impact on its value. The capital structure (DER) has increased by one unit, but the corporate value has fallen by 0.477 units. If the DER is larger, the firm value will be lower.

Effect of Firm Size on Firm Value

When we examine and analyse previous research on this topic, we find no single model or theory on which scholars and researchers agree. As a result, despite extensive research by various researchers, there is no general agreement on the precise impact of firm size on firm value. The main reason for the lack of common consent is that each researcher develops their research sector, research area, and research sample.

According to Mutmainah (2015) the size of the firm will be assessed by its total assets, sales or capital. Compared to organizations with moderate total assets, corporations with substantial total assets have matured. Therefore, they're judged to own sturdy prospects in an exceedingly usually stable time and the ability to come up with profits. once a firm encompasses a heap of overall assets, the management encompasses a heap of choices for the way to use them. Management believes that the convenience with that it will management the corporate can increase its price. Rajgopal and Venkatachalam, (2011).

Such study, conducted by Nurainy (2013) in Indonesia, found a positive correlation between firm size and firm value. He collected data from firms listed on the (IDX) from 2013 to 2016. One another research conducted by Jang, Ji Kyoung Jang, J. K., & Utomo & Utomo, (2021) in



Indonesia has shown a positive correlation between the firm size and firm value, he collected data from manufacturing firms listed in (IDX) over five years. Sample size for this research was 84 manufacturing companies and the total observations were 420 collected during the study.

Another study conducted in Indonesia by Jang, Ji Kyoung, Jang, J. K., & Utomo & Utomo, (2021) found a positive correlation between firm size and firm value. He collected data from manufacturing firms listed on the (IDX) over a five-year period. The sample size for this study was 84 manufacturing companies, with a total of 420 observations collected during the study. One another research conducted by Estiasih, (2019) in Indonesia has shown a positive correlation between the firm size and firm value, he collected data from manufacturing firms listed in (IDX) from 2010 to 2012. Tobin-Q considered by the researcher as proxy for firm value.

One another research conducted by Hirdinis, (2019) in Indonesia has shown a inverse correlation between the firm size and firm value.

One another research conducted by Wirianata, (2020) in Indonesia has shown a inverse correlation between the firm size and firm value, he collected data from a firms listed in (IDX) from 2016 to 2018.

One another research conducted by Husna & Satria, (2019) in Indonesia has shown a positive correlation between the firm size and firm value, he collected data from manufacturing firms listed in (IDX) from 2013 to 2016.

One another research conducted by Pratiwi, (2020) has shown no correlation between the firm size and firm value.

One another research conducted by Sudiyatno, (2020) in Indonesia has shown a inverse correlation between the firm size and firm value, he collected data from property and real estate firms listed in (IDX) from 2010 to 2014. Sample size for this research was 34 property and real estate firms and the total observations were 420 collected during the study.

One another research conducted by Lumapow & Tumiwa, (2017) in Indonesia has shown a positive correlation between the firm size and firm value, he collected data from property and real estate firms listed in (IDX) from 2008 to 2014.

One another research conducted by Sulaiman, (2019) in Nigeria has shown a positive correlation between the firm size and firm value, he collected data from insurance firms listed in (NSE) from 2012 to 2017.

One another research conducted by Sondakh, (2019) has shown a positive correlation between the firm size and firm value.

Effect of Capital structure on Firm value.

This under-investment issue can reduce a company's value, especially if it has a lot of future investment opportunities. Stulz (1988) contends that debt can have an impact on corporate value in both positive and bad ways, expanding on Jensen's (1986) over-investment debate and Myer's (1993) under-investment dispute. According to Aggarwal and Kyaw (2006), debt can have both good and negative effects on a firm's value; thus, the ideal debt structure is constructed by balancing agency charges and other debt expenses to alleviate under and over-investment worries. When a company has extra cash flow, debt requires management to disburse funds that might otherwise be spent in projects with a negative net present value. On the other hand, firms with outstanding debt may be inclined to reject projects with a positive net present value of the benefit to bondholders that surpass the benefit to shareholders.

Moreover, McConnell and Servas (1995) contend that the solution to the over-investment problem contains the seeds of the under-investment dilemma. First, they examine the relationship between corporate values, leverage, and stock ownership in US corporations. They discover that value is negatively related to leverage for companies with high P/E ratios or strong



growth but positively related to those with low P/E ratios or poor growth. Their findings support the hypothesis that leverage functions as a monitoring mechanism for low-growth organizations, increasing firm value. In contrast, leverage promotes underinvestment and reduces firm value in high-growth firms. This leads to the study's second hypothesis: that long-term debt has no relationship with firm value

From 2016 to 2019, a purposive sampling technique was employed to sample the mining businesses listed on the (IDX). The data were analyzed using regression panel data, and the E-Views programmed 10 companies with 5% significant criteria. The study discovered that the capital structure had a considerable impact on the company's p-value.

(Pangestuti & Tindangen, 2020)

One another research conducted by Uzliawati, (2018) in Indonesia has shown no correlation between the firm capital structure and firm value, he collected data from manufacturing firms listed in (IDX) from 2012 to 2015. Sample size for this research was 101 manufacturing companies.

One another research conducted by Almahadin & Oroud, (2020) has shown inverse correlation between the firm capital structure and firm value.

One another research conducted by Dang & Do, (2021) in Vietnam has shown positive correlation between the firm capital structure and firm value by using GMM approach, he collected data from non-financial firms listed in (VN) from 2012 to 2019. Sample size for this research was 435 non-financial firms.

One another research conducted by Van Khanh, (2020) in Vietnam has shown inverse correlation between the firm capital structure and firm value.

One another research conducted by Nurazi, (2020) in Indonesia has shown positive correlation between the firm capital structure and firm value, he collected data from firms listed in (IDX).

One another research conducted by Maneerattanarungrot & Donkwa, (2018) in Thailand has shown positive correlation between the firm capital structure and firm value, he collected data from firms listed in (SET) from 2012 to 2014. Sample size for this research was 315 manufacturing companies.

One another research conducted by Nguyen et al., (2020) in Vietnam has shown positive correlation between the firm capital structure and firm value, he collected data from firms listed in (HCM) from 2010 to 2018. Sample size for this research was 10% manufacturing companies.

One another research conducted by Aggarwal & Padhan, (2017) in India has shown positive correlation between the firm capital structure and firm value by using GMM approach, he collected data from hotel industry listed in (BSE) from 2001 to 2015. Sample size for this research was all hotel industries of India. According to the study, the Modigliani-Miller assumption of capital structure irrelevance does not apply to the Indian hotel industry.

(Aggarwal & Padhan, 2017)

One another research conducted Musa et al., (2021) in Africa has shown positive correlation between the firm capital structure and firm value, he collected data from firms listed in (AFX) from 2010 to 2018.

Another study conducted in Pakistan by Khan (2021) found a positive correlation between firm capital structure and firm value; he collected data from firms listed on the (PSX).

One another research conducted by Vo & Ellis, (2017) in Vietnam has shown negative correlation between the firm capital structure and firm value, he collected data from firms listed in (VN) from 2007 to 2013.

One another research conducted by Fernandes, (2019) in Indonesia has shown positive correlation between the firm capital structure and firm value, he collected data from firms listed in (IDX).

Another study conducted in Vietnam by Suhadak (2020) found a strong correlation between firm capital structure and firm value.



Effect of profitability on firm value

Research conducted by Sudrajat & Setiyawati, (2021) in Indonesia has shown no correlation between the Profitability and firm value, he collected data from manufacturing firms listed in (IDX) over five years. Sample size for this research was 178 manufacturing companies.

One another research conducted by Harahap et al., (2019) in Indonesia has shown little correlation between the Profitability and firm value, he collected data from manufacturing firms listed in (IDX) from 2016 to 2018.

One another research conducted by Harahap et al., (2019) in Indonesia has shown little correlation between the Profitability and firm value, he collected data from manufacturing firms listed in (IDX) from 2014 to 2016. Sample size for this research was 178 manufacturing companies.

One another research conducted by Putri & Wiksuana, (2021) in Indonesia has shown strong correlation between the Profitability and firm value, he collected data from manufacturing firms listed in (IDX) from 2015 to 2019.

One another research conducted by Mubyarto, (2020) in Hong kong has shown strong correlation between the Profitability and firm value, he collected data from manufacturing firms listed in (SEHK).

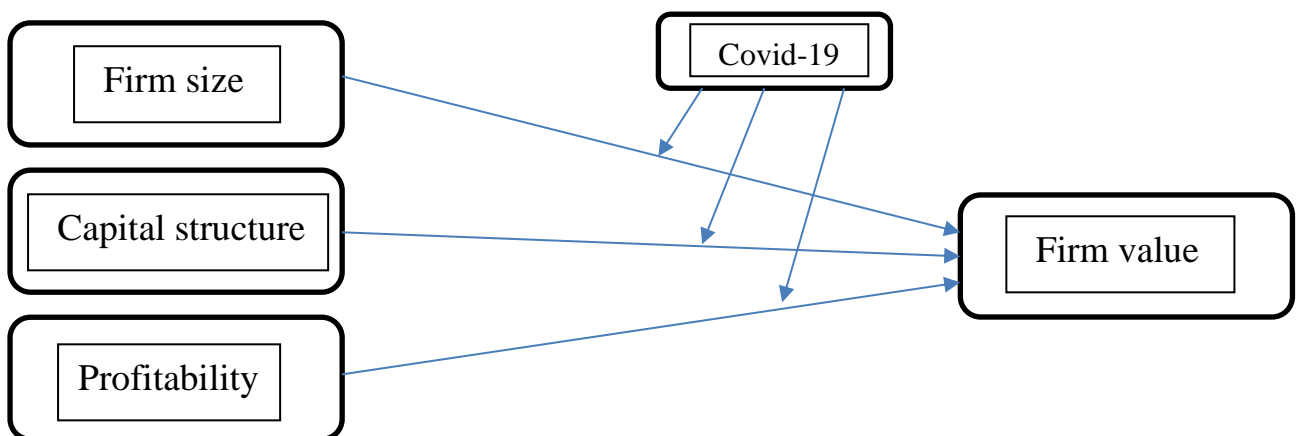
One another research conducted by Jihadi (2021) in Indonesia has shown strong correlation between the Profitability and firm value, he collected data from manufacturing firms listed in (IDX) from 2014 to 2019. Sample size for this research was 22 manufacturing companies.

Theoretical Reflections

The research methodology adopted by this study seeks to develop a theoretical framework liable to be tested through empirical analysis, executing an online survey to gather data. Figure 1 provides a reflection of the theoretical framework current by the study.

Theoretical framework

As per the research premise conceived by the current research, the main objective of this research was to evaluate the role of Capital structure and other control variables on Firm value and role of covid-19 as mediating variable.



Research Framework

A suitable research framework provides the path to implement in the target sector and for utilization in the other organization and sectors across the world. A research framework is tested on the selected methodology to validate and testify the hypothesized relationships. Data acquired so further reveal whether fit the survey conducted.



CHAPTER 3: RESEARCH METHODOLOGY

Research approach:

The research approaches are categorized into two main categories.

Inductive approach:

The inductive approach is also called as theory approach. The data is collected at the first stage in this approach, and then the theory is developed after analyzing that data (Lewis & Saunders, 2000,p89)

Deductive approach:

The deductive approach is also named as theory testing approach. The hypothesis is developed at first in this approach by the researcher. It is a casual approach as it defines the relationship between two or more variables (Lewis & Saunders, 2000, p89)

In our research, we will use a deductive approach to develop a hypothesis at the 1st stage. Then the data will be analyzed to test the developed hypothesis and investigate the relationship between the variables.

Population and sample of the study

The present study statistically investigates the firm size, firm profitability, capital structure, and moderating role of covid-19 relationship with the firm value of firms of Pakistan, mainly focusing on the non-financial sector. Due to time constraints and data availability, the study contains a sample of 193 PSX-listed non-financial enterprises. The industry of which data were available and obtained for analysis are following, Automobile, Beverages, Chemical, Computers, Constructions and material, Electricity, Electronic, and electrical equipment, Equity investment instrument, Fixed-line telecom, Food, and drug retailer, Food producers, Forestry, and paper, Gas water and multi utilities, General industry, General retailer, Healthcare equipment and service, Household goods, Industrial engineering, Industrial transportation, Leisure goods, Life insurance, Media, Non-equity instrument, Nonlife Insurance, Oil and gas producers, Personal goods, Pharmaceutical and bio, Real estate investment trust, Tech hardware and equipment, Tobacco, Travel, and Leisure, Unclassified. These industries are represented as i1 to i32 in the final findings in chapter 4.

Data:

The data analysis in this study includes 193 non-financial businesses listed on the (PSX) with 3000 observations from 2016 to 2021 quarterly. Purposive sampling was employed to choose the samples, and 193 samples were acquired (N). Profitability (ROE), firm value (Tobi-Q), capital structure (DER), and business size are the factors in this study (Ln Total Assets).

Types of study:

The type of study remained correlational. The effect of the independent variable (firm size, capital structure, firm profitability) was observed on the dependent variable (firm value) selected for the study.

Time horizon:

In a research context, two sorts of temporal dimensions interact with this study participant, first known as time-series data. The second is known as panel data; time-series data consists of observations of one individual at multiple time intervals. Panel data is a dataset that contains observations of several persons at multiple time intervals; for this study, we chose panel data for our final analysis, which included data from 2016 to 2021 quarterly for each organization.



Data collection and analysis:

The secondary data was collected using the Thomson Router-Data stream, to which BUIC's PG-Lab had access. Finally, simple regression analysis was used to determine the relationship between the independent and dependent variables.

Econometric technique:

The in-depth investigation was conducted using modern econometric techniques. Ordinary least-squares analysis was used to determine the association between the variables. The impact of firm size, profitability, and capital structure on firm value was explored in this study, which considered the moderating role of covid-19. To perform the regression analysis and determine the relationship between the variables, the STATA software was used.

Specification of variables:

The current study investigates the relationship between firm size, firm profitability, and capital structure on firm value by using covid-19 as a moderating factor for non-financial firms listed on the (PSX). The current study constructs the firm size, capital structure, and profitability index from 2016 to 2021, as well as the covid role on firm value between 2020 and 2021. The Tobin-Q method was used in this study to calculate the firm's value.

Firm size According to previous research, different researchers measured firm size in different ways. Several academics have proposed using natural logarithms of total assets as a firm size metric. Haniffa and Cooke, 2002; Hossain and Reaz, 2007 (2007). It was also discovered that some researchers determined the size of a company based on the number of employees. Prencipe, Pre (2004). Some researchers used the number of employees to determine the size of a company, (Naser, Al-Hussaini, Al-kwari, and Naseibeh, 2006).

We used firm size as a control variable and the log of total assets to measure company size in this study.

Firm profitability: Profitability is the quantity or degree of the profit earned by a firm. It is measured in percentage, for example, percentage of investments, assets, or sales. Higher profitability plays an essential part to fetch external financing in business as lenders, suppliers & investors are easily attracted to invest in such business (Gitman,2002,)

Profitability Ratios:

To measure profitability several ratios are used:

Return on equity (ROE)

Return on equity measures a firm's earnings against common shareholders' investments. Shareholders always invest in the firm which provides a higher return (GITMAN,2002,)

$$ROE = \frac{\text{Net income}}{\text{shareholder's equity}}$$

Net Profit Margin:

Net profit margin is the percentage of sales after withholding taxes, interests, dividends to the shareholders, costs, and expenses. Higher the value of return on sales higher will be the net profit margin and better will the performance of the firm (Gitman,2002,)

$$NPM = \frac{\text{Net income}}{\text{net sales}}$$

Return on assets (ROA):

Return on assets ratios shoes show efficiently a firm utilizes its assets to earn profits, it computes the percentages of profit produced against each dollar of assets. Higher is the ROA of a firm, better will be the performance of the firm(Gitman,2002,)

$$ROA = \frac{\text{net income}}{\text{Total asset}}$$

Capital structure:

Leverage is the debt-to-equity ratio in a firm that leads to loss or profit maximization of shareholders. Financial managers are held responsible for this responsibility and to maximize the profits of stakeholders, financial managers take quick and effective decisions and encounter a series of hard spots. This effective decision-making helps the managers to decide the adequate



level of leverage (debt-equity ratio) as none of the firms has all types of resources to carry its operation and all businesses need to borrow from financial institutions and other lenders to finance operations and investments.

Measurement of variables

The following table shows how each variable was measured.

Operationalization of Variables		
Variable	Measurement Method	References
Firm Value	Total market capitalization (Share price* Total outstanding) / total assets	Tobin-Q
Size	Log of Total assets	Hartoyo, khafid, and Agustina, (2014)
Profitability	Profit after tax/total asset	(Tailab, 2014)
Capital structure	Total liabilities/Total Equity	(Hirdinis, 2019)

Tools, Techniques, and procedures

There are many data analysis techniques available, such as correlation between variables to determine the impact of one on the other, or regression models such as the generalized least square regression model. These models can be modified by the researcher to meet the needs and objectives of the study. There are several regression models that were used. For both correlation and regression, the mean of the variables under study was calculated for a five-year quarterly period spanning 2016 to 2021. Table-2 displays the calculated means.

Correlation

Correlation research is being conducted to investigate the relation of a firm's capital structure on its worth. This study will use the correlation to investigate the nature and extent to which the leverage affects firms worth. It is critical to note that the correlation answer will be between minus one and one.

If the correlation results between dependent and independent variables are expected to show a strong negative relationship, it indicates that the capital structure (increased gearing) has a strong and inverse relationship with the value of a non-financial firm. The closer it is to plus one or minus one, the more intense the relationship (positive or negative).

Model of Study

Panel regression analysis has been used. Panel data is the combination of time series & cross-sectional data. Equation of our model is:

Firm value

$$(tobin - Q_{i,t}) = \beta_0 + \beta_1(SIZE_{i,t}) + \beta_3(CAPITAL STRUCTURE_{i,t}) + \beta_3(FIRM PROFITABILITY_{i,t}) + \beta_4(COVID_t) + \varepsilon$$

Hypothesis

The hypotheses are formed based on the relationship of the Firm value determinant. They will be tested to determine the type of relationship that exists in non-financial firms or not.

Size

H0: There is a no relation between Firm size and Firm value.

H1: There is relation between Firm size and Firm value.



Leverage

H0: There is a no relation between Capital structure and Firm value.

H1: There is relation between Capital structure and Firm value.

Profitability

H0: There is a no relation between Firm Profitability and Firm value.

H1: There is relation between Firm Profitability and Firm value.

Covid-19

H0: Firm value doesn't increase during Covid-19.

H1: Firm value increased during Covid-19.



CHAPTER 4: EMPIRICAL FINDINGS OF THE STUDY

Introduction

The empirical findings of the study are discussed in this chapter. The first section describes and illustrates the expressive measurements of the variables employed in this investigation. The second section summarizes the current study's regression results. The impact of the control variable on the explanatory variables is also discussed in this chapter. Finally, this chapter concludes with empirical evidence from earlier studies.

Table 1

Two sample T Test Results

	obs1	obs2	Mean1	Mean2	dif	St Err	t value	p value
firmvalue by covid-1	2150	875	0.685	0.764	-0.078	0.036	-2.15	0.03

Observation one and observation two for Covid-19 are 2050,875 respectively. The mean one and mean two are 0.685, 0.764 respectively and the difference between the means values are -0.078 and the standard errors are 0.036 and the t value is -2.15 and P-value is 0.03 which is significant.

Descriptive statistics:

The firm value of Pakistan's current non-financial industry has been examined using three independent variables, with Covid-19 moderating firm value. The story displays descriptive statistics on explanatory variables used in the current investigation. The current study examined data from 193 non-financial firms from 2016 to 2021. The total number of observations remained 3025, with the exception of one variable. The table displays the smaller and larger values of the variables used in the current study. The following table provides descriptive statistics for capital structure, firm value, profitability, size, covid-19 and company value.

Table 2

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Firm Value	3025	0.708	0.901	0.017	6.739
Capital Structure	3001	1.355	2.976	0	37.35
Profitability	3025	0.936	0.563	0	3.611
Size	3025	15.915	1.474	11.157	20.372

The descriptive statistics for all explanatory variables are shown in Table 2. The firm value's mean, standard deviation, minimum, and maximum are 0.708, 0.901, 0.017, and 6.739, respectively. Capital structure's mean, standard deviation, minimum, and maximum values are 1.355, 2.976, 0, and 37.35, respectively. The profitability mean, standard deviation, minimum, and maximum are 0.936, 0.563, 0, and 3.611, respectively. The mean, standard deviation, minimum, and maximum firm size are respectively 15.915, 1.474, 11.157, and 20.372.

Correlation analysis:

The correlation matrix results are shown in the table-3. The correlation matrix between the dependent variable (Firm value) and the independent variables is shown in the table below (Capital structure, Profitability, and Firm size)



Table 3

Matrix of Correlation

Variables	-1	-2	-3	-4
1) Firm Value	1			
2) Capital Structure	-0.059	1		
3) Profitability	0.313	-0.068	1	
4) Size	-0.01	-0.065	-0.154	1

The table's findings show a positive and negative significant relationship between capital structure, firm size, Profitability and firm value. The above table also demonstrated that the higher the Profitability, the higher the firm value. The significant positive relationship between firm Profitability and Tobin-Q was 0.313. The correlation matrix between capital structure and Tobin's Q disclose, on the other hand, is -0.059, indicating a negative relationship with firm value. The disclosure of firm size also revealed an inverse relationship with -0.01. It could be argued that the negative relationship was caused by high debts relative to equity and holding expensive assets with low asset turnovers.

Investors that invest in highly leveraged companies are more likely to lose money. Strong values are all negative on average for enterprises; firm values are more negative in higher-leveraged enterprises. Notably, investing in the highest leverage businesses category would result in a significant loss for investors.

Overall, the findings indicate that enterprises with an acceptable level of debt produce value for their owners. Moreover, our findings are consistent with previous research, such as Muradoglu and Sivaprasad (2012), which show that firms with lower leverage outperform the market in terms of positive returns.

R-square:

For linear regression models, R-squared is a goodness-of-fit statistic. It evaluates the strength of your model's relationship with the dependent variable. This graph depicts the percentage of variation that the independent components account for when combined. That is my model, and it explains 20.6 percent of the variation in the dependent variables. Since the study investigates all the non-financial firms listed on the (PSX), this could be one of the reasons for the low R-square.

Random effect GLS Regression analysis:

Generalized squares is a method for approximating association in a linear regression model and it is used to find out the relationship among the independent and dependent variables.



Table 4
Main Results

	Model 1	Model 2	Model 3	Model 4	Model 5
	Coef./(Std.Err)	Coef./(Std.Err)	Coef./(Std.Err)	Coef./(Std.Err)	Coef./(Std.Err)
Size	-0.3171*** (0.0895)	-0.3663*** (0.0892)	-0.3650*** (0.0891)	-0.3536*** (0.0910)	-0.3210*** (0.0902)
Profitability	0.4129*** (0.0898)	0.4164*** (0.0894)	0.4161*** (0.0896)	0.3987*** (0.0902)	0.4122*** (0.0897)
Capital Structure	-0.0075** (0.0033)	-0.0077** (0.0034)	-0.0077** (0.0034)	-0.0075** (0.0033)	-0.0092** (0.0042)
Covid		0.0668** (0.0209)			
Covid x Size			0.0040** (0.0013)		
Covid x Profitability				0.0491** (0.0215)	
Covid x Capital Structure					0.0059 (0.0048)
Constant	4.6357*** (1.3471)	5.3654*** (1.3438)	5.3474*** (1.3427)	5.1953*** (1.3726)	4.6951*** (1.3591)
Industry Control	Yes	Yes	Yes	Yes	Yes
Overall R-square	.2078138	.1881649	.1890437	.1932841	.2061808
No. of Obs	3001	3001	3001	3001	3001
No. of Groups	193	193	193	193	193

* p<.1, ** p<.05, *** p<.001

Interpretation of regression model

If the P-value from the regression model is less than 0.05, which is statistically significant, we accept our alternate hypothesis statement and reject the null hypothesis statement. Table 4 demonstrates that all of the Regression analysis results are consistent across the models 4.635, 5.3654, 5.3474, 5.195, 4.691 respectively, and all variables P-values are less than 0.05, as required; based on the P-value, we accept all of the study's alternate hypotheses and reject all of the study's null hypotheses.

Secondly, we controlled all the industry types in our regression and hidden dummies of industries to make the reporting easy and simple. Our finding from model 1 indicates the negative impact of firm size on firm value where the coefficient and standard error are -0.3171, 0.0895. The regression analysis results are well supported by previous studies carried out by Sudiyatno et al. (2020).

Again, the finding from model 1 indicates a positive impact of firm profitability on firm value where the coefficient and standard error are 0.4129, 0.0898 respectively. Moreover, the regression analysis results are well supported by previous studies (Mubyarto 2020).

They are again finding from model 1 indicating an inverse relationship between Capital structure and firm value where the coefficient and standard error are -0.0075, 0.0033 respectively. The regression analysis results are well supported by previous studies carried out by Vo & Ellis, (2017).

Firm leverage has an inverse relation with firm value even though financial leverage supports improving well worth, but excessive financial leverage can lead to insolvency.

In model 2, we were tried to examine the impact of Covid-19 on Firm value. Based upon our finding, we can conclude that the firm value of non-financial firms during covid-19 has increased where the coefficient and standard error are 0.0668, 0.0209, respectively.

In model 3, we were tried to examine the impact of firm size on firm value during Covid-19. The finding of our results concludes that the relationship among the variables remained inverse. Still, the relationship intensity among variables has been reduced during Covid-19.

In model 4, we tried to examine the impact of profitability on firm value during covid-19. Our results conclude that the relationship among the variables remains the same positive. Still, the relationship intensity among variables has also been reduced during Covid-19.

In model 5, we tried to examine the impact of Capital structure on firm value during covid-19. Our investigation concludes that the relationship is insignificant, so during the period of Covid-19, the impact of Capital structure on firm value remained the same as how it was earlier.



Analysis shows that size and capital structure have a negative effect on firm value, while profitability has a positive impact on firm value. The table shows how 1-unit change in the determinant changes will affect the firm value and by what percentage. For example, a 1-unit increase in size will decrease firm value by 31.7%. A one-unit increase in Capital structure will reduce Firm value by 0.75%. The greatest changes have occurred in profitability with a positive relation. A 1-unit change in profitability increases 42.1% firm value.



CHAPTER 5: CONCLUSION AND RECOMMENDATION OF RESEARCH

Introduction

The conclusion should help the reader understand why your research is important to them after they have read the paper.

Conclusion

The research aimed to investigate the link between capital structure, firm size, profitability on the firm's worth in the non-financial Sector of Pakistan and investigate the impact of Covid-19 as a mediating variable. For this purpose, a total of one hundred and ninety-three companies were selected at total. According to the literature, the relationship between capital structure and firm worth has been extensively researched in developed economies. Nonetheless, only a few studies in developing economies have been conducted. We reached major outcomes; generally, the results show that firm size has negative but significant results, firm profitability has positive and significant results, and leverage also has negative but significant results. The role of Covid-19 as mediating variable also has positive and significant results on the firm worth of non-financial firms of Pakistan, also the impact of firm size on firm worth during covid-19 was reduced, and also profitability impact on firm worth was reduced during covid-19, and the impact of leverage on firm worth remained same during Covid-19. So we can conclude that financial leverage has a negative impact on firm worth; even though financial leverage supports improving firm worth, excessive financial leverage can lead to insolvency. Firm size shows negative but statistically significant in our results, so it is also quite comfortable. While Profitability (ROA) shows us a positive and marginal significant consequence and role of covid-19 as mediating variable shows positive and statistically insignificant results. So, we determine that we accept the alternative hypothesis cos the p-value of all independent variables is less than the significance level (0.05).

Limitation & Recommendation

There are some limitations and recommendation to the current investigation. The current study only takes into account Pakistan's non-financial firms. It has the potential to be expanded to other countries. The current study included 193 non-financial enterprises as its sample size. To get more reliable generalized results, additional firms should be taken as samples across the country. The study solely used quarterly data from the sampled firms' last five years. More years of data can be considered in the future.



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