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Effect of Leverage on Financial Performance of Listed Firms in the Pakistan Securities Exchange

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ABSTRACT

The business environment in Pakistan, especially for listed companies on the Pakistan Stock Exchange (PSX), is competitive and uncertain, and requires a well-done financial performance for business survival and development. Even though the policy makers and business community makes different efforts to create a conducive environment for business, still the difference in financial performance of companies is noticeable where some companies are performing better whereas some have decreasing their profitalike. This has motivated further research on firm-specific issues, for example, financial leverage, but the work has not set a clear path for the managers and practitioners to set optimal financing strategies. The main objective of this research work is to examine the effect of leverage on Financial Performance of Listed Companies of Pakistan Stock Exchange especially in the context of financial and non-financial firms. The type of research used is a panel study and the data used is secondary data that comes from the financial statements of 20 companies for the period 2021-2025. ROA, ROE and the debt ratio represent financial performance and leverage respectively. Panel data regression techniques such as Fixed Effects (FE) and Random Effects (RE) were used to analyse the data, and the choice of the model was determined using the Hausman test. Descriptive statistics, correlation analysis, Fixed Effects and Random Effects panel regression models were used to analyze the data. Hausman test was used to decide on the model of estimation. Results show that leverage varies in impact by industry. Leverage has a significant negative impact on ROA and significant positive impact on ROE for financial firms. In non-financial entities, there is a positive and significant relationship between leverage and ROA as well as the ROE measure. From hausman test, the results show that the Random Effects model is the best estimator.

Keywords: *Leverage, Financial Performance, ROA, ROE, Pakistan Stock Exchange*

INTRODUCTION

Background of the Study

Over the past few years, borrowing rates are breaking Pakistan's records on the back of the increased rate of policy. Hence, optimal selection of a capital structure is becoming a problem for companies. While there is a correlation between leverage and financial performance, excessive leverage could improve the returns of shareholders while on the other hand increasing the financial risk – hence it might be a matter of interest for a listed company in Pakistan Stock Exchange.

Measures of financial performance are monetary and indicative of the overall performance of a company. It gives information regarding their financial standing and profit making activities as shown by them in their accounts. Investors should get insight into the financial performance of a company before they make an investment decision. Investors can use financial data to analyze the company's financial performance, its profits, and the overall stability of the company, which can help them decide whether to invest in it is likely to be profitable or not. (Deitiana & Habibuw, 2015). The most convenient way of evaluating the performance of a business is to study the financial statements of the business. Today's rapidly competitive business environment puts more pressure on companies to perform and maintain good financial results. Hence, a perpetual endeavour for every business is necessary to enhance and sustain their financial position in the market for gaining competitiveness. The effective performance helps a company to see improved bottom lines that result in increased market share, better operational efficiencies and lower operating expenses. These are what can help a company to achieve a competitive advantage and stay in the industry. On the other hand, if the business is not performing better, it could lead to the loss of its competitive edge, reduction in market share and consequently, its inability to survive in the market.

Leverage is the use of debt to operate and/or invest in a business. It allows a firm or an investor to invest and amplify its possibilities of gaining a return on investment using the borrowed sum. While the use of leverage can often help to improve a trader's profit level, it can also lead to a higher likelihood of losing money. The company or investor will be responsible to pay back the borrowed money with interest even if the investment does well, but doesn't generate revenue. The extra liability can result in financial risk.

A company's financial risk is largely dependent on the financial structure of the business. The financial structure in a business is the relative proportion of financing a business uses to operate its business and assets. They are sources of funds like common equity (ordinary shares), short-term debt, long-term debt and preferred shares. That is, the financial structure refers to the mix of funds that are used to finance a firm's activities.

Capital structure is a part of the finance structure. It involves long term sources of finance like long-term loans and debentures, preferred shares and common equity, excluding the short term sources of finance. Hence, when the short term liabilities are removed from the financial structure the remaining long term financing mix is referred as capital structure. (Naceur & Goaied, 2008).

The use of leverage can assist companies in providing more effective competition to their competitors; especially in highly competitive markets. It plays a role in the company's competitive strategy and has an impact on its financial performance. Particularly, debt financing allows to expand operations, invest in growth opportunities and become a more competitive company.

While leverage can cause these returns to be bigger, it also leads to greater financial risk. The magnitude of this risk will depend on the company's financial structure, that is, if they can garnish more from their debts – include interest and principal repayments – then there will be more risk.

There are three types of leverage namely: balance sheet leverage, economic leverage and embedded leverage. Of these, the most common and widely-used is balance sheet leverage. It is determined by dividing a company's debt by the debt on the company's balance sheet (Hart, 2002). Leverage ratio is a measure of the dependency of company on debt financing. However, once off balance sheet financing activities (operating leases, financial guarantees, etc.) are included in the calculation, the figure is "economic leverage.

The financing of investments can be undertaken by a company either by debt financing or equity financing or through both. If a business employs debt financing along with common equity or preferred shares to run its business, it is regarded as financial leverage or gearing. Financial leverage helps to boost the shareholders' returns but it also corresponds with the increment in financial risk as the firm is bound to pay the fluctuations irrespective of its financial performance. (Dare & Sola, 2010).

If the firm has no debt, financing the firm 100% with equity, then the firm is called unlevered firm. A company which is financed with both debt and stock is called a Levered Company.

Financial leverage is the use of borrowings to carry out business activities or for investment. The main reason behind the use of financial leverage to obtain a return on investment is that it should be higher than the cost of debt. If a company earns a greater rate of return on assets than the rate it paid on its debt, financial leverage contributes to the increase in shares' value (increased ROE) and the shareholders become more wealthy. So, debt financing can be used effectively to augment the shareholders' returns. As long as the return on assets is less than the cost of debt, however, financial leverage will decrease the shareholders' return and increase financial risk. (Molyneux & Thorton, 1992).

Statement of the Problem

One of the biggest decisions that corporate managers have to make is the determination of the best possible capital structure. Leverage allows a firm to grow and provides more opportunities for increased shareholder return. Nevertheless, too much debt will also increase financial risks, the costs of borrowing and potential financial distress. In Pakistan, with circumstances like high inflation, economic uncertainty, and increasing interest rates, making the decisions on capital structure have even more crucial impact.

Earlier research has been mixed on the leverage–financial performance, relationship. Some research found that use of leverage has a favorable effect on business profits; however, other research indicates that too much debt has a negative effect on financial performance. Such contradictory results can make it hard for managers of an organization to decide how to finance their business most appropriately.

Furthermore, there is inadequate study which have made a comparison among the financial and non financial firms that are listed on Pakistan Stock Exchange (PSX). The effect of leverage on financial performance of these sectors is unique as it varies based on the capital structure, regulatory environment and operating characteristics of each sector, making it the aim of this study to analyse how leverage affects the financial performance of these sectors and empirical evidence to facilitate better financing decisions.

Research Objectives

- .To explore the effects of leverage on Return on Assets (ROA).
- To analyze the effect Leverage has on the Return on Equity (ROE).
- To make comparisons on the leverage effects on financial and non-financial companies' financial performance.
- To determine the appropriateness of panel data estimation model for the study

The previous studies of the relation between firm level factors and financial performance have come up with varying findings (Lu et al., 2010; Dhanaraj & Beamish, 2003; Kuivalainen, Puumalainen, Sintonen & Kylaheiko, 2010; Tseng et al., 2007; Mittelstaedt, Harben & Ward, 2003; White et al., 1998; Calof, 1993). Some studies have obtained positive results, showing that the firm level relates positively to the financial performance. (Cubbin & Leech, 1986; Kilantaridis & Levanti, 2000; Poof & Heriot, 2005). Other studies have found that the relationship may be different in certain instances (Tseng et al., 2007), In contrast, other studies have reported that the relation may well be negative, where the influence of some of the factors may lead to a decrease in financial performance. (Amato & Wilder, 1985). Moreover, some studies yielded mixed or no consistent results and some studies failed to yield statistically significant relationship between the firm level factors and financial performance.

Research Questions

1. What effect does financial leverage have on the profitability and market performance of firms listed on the PSX?

2. Is there a significant difference in the relationship between financial and non-financial firms listed on the PSX?

Research Hypotheses:

H1: Leverage has a significant impact on Return on Assets (ROA).

H2: Leverage has a significant impact on Return on Equity (ROE).

H3: The impact of leverage on financial performance differs between financial and non-financial firms.

Significance of Study

Even with the huge research that has been conducted, the problem today is that managerial and practitioner lack a good guideline that could direct them in taking a good decision on the matter of the firm level factor (Kibet, Kibet, Tenai & Muthol, 2011). What is interesting is the fact that several problems encountered by companies under SM status have been attributed to aspects of these companies' characteristics (Chebii, Kipchumba & Wasike, 2011) and so far there has been little empirical evidence to support the claims.

Many studies have been conducted to explore how some firm characteristics affect financial performance, but many of these studies consider only a handful of firm characteristics and other firm characteristics are treated as control variables. Interestingly, the results of these studies often suggest the influence of these "other" firm characteristics is substantial on financial results too (Nunes, Serrasqueiro and Sequeira, 2009; Dogan, 2013). Studies of relationship between firm size and performance conducted internationally by Majumdar (1997), Nunes, Serrasqueiro and Sequeira (2008), Lee (2009) and Dogan (2013) specifically on the interaction between firm size and performance has generally ignored other factors that might also affect the financial outcomes such as Leverage. Therefore, this study will investigate the relationship between Leverage and Financial performance of the firms listed at the Pakistan Stock Exchange.

LITERATURE REVIEW

Theoretical Framework

Trade-off Theory

Kraus and Litzenberger (1973) took forward the theory of trade off in capital structure. Their findings show that debt financing are shielded from payment of tax, implying that the companies that increase financial leverage with debt financing can enjoy more tax benefits and consequently increase profit. But, they also point out that the more indebted a business is, the greater the risk of bankruptcy and the adverse consequences. These cost – benefit analyses of a firm's financial leverage are highlighted in the tradeoff theory because a firm needs to find the optimal financial leverage in order to consider the cost and benefits of using debt versus equity financing. When firms begin to borrow more it becomes a case of the marginal benefit of borrowing start to get lower and the marginal cost starts to rise. Thus, the management should decide an optimal capital structure – that is, most profitable and most valuable combination of debt and equity that will incur the lowest cost of capital. (Kuang-Hua & Ching-Yu, 2000).

The Static Trade-off Theory suggests that although tax shields are a good inducement for firms to issue debt instead of other types of financing, there are costs associated with this. Myers (1977) highlights the need of caution for firms because even though leveraging might offer some benefit in tax deductibility, equity inclusion in the capital structure might be increased due to unavoidable financial distress costs of leveraging. He claims that if the firm raises the debt levels, the cost of debt capital and other costs could cause its cumulative costs of the two types of capital financing to exceed the benefits it can gain from their combination, and vice versa if the firm increases its equity, making a careful assessment of the costs of the two types of capital financing with respect to any given level of the firm's earnings important, whether the level of earnings is high or low.

On the other hand, the Dynamic Trade-off Theory suggests that different firms may not always lock in their desired capital structure—may be willing to adjust their capital structure depending upon the perceived costs and benefits of financing with debt versus equity, expectations of financing margins in the future periods. Being more relevant when firms have to recapitalize or restructure their capital structure given new financial conditions, the work of Fischer, Heinkel and Zechner (1989) presents the concept of a dynamic optimal capital structure. The dynamic trade-off theory takes a different view on the trade-off whereby the firm does not aim to keep its leverage at a desired level but rather in a range around a target that permits leverage to move. Only when companies' leverage is near the top or bottom of this range, according to firms' characteristics like their cash flow volatility, size of the firms, earnings and available interest rates and bankruptcy cost (Kuang-Hua & Ching-Yu, 2000), is re-adjustment of capital structure necessary.

This theory is very relevant to the current study because it states that benefits may result from the use of a "hammer" up to the optimal level. Furthermore, the theory is emphasised with the tax benefits connected with interest payments.

Empirical Review

Al-Tally (2014) has studied the effect of financial leverage on financial performance of the Saudi listed firms. The study's overall results showed that the lower leverage levels generally are associated with higher profit margins and ROA and ROE in the long-run with no significant economic downturns. Under normal economic conditions, it is additionally suggested that Saudi companies may also bill the 짋 zakat responsibleness and managed their leveraging borrowing, to improve their monetary performance.

Perinpanatha (2014) examined the relationship between the financial leverage and financial performance in particular John Keels Holdings PLC in Sri Lanka. The two objectives of the study were to test its hypothesis and to determine the relationship between financial leverage and company's performance for the period 2006 to 2012. The result shows that, the correlation between the financial leverage and financial performance of John Keels Holdings PLC is negative. However, it was revealed that financial leverage has great impact on financial performance of the company.

A study by Wainaina (2014) on the relationship between leverage and financial performance of top 100 Small and medium enterprises (SMEs) in Kenya, revealed that most of the firm in the study experienced financial difficulties due to excess borrowing. Using descriptive cross sectional research design, the study showed that liquidity was the most significant factor affecting the financial performance in 2009 as compared to leverage and firm size, which had a less tangible effect on the financial performance. From then on, the analysis revealed that it was leverage, liquidity and firm size that explained 62.4% of the variations from the financial performance of SMEs for the year 2012. The study therefore concluded that the use of leverage has some significant impact when it comes to the performance of SMEs financial performance and the findings indicated that the correlation between leverage (measured as debt-equity ratio) and financial performance of SMEs in Kenya is a positive one. SMEs should be involved in capacity building courses in business management to understand how to achieve appropriate funding mix and keep an optimum Debt-Equity ratio was suggested.

In his study, titled the “Analysis of financial leverage and Non-financial firms' Performance in Kenya”, Kale (2014) examined the impact of financial leverage on the performance of non-financial firms in Kenya. The financial performance is measured by Return on assets (ROA), Return on Equity (ROE) and Tobin's Q in the present study. These financial leverage variables were supplemented with other control variables such as liquidity, size of the firm and age of the firm. Following the results of Hausman test the analysis was done using a random effects model. In the process, stationarity of data was confirmed with Levin-Lin-Chu test. The results showed a strong negative relationship between leverage and ROA indicating that profitability-oriented firm is inclined to internal financing than external financing which is consistent with the Pecking order Theory. In addition, analysis with the model of Tobin's Q revealed that, for the bigger companies, there was a positive albeit insignificant relationship between financial leverage and performance. While on the other hand the market value of older firms rose, as investors were assured with the reputation of these firms.

The issue of financial leverage and financial performance of deposit money bank was studied here by Abubakar (2015) where the relationship between financial leverage (measured as debt-equity ratio and total debt ratio) and financial performance of deposit money banks measured as their return on equity was investigated. A convenience sampling technique was used for a sample of eleven banks (as there are three tiers of banks: Tier 1, Tier 2 and Tier 3) from 2005 to 2013. Mixed method as descriptive and correlational was used. Descriptive findings revealed that the leverage ratio is high as taking on about 84% of the total their assets is by way of borrowing. The correlation analysis showed that there was no significant relationship between debt ratio and financial performance which was manifested by ROE whereas the debt-equity ratio showed a significant relationship with the financial performance which was manifested by ROE. The study has suggested that in terms of financial performance of commercial banks a proper mix of debt and equity can be implemented to maintain the status of banks competitive in the commercial bank industry.

Raza (2013) examined the effect of leverage on performance of the companies in KSE. Panel data methodology was used in this study to determine the effects on companies that are listed on the exchange from the years 2004-2009. The results of the research showed that profit performance was negatively related

to leverage and thus it was concluded that while long-term debt may be expensive, then it may affect the profitability of the firm negatively if they are used extensively.

Matemilola, Bany-Ariffin and Azman-Saini (2013) in their study investigated the effect of leverage on shareholders' return for the managerial skill. The researchers used a 'Fixed Effects Model', along with several multiple linear regression techniques to analyse the data obtained by collecting a relevant sample. The regression analysis was revealing of a positive correlation between leverage and the shareholder's returns. Further, it was concluded that managerial skills also had a positive effect on shareholder returns which indicates that managerial skills in addition to leverage also may be important determinants in equity valuation.

Again, the effects of leverage on the performance of Registered Deposit Taking Savings and Credit Cooperative Societies (SACCOs) in Kenya was studied by Gweyi and Karanja (2014) who used a sample of 40 SACCOs. They used secondary data for two years (2010 - 2012) for their study. Results showed that there were positive relationships between debt-equity ratio and ROE as well as with after tax profits.

In Kenya, Mule and Mukras (2015) discussed correlation of financial leverage to financial performance of the listed companies. The study was conducted by using annual data on a panel of 5 years of data (2007-2011) and aimed to impact the financial leverage on Return on Assets (ROA) and Tobin's Q using panel data analysis, which revealed that the effect of financial leverage on Return on Assets (ROA) and Tobin's Q was significant and negative. Also, the study found that financial leverage (FL) negatively and insignificantly affected the performance measured by ROE. The importance of asset tangibility and concentration of ownership as deciding factors of financial performance were also highlighted in the study.

Ebaid (2009) studied the effect of capital structure decisions of company performance in the context of Egyptian developing economy in the time between 1997 and 2005. The results indicated that the optimum capital structure does not make a significant difference in business in both scenarios, showing that the business capital structure is one of the factors having weak influence on the business performance (Madan, 2007).

An inverse relationship between the percentage of the firm's common stock held by the CEO and level of debt was found by Richard H. Fosberg (2004). However, a positive correlation was found between a blockholder's share ownership and debt-equity ratio which further highlighted the intricate relationship between ownership and financial leverage in corporate governance scenarios.

Conceptual Framework

A conceptual framework is used to classify and explain the concepts related to the research and link them together. This framework can be used by researchers as a way to clearly explain the concepts; split the research field; structure the relationship between the concepts and identify gaps in the literature (Creswell, 2003). A diagram was provided below to show variables that will be investigated in this study..

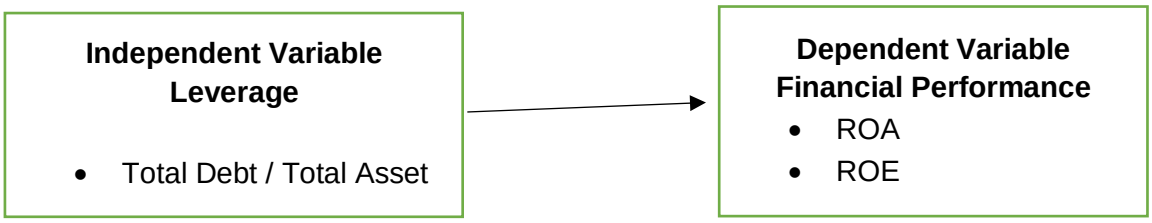

Figure 1: Conceptual Framework

Research Gap

Although there are a wealth of studies that investigate this relationship of financial leverage and financial performance, the evidence is inconclusive. Some studies show that leverage improves the financial performance of the firm and boosts shareholders' return whilst other studies suggest that high leverage ratio results in high financing cost and high financial risk which may hurt the financial performance. This mixed-grounded evidence suggests that whether leverage or financial performance are positively, negatively, or not related is still an unresolved matter.

In addition, a majority of the previous studies have been on financial firms, or non-financial firms. There is not much research conducted in this area, where both the sectors are compared side by side, especially in terms of the listed companies in Pakistan Stock Exchange (PSX). The effects of leverage are likely to be different across financial and non-financial firms, because financial firms live and die by the leverage and capital structure, whereas non-financial firms are less affected by leverage and capital structure due to different regulation and different business environment.

Another notable exception in the literature is its focus on historical data, with many studies in Pakistan looking at data from previous years, and failing to reflect the economic constraints of the past five years between 2021 and 2025. In fact, the country was through a time of high inflation, high interest rates, and high borrowing costs during this time frame, which would have had a pronounced impact on firms' financing decisions and financial performance. Hence, some new empirical evidence is needed, using more recent data.

The current study will focus on the impact of leverage on the financial performance of the financial and non-financial firms listed in the Pakistan Stock Exchange (PSX) for 2021-2025 time frame while addressing the above-mentioned gaps in existing studies. Return on Assets (ROA), Return on Equity (ROE) are used to measure financial performance and panel data regression techniques estimate the relationship between leverage and financial performance. It is hoped that the findings of this study will have implications for the managers, investors and policy makers to enable them suiting financing and investment decisions..

RESEARCH METHODOLOGY

Research Philosophy

Subject of the study followed a positivist philosophy and panel research design is more suitable in carrying out this study due to panel data usage. One of the specific types of longitudinal study is this design in which the unit of analysis is observed through time, typically long term (several years) at specified time points. The population of this study was all twenty firms listed on Pakistan Securities Exchange. A census was carried out which included all these companies.

The data used in this study were of secondary nature where all the data were taken from annual published financial statements of the firms enlisted in PSX from 2021 to 2025. The particular financial statements which the data has been gathered from are:Income statement, Statement of financial position and Notes to the accounts. In order to strengthen the results and make sure it is reliable various statistical and econometric means were used.

Research Design

The research is not free of its own difficulties, most importantly a limited number of subjects included in the analysis (20 firms) and the limited period of the study (2021–2025). For future research, a larger sample and other control variables such as growth measures and liquidity vary could be added.

Descriptive statistics and a correlation matrix were used as preliminary analysis to help gain an insight into the basic characteristics of the data variables, their relationship and multicollinearity. Panel Data Estimation techniques (Fixed Effects model and Random Effects model) were then applied. A Hausman test was performed to decide on which model is the appropriate one to use in panel data analysis (Fixed Effects Model (FEM) or Random Effects Model (REM)). Finally, fixed effects regression model and Random Effects regression model were used to perform panel regression analysis. To decide upon which type of estimation to use, Hausman test was applied.

Justification for Using Panel Data

Panel data methodology was adopted for the analysis of the study as study is conducted on more than one firm over a longer period of time (2021-2025). While a cross-sectional data shows how a firm is functioning at a specific point of time and time-series data shows the performance of the same firm over the course of time, a panel data basically combines the cross section and time series data. Overall, this duo increases the quantity of observations, boosts the efficiency of statistical estimates and provides distinct features of firms which are not available in another data format. In addition, panel data allows the researcher to control for unobservables across firms and thus, more accurate estimates of the leverageâ€ “ financial performance relationship is achieved. Panel data is the most appropriate method of data analysis due to the comparisons of financial firms and non-financial firms for a period of 5 years..

Population and Sample

The population of this study consisted of firms listed on the Pakistan Stock Exchange (PSX). A total sample of twenty firms was selected, comprising ten financial firms and ten non-financial firms. The sample was selected using purposive sampling because only firms that met the study criteria were included. Specifically, firms were required to be listed on the PSX throughout the study period (2021–2025), have complete and publicly available annual financial statements, and possess consistent financial data for all variables used in the analysis. Firms with missing financial information or incomplete annual reports during the study period were excluded. The selected firms represented both the financial and non-financial sectors to facilitate a comparative analysis of the impact of leverage on financial performance

Justification for Sample Size

Although the number of samples could be slightly small, the number of samples in a time-series cross-sectional setting has been greatly positive expanded by application of panel data. For these twenty firms, the number of firm-year observations over the five years amount to 100, and this panel is well balanced. This is enough to use the panel data regression methods such as Fixed Effects Model (FEM) and Random Effects Model (REM). A major reason for using panel data analysis is that repeated observations over time,

resulting in better estimation efficiency, better accounting for omitted variables and allows the researcher to control for firm-fixed effects that are not observed during the study period.

Furthermore, the principal purpose of this study is to find the effect of financial leverage on financial performance of a financial firm and a non-financial firm; not to draw any generalization about all the listed companies across all sectors. Requires that the number of each sector's firms chosen to be compared is equal so that a balanced representation is gained that will help to make meaningful comparisons in the two industries. It is an approach similar to that followed in previous studies which used panel data to examine the leverage–performance relationship, particularly those with strict data-sample requirements.

The selected sample is certainly considered appropriate in order to achieve the purposes of this study and to have high level of the quality characteristics of data, comparability and robustness in the empirical study.

Model Specification

The study employed panel data regression models using Fixed Effects and Random Effects estimators. The Hausman test was used to determine the appropriate model.

$ROA_{it} = \beta_0 + \beta_1 LEV_{it} + \mu_i + \varepsilon_{it}$

$ROE_{it} = \beta_0 + \beta_1 LEV_{it} + \mu_i + \varepsilon_{it}$ $Y_{it} = \beta_0 + \beta_1 X1_{it} + e$

Where;

ROA_{it} = Represents the Return on Assets of company i at time t,

ROE_{it} = Represents the Return on Equity of company i at time t,

LEV_{it} = = Leverage (Total Debt / Total Assets)

β_0 =Constant

β_1, β_2= Estimated coefficients

μ_i = Firm-specific effect

ε_{it} = Error term

Operational Definition of Variables

Variable	Definition	Measurement
Return on Assets (ROA)	Measures the efficiency with which a company utilizes its total assets to generate profit.	Net Income ÷ Total Assets
Return on Equity (ROE)	Measures the return generated on shareholders' equity, indicating how effectively the company	Net Income ÷ Shareholders' Equity

	uses shareholders' investment to earn profit.	
Leverage	Measures the proportion of a company's total assets that is financed through debt.	Total Debt ÷ Total Assets

Justification for Variable Selection

ROA (Return on Assets) has been selected as one of the important indicators because it is a good indication of how efficiently the company is using all of its assets to generate income. However, since leverage is a key factor in financing assets using debt, it is important to look at ROA to determine whether or not debt financing is increasing or decreasing operational profitability. Generally, this measurement is used in corporate finance studies because it reflects how well management is doing in making these resources more profitable - regardless of how the firm is funded.

Return on Equity (ROE) has also been included for assessing the profitability stemming shareholders' investments, in a similar fashion. Financial leverage will directly affect the returns available to the shareholders that will affect the overall earnings. Therefore, ROE is an significant measure to assess the effectiveness of debt financing in increasing shareholders' wealth. This study is to analyse the financial performance from two sets of measures: ROA and ROE, which is to study the performance of the economic profit and performance on shareholders interests.

In calculating the leverage, the ratio of Total Debt to Total Assets (the Debt Ratio) is found to be a representative measure of leverage. This ratio is a measurement of the percentage of a company's assets that are paid for via debt and is a good indication of the overall level of financial risk a company has and how dependent it is on external financing. In comparison to other leverage ratios, like the debt to equity ratio, the debt ratio is not as sensitive as changes in the shareholders' equity will have a less impact on the ratio, which makes it easier to compare across companies from different businesses. It is a well known recognition as one of the main leverage indicators especially in the empirical study, related to the financial performance and capital structure.

RESULTS AND DISCUSSION

Descriptive Statistics

By analyzing the data through descriptive analysis the financial firms could look at the interesting things that need to be taken in the main variables, namely leverage, Return on Assets (ROA), and Return on Equity (ROE). This type of analysis was performed to get a basic understanding of the data, including the ‘average' (mean) values and how different they are (standard deviation). The descriptive statistics about the variable included in this study as summarized in Table 1.

Table 1: Descriptive Statistics for Financial Firms

	Leverage	ROA	ROE
Mean	0.932568	0.012781	0.199164
Median	0.938108	0.010772	0.179570
Maximum	0.958317	0.028045	0.456853
Minimum	0.783941	0.006666	0.068337
St. dev	0.027647	0.005188	0.076696
Observation	50	50	50

Table 1 shows a summary of the descriptive statistics for financial firms with respect to leverage, return on assets (ROA) and return on equity (ROE). The average leverage ratio is 0.932568, showing that the firms are highly dependent on borrowing, while the deviation calculated is low showing that the leverage ratio remains the same for all the firms taken for the calculations. The measures of ROA and ROE on the contrary, show a higher level of variation, particularly ROE, which shows differences in the profitability of the firms involved.

The proportion of high moisture corn or sorghum does not vary much across the sample; however, the profitability measures are quite variable. This divergence will be important in itself to examine the link between leverage and firm's performance.

Table 2: Descriptive Statistics for Non-Financial Firms

	Leverage	ROA	ROE
Mean	0.944470	0.533907	0.499646
Median	0.703837	0.117460	0.237672
Maximum	4.117438	11.15065	4.302253
Minimum	0.185161	-0.218075	-1.248499
St. dev	0.710742	1.782967	0.864394
Observation	50	50	50

An overview of descriptive statistics for non-financial firms is given in table 2. The average leverage is 0.944470 indicating that perhaps the companies are highly leveraged; however a wide range of 1.86 and a high standard deviation of 0.710742 show the level of capital structure variability across companies.

Furthermore, high standard deviations in the measures of profitability, Return on Assets (ROA) and Return on Equity (ROE) and extreme values in both the measures of profitability (positive and negative) evidence high dispersion in the measures. This is an additional sign of the non-financial enterprise's heterogeneous nature as compared to financial enterprises concerning both leverage as well as profitability..

Correlation Analysis

A correlation analysis was done for financial firms pertaining the leverage, return on assets (ROA) and return on equity (ROE). The objective of this analysis is that the relationships between each two variables would be explored statistically. The correlation matrix of such variables is given for financial firms in Table 1.

Table 3: Correlation Matrix for Financial Firms

VARIABLE	ROA	ROE	Leverage
ROA	1	0.68980	-0.36410
ROE	0.68980	1	0.31221
Leverage	-0.36410	0.31221	1

The financial firms' correlation matrix is shown in Table 4.3. The data shows a high value of correlation (0.68980) thus indicating that there is a strong positive relationship between Return on Assets (ROA) and Return on Equity (ROE). The result indicates that a company's that uses its assets more efficiently has a better potential for earning higher returns for its shareholders. The leverage on the other hand has a moderate negative correlation with return on assets (ROA) at -0.36410.This suggests that increases in debt can be related to decreases in the performance measures of profitability according to assets.

It is noteworthy that leverage has a positive correlation with ROE which is recorded as 0.31221. This finding suggests that, debt leverage may help to increase returns for shareholders. These results suggest a complex leverage-profits relationship, and indicate the need for further empirical studies in the area..

Table 4: Correlation Matrix for Non-Financial Firms

VARIABLE	ROA	ROE	Leverage
ROA	1	0.82959	0.78247
ROE	0.82959	1	0.61319
Leverage	0.78247	0.61319	1

Table 4 displays the correlation matrix for non-financial firms.

The data show that there is a strong positive correlation between ROA (return on assets) and ROE (return on equity) with the value of ~0.82959. This could indicate a better efficiency in assets as companies with higher ARATs generate higher returns for the shareholders. Further, there is a positive relationship between leverage and ROA (0.78247) and leverage and ROE (0.61319) which shows that the use of debt will be associated with the higher level of profitability of non-financial organizations.

The results indicate that there is positive relationship between the leverage and the components of profitability which remained significant and leverage may play an important role to enhance firm's performance in the non-financial sector..

Diagnostic Tests

Test for Multicollinearity

The way to look at the multiplicollinearity in this study was by using variance inflation factors (VIF). The VIF in Table 3 shows the existence of multicollinearity if the VIF value is greater that 10 as suggested by Field (2009), this can be seen in the values of the VIF for the sensible heat and latent heat fluxes variables which are greater than 10..

Table 5: Multicollinearity Results

	Financial Sector	Non-Financial Sector
Variable	VIF	VIF
Leverage	6.61	5.24

To check the multicollinearity between the independent variables Variance Inflation Factor (VIF) test was performed. The results shows that the VIF values of the all variables are less than the cut off value of VIF is 10. This was an indication that there is not much problem of multicollinearity in the model. However, it has to be noted that Return on Assets (ROA) and Return on Equity (ROE) on the other hand, have medium relationship among them, both of which are indicators of profitability.

Panel Regression Analysis

Fixed Effect ROA

In this study, regression analysis of both financial and non-financial companies was conducted to determine whether there is a relationship or not between leverage and ROA (return on assets) of the companies. Table 11 shows the results of the regression model of leverage and ROA of the financial sector..

Table 6: Fixed Effect of Leverage on ROA for Financial Firms

Variable	Coefficient	Std. Error	t-Statistic	Prob
Leverage	-0.057633	0.023520	-2.450385	0.0189

C	0.066528	0.021939	3.032345	0.0043

EFFECT SPECIFICATIONS

R-squared	0.644457	Adjusted R-squared	0.553293
F-statistic	7.069147	Prob. (F-statistic)	0.000003

Table 6 presents the regression model on leverage versus ROA in the non-financial sector.

The macro-economic environment of Pakistan throughout the research period (2021-2025) might provide insight into the possible causes of the negative correlation between leverage and ROA. Relatively high policy interest rates by the State Bank of Pakistan (SBP) for the purposes of keeping a check on inflation in the country added to the cost of borrowing for firms. Hence, higher usage of debt financing had greater interest expenses which had a negative effect on net income, and ultimately reduced Return on Assets (ROA). While the Tax Shield Hypothesis presented by the Trade-off Theory see that debt brings tax shield benefits, such benefits might have been offset by financial distress costs as a result of debt financing, and by additional borrowing costs. The financial sector is also heavily regulated in terms of its corporate capital, such that financial companies can't make as much return on their operating funds by leveraging them so heavily. Hence leverage had a negative impact on profitability of assets of the financial institutions.

Table 7: Fixed Effect of Leverage on ROA for Non-Financial Firms

Variable	Coefficient	Std. Error	t-Statistic	Prob
Leverage	3.607111	0.184149	19.58796	0.0000
C	-2.872902	0.185004	-15.52885	0.0000

EFFECT SPECIFICATIONS

R-squared	0.950213	Adjusted R-squared	0.937447
F-statistic	74.43346	Prob. (F-statistic)	0.000000

The positive association between the two models (Fixed and Random Effect) implies that non-financial firms could have leveraged upon borrowing to fund productive aspects for reasons like expansion, modernization and working capital requirements. Levereged funds earn more than the interest expenses are (per unit amount) which enhance the profitability as per the Trade-off Theory. These mixed results could be attributable to industry-specific effects, differences in the efficiency with which firms operate, and how their debt is used..

Fixed Effect ROE

Table 8: Fixed Effect of Leverage on ROE for Financial Firms

Variable	Coefficient	Std. Error	t-Statistic	Prob
Leverage	0.576593	0.270717	-1.250562	0.2185
C	-0.338549	0.270717	1.986746	0.0540

EFFECT SPECIFICATIONS

R-squared	0.752284	Adjusted R-squared	0.688766
F-statistic	11.84381	Prob. (F-statistic)	0.000000

Table 8 presents the regression model on leverage versus ROE in the non-financial sector.

Table 9: Fixed Effect of Leverage on ROE for Non-Financial Firms

Variable	Coefficient	Std. Error	t-Statistic	Prob
Leverage	1.260251	0.223863	5.629560	0.0000
C	-0.690623	0.224902	-3.070772	0.0039

EFFECT SPECIFICATIONS

R-squared	0.686956	Adjusted R-squared	0.606689
F-statistic	8.558323	Prob. (F-statistic)	0.000000

The test results take into consideration of the financial firms show that leverage has almost unnoticeable effect on return on equity (ROE) with the p-value of 0.2185. However, that does not imply much with regard to the returns to the shareholders of this sector and debt's impact upon it.

The positive correlation between leverage and ROE does suggest that the increase in the utilization of debt would lead to an increase in the returns/ROE to shareholders of the company, as a result of the finance leverage effect. Equity financing is not as big a part of the funding as borrowing, so if borrowed funds increase return then it's even better for the shareholders of the company. This result is in line with the Trade-off Theory that posits that the optimal level of debt would lead to higher firm's value as a result of tax protection. But if lenders' interest rates continue to increase, a reliance that is too high might end up increasing the risk of the company's finances and costing utility companies money in terms of shareholder value.

On the other hand, for the non-financial firms, the results for the leverage show that there is a positive and statistically significant relationship with ROE (such as p-value = 0.0000). This means that a higher leverage of an company would result into greater returns for the equity shareholders. In addition, the statistical significance of the model also lends credence of the aforementioned results..

Random Effect ROA

Table 10: Random Effect of Leverage on ROA for Financial Firms

Variable	Coefficient	Std. Error	t-Statistic	Prob
Leverage	-0.060032	0.022385	-2.681770	0.0100
C	0.068765	0.020916	3.287720	0.0019

EFFECT SPECIFICATIONS

R-squared	0.132441	Adjusted R-squared	0.114367
F-statistic	7.327680	Prob. (F-statistic)	0.009377

Table 10 presents the regression model on leverage versus ROA in the non-financial sector.

Table 11: Random Effect of Leverage on ROA for Non-Financial Firms

Variable	Coefficient	Std. Error	t-Statistic	Prob
Leverage	3.308641	0.170920	19.35788	0.0000
C	-2.591006	0.325157	-7.968466	0.0000

EFFECT SPECIFICATIONS

R-squared	0.850317	Adjusted R-squared	0.847198
F-statistic	272.6773	Prob. (F-statistic)	0.000000

Analysing financial firms, the negative impact of leverage is found to be statistically significant with probability value (p-value) being 0.0100 which means that the return on assets (ROA) of financial firms has a negative relationship with leverage. The findings are indicative of a negative relationship between asset based profitability measures and an increase of the level of debt. In addition, the global model's statistical significance helps to increase the validity of these results.

However, as for non-financial firms, leverage significantly affects ROA towards positive, as indicated by the p value value of 0.0000. This indicates that non-financial enterprises are very good in using debt in a way which helps to maximise their profits. In addition, the model has a high level of explanatory power and has an overall significance..

Random Effect ROE

Table 12: Random Effect of Leverage on ROE for Financial Firms

Variable	Coefficient	Std. Error	t-Statistic	Prob
Leverage	0.614064	0.282228	2.175776	0.0345
C	-0.373493	0.264071	-1.414367	0.1637

EFFECT SPECIFICATIONS

R-squared	0.090967	Adjusted R-squared	0.072029
F-statistic	4.803361	Prob. (F-statistic)	0.033288

Table 12 presents the regression model on leverage versus ROE in the non-financial sector.

Table 13: Random Effect of Leverage on ROE for Non-Financial Firms

Variable	Coefficient	Std. Error	t-Statistic	Prob
Leverage	0.958550	0.166401	5.760475	0.0000
C	-0.405675	0.219261	-1.850193	0.0704

EFFECT SPECIFICATIONS

R-squared	0.393902	Adjusted R-squared	0.381275
F-statistic	31.19506	Prob. (F-statistic)	0.000001

Under the analysis of the financial firms, it is shown that the effect of leverage is positive, and that the t value of the regression variable is 2.576 with the p value 0.0345 indicating that it is statistically significant and thus positively affecting Return on Equity (ROE). This suggests that debt has a desirable effect on shareholder's output when it is raised. Further the significant statistical result of the overall model, which supports the credibility of the herewith results. In the same way, for non-financial firms, leverage exhibits positive and very significant effect on ROE level having a p-value equals to 0.0000. This was a striking discovery, especially in regard to the importance of debt financing to support equity income. The model is also statistically significant and has a moderate explanatory power and the results are also robust.

Hausman Test

To identify the most suitable model between Fixed Effects and Random Effects, a Hausman Test was performed.

Table 14: Comparison of Fixed and Random Effects Estimations (Financial Firms)

Variable	Chi Sq. Statistic	P-Value	Significance
ROE	0.306895	0.5796	Insignificant
ROA	0.110515	0.7396	Insignificant

However, as the comparison of the Fixed Effects model and the Random Effects model does not show this difference as a systematic one, the lack of statistical significance indicates that the differences between the coefficients derived from the models is not systematic. Therefore, the Random Effects model is more appropriate as it may give more efficient estimates as it acknowledges variation between and within entities..

Table 15: Comparison of Fixed and Random Effects Estimations (Non-Financial Firms)

Variable	Chi Sq. Statistic	P-Value	Significance
ROE	0.306895	0.5796	Insignificant
ROA	0.110515	0.7396	Insignificant

Table 15 shows the results of Hausman test that the model 1 values for the Return on Equity (ROE) and the model 2 values for the Return on Assets (ROA) got the p-values of 0.5796 and 0.7396 respectively. The p-values of these are > 0.05, so there is no reason to reject the null hypothesis which states that the random effects have no association with the explanatory variables. Hence it can be inferred that the most efficient and consistent estimator to analyze ROE and ROA for non-financial firms is Random Effects model..

Discussion of Findings

ROA (Return on Assets) and ROE (Return on Equity) are important parameters in gauging the financial performance of the firm. ROA measures how well that a company is using its overall assets to benefit and ROE shows the return that it is generating on the shareholders' equity. The two are indicators of a firm's profitability and financial efficiency, respectively.

The results in this study shows that leverage-ROA relationship varied from sector to sector. For financial firms, ROA negatively and significantly is affected by leverage. This is an indication that a lot of debt overhanging the firm is going to harm their ability to make profit off their assets. This may be related to the increased burden from these loans that come in the form of a higher interest rate and financial obligations that result in a lower operational profit. However, positive correlation comes out in the case of non-financial

firms for both, Fixed Effects and Random Effects model. This result indicated that the non-financial firms are better in using borrowed funds, which results in more profitability in this capital utilization.

In case of ROE, the findings are that leverage is likely to be positively associated with the shareholders' returns. The Random Effects model point to a positive association between leverage and ROA for financial companies, which implies that use of debt financing can be profitable for these companies if they are grasped correctly by their managers. Likewise, positive correlation between leverage and ROE is seen for non-financial firms and the present result is statistically significant indicating that the influence of debt financing is evident in non-financial firms for raising the ROE.

These results also represent the economic situation of Pakistan for the period 2021 - 2025. But high inflation and the Banking Sector's tough call to the monetary policy measures of the State Bank of Pakistan have driven up the cost of finance, making debt financing more expensive. This in turn has been making life difficult for businesses that have high levels of debt financing, as they've faced increased interest costs, thereby affecting profitability. Furthermore, these variations in outcomes can be used to better explain them in terms of characteristics of the different sectors. Financial companies have more stringent regulatory requirements and capitalization standards, and may therefore be not as flexible in their use of debt. Non-financial companies are usually given more flexibility when it comes to borrowing for investing, growth and operating activities which leads to better financial results.

To conclude, the results indicate that leverage can impact some areas of company's financial performance in subtle ways. Higher leverage could lead to lower ROA as would increase financing cost and lower the operating efficiency while effectively leveraging debts to income can drive ROE as what would create a better gain to shareholders. This highlights that it is extremely important to set an optimum capital structure which judiciously manages the benefits of taking up debt funds and the financial risks along with it..

CONCLUSION

The research aimed to assess the impact of financial leverage on the financial performance of the listed firms of Pakistan Stock Exchange (PSX) during 2021-2025 with comparison between the financial firms and the non-financial firms.

Results show that leverage affects each sector, and each measure of performance, differently. Leverage is negatively significant in Return on Assets (ROA) thus indicating that an increase in leverage leads to a decrease in the profitability of assets in financial firms. But there is a positive relationship between leverage and Return on Equity (ROE) and therefore, it may conclude that leverage would have a positive impact on the return to shareholders as a result of debt financing.

The results indicate for the non-financial firms the leverage has positive relationship with ROA and ROE, suggesting that these may be better situated to finance using debt provided that borrowed funds are deployed effectively to productive investments.

The Hausman test result showed that random effects modelling was used for this study. Overall, the results indicated that the leverage and financial performance relationship is not consistent across sectors. Hence, financing decision should be carefully made by the firm considering various aspect of their industry characteristics, financial objectives and risk exposure and not much on relying on debt financing..

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made:

Optimal Capital Structure

Thus, firms should work towards achieving the ideal mix of debt and equity and avoid over-reliance on debt finance. Too much leverage can negatively impact asset efficiency and increase financial risk.

Sector-Specific Financing Decisions

Leaving aside financial firms, both firms should have different leverage strategies. In this context, financial companies must be careful when it comes to handling debt as they could experience a negative impact to the return on assets (ROA). On the other hand, non-financial companies should try to make use of debt in a way that enables them to make productive investments.

Effective use of debt

Use borrowed money to fund projects that can be profitable to their organization, have an advantage payback rate or where the rate of return is greater than the cost of borrowing.

Risk Management Practices

Companies need to boost their risk management systems to better manage interest rate changes and the uncertainty surrounding financing risks, as a consequence of relatively high leverage.

Policy Implications

Regulators and policies are urged to pay close attention to the way in which companies borrow and guide the development of management rules with the intention of avoiding over-borrowing, especially in a high interest rate environment.

Further Research

In the future, more related variables such as firm size, liquidity, macroeconomic indicator etc. should be included to further explain the leverage and organizational performance..

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