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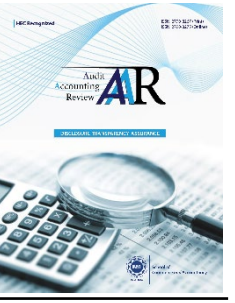

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Title: **Financial Leverage Dynamics: The Roles of Liquidity and Profitability in Shaping Firms' Financial Health**

Author (s): Rida Nazeer[1], Faiza Saleem[1, 2], and Muhammad Yusuf Amin[3]

Affiliation (s):
[1]University of Wah, Wah Cantt, Pakistan
[2]Universiti Sains, Malaysia
[3]Abdul Wali Khan University, Mardan, Pakistan

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Financial Leverage Dynamics: The Roles of Liquidity and Profitability in Shaping Firms' Financial Health

Rida Nazeer[1], Faiza Saleem[1,2,*], Muhammad Yusuf Amin[3]

[1]Department of Management Sciences, University of Wah, Pakistan.
[2]Graduate School of Business, Universiti Sains Malaysia, Penang, Malaysia
[3]Institute of Business Studies and Leadership, Abdul Wali Khan University, Mardan, Pakistan

Abstract

The current study investigates the relationship between financial leverage (FL), profitability, and liquidity among non-financial firms listed on the Karachi Stock Exchange (KSE) in Pakistan. Despite extensive research on capital structure and profitability, limited studies exist on the debt structure and liquidity exist, particularly in the developing economies where concentrated ownership patterns are prevalent. The study used a panel dataset of 305 firm-year observations from 50 non-financial firms for the time period 2016-2022. The study applied a Random Effects Model (REM) or Generalized Method of Moments (GMM) for empirical analysis and found that profitability is positively related to financial leverage, as profitable firms use more debt to maximize tax benefits, while liquidity is negatively related, suggesting firms use lower debt to mitigate financial distress costs. The study provides practical implications for companies, investors, corporate managers, and policymakers to select the optimal capital structure. This emphasizes the importance to understand liquidity and the positive relationship between PROF and FL. It suggests that wise debt use can maximize tax benefits and balance financial risks, particularly in developing markets. Policymakers should create tax policies to promote investments while mitigating risks. The study also highlights the need for further research by incorporating more control variables and extending the analysis across different markets and time periods.

***Keywords*:** capital structure, financial leverage, liquidity, profitability

Introduction

The capital structure of a firm is a mix of debt and equity. It reveals the manner in which a firm's assets are financed using shareholders' funds, debt, or hybrid securities. Firms always want to secure their capital

*Corresponding author: faizasaleem2020@gmail.com

structure, which is less risky and costly, benefiting investors and debt holders (Khoa & Thai, 2021). The capital structure helps a company to optimize its capitalization and achieve long-term objectives (Brusov & Filatova, 2023). By raising share prices and lowering capital costs, businesses can maximize shareholder value (Hassan et al., 2023). Debt financing offers many advantages for business operations including tax deductions, more financial flexibility, and a steady interest rate (Tavares et al., 2024). Tax-deductible interest on debt reduces loan costs, so companies aim to maximize shareholder's value by using more borrowed capital in their capital structure. The optimal debt ratio is crucial for a companys financial performance, as it minimizes capital costs while maximizing company value, thereby maximizing profitability (PROF) (Akhtar et al., 2022). This ratio is essential to establish an optimal capital structure. Resultantly, it has become critical to examine the influence of financial leverage (FL) on company's financial performance (profitability and liquidity) in order to help diverse stakeholders to understand how debt affects financial performance.

Decisions regarding the of a firm are challenging to make. This is because excessive leverage may expose a firm to the insolvency risk (Amoa-Gyarteng & Dhliwayo, 2023). However, this is not conclusive to say that debt always has negative impacts. Having financial leverage is an advantage because it increases the return of stockholders in terms of the tax benefit that comes with borrowing (Oko & Elemi, 2023). Hence, it is necessary to use financial leverage is necessary, and a corporation may fund its operations with a specific combo of debt and equity. Yoon and Jang (2005) found financial leverage is a two-edged sword; if used wisely and in control, it increases welfare. On the other hand, when used in excess and indiscriminately, it may have tragic results.

Firms use debt to finance the businesses, generate shareholders' returns, and impact profitability (Daruwala, 2023) or liquidity. Profitability, as a key determinant of a company's valuation, reflects its operational efficiency and financial health. Firms with high profitability attract investors due to consistent returns (Sembiring et al., 2025), while liquidity allows assets to be quickly converted into cash (Tamunotonye & Fred-Horsfall, 2023). Companies prioritize liquidity management to meet their short-term debt maturity obligations (Erawati et al., 2023), which include financial and operating expenses, as it is crucial for them to meet their obligations

effectively. The decision between equity and debt is crucial for managers as it affects the companys value. Increased equity can reduce external cash flow claims (Alhassan & Islam, 2021), while increased debt may increase costs and financial distress associated with bankruptcy (Ugur et al., 2022). Bahlous-Boldi (2022) suggests that high liquidity agency costs limit debt financing, highlighting a negative relationship between liquidity and debt. Trade-off theory suggests an optimal capital mixture is influenced by exchanging debt cost against equity net cost, primarily determined by the debt tax shield. This presents a dilemma for firms to decide whether to use external sources or internal sources for financing new projects or meeting financial requirements (Parrino et al., 2025).

This study uniquely combines the aspects of liquidity and profitability in analyze the dynamics of capital structure, contrasting with previous studies that focused solely on the direct effects of leverage on profitability or liquidity. It contributes to the current theoretical debate by providing a perspective on the manner in which firms balance the potential liquidity risks with the tax benefits of debt, particularly in markets with concentrated ownership. Although, prior literature has examined a direct effect of capital structure on profitability (Eshwari & Baby, 2023; Nguyen & Pham, 2023), suggesting that an appropriate level of debt enhances profitability. However, excessive leverage leads to increased bankruptcy risk (Amoa-Gyarteng & Dhliwayo, 2023), especially when firms have to make regular interest payments. This may reduce their available cash and weaken their liquidity.

The relationship between liquidity and financial leverage remains underexplored, particularly in developing economies where concentrated ownership patterns are prevalent (Ghasemi & Razak, 2016). Limited studies exist on the debt structure and liquidity in the developing economies (Rosana, 2024). Therefore, an empirical examination is required to examine both profitability and liquidity in leverage decisions within the distinct institutional context of Pakistan. Hence, the current study investigated this relationship in a developing economy, Pakistan, where concentrated ownership patterns and information asymmetry are more prominent than in developed markets (Nadarajah et al., 2021). Developing markets have higher information asymmetry, less advanced financial markets, and a regulatory environment (Janský, 2023).

Research Questions

The current study aimed to answer the following research questions:

- What is the effect of financial leverage on the profitability of non-financial enterprises in Pakistan?
- What impact does financial leverage have on these companies' liquidity position?
- How do profitability and liquidity together affect businesses' decisions about financial leverage in Pakistan?

Research Objectives

The current study attempted to address the following research objectives:

- To examine how financial leverage affects Pakistani firms' profitability.
- To investigate the relationship between liquidity and profitability in non-financial enterprises of Pakistan.
- To shed light on how businesses decide how much debt to use in emerging economies while managing concerns about liquidity and profitability.

This study enhances the comprehension of capital structure theory by incorporating both profitability and liquidity aspects into the examination of leverage. It enhances the trade-off theory by providing empirical data on how enterprises in emerging economies weigh the advantages of debt financing against the inherent dangers of liquidity shortages. Pakistan offers a distinctive environment to examine these processes, characterized by developing market traits, such as concentrated family ownership, underdeveloped financial markets, elevated information asymmetry, and economic instability (Janský, 2023; Nadarajah et al., 2021). Comprehending financial leverage decisions in this context may provide significant insights for regulators, investors, and business executives.

Theoretical Background and Hypotheses

The current study investigated the effect of gearing on the financial health (profitability, liquidity) of non-financial firms, grounded in key financial theories. Modigliani and Miller (1958) initially presented a theory

termed “Capital Structure Irrelevance”. This theory is also known as MM. According to MM theory, leverage does not impact the value of a firm in a tax-free environment, however, in a taxed environment, debt financing may lead towards tax shields that increase the firm performance. Tarmidi and Okto (2022) support the assumption that higher leverage reduces tax burdens. Furthermore, Ross (1977), the inventor of signaling theory, argued that signals are crucial to raise company funds, as high-quality enterprises utilize increased debt and leverage to signal bright prospects. So, there is a positive correlation between leverage and profitability. However, some argue that sending wrong signals could lead towards moral hazards, as shareholders bear the risk as compared to managers (Rahman et al., 2020). In Pakistan, characterized by higher corporate tax rates and weak financial markets, companies frequently depend on debt to leverage tax shields, consistent with Modigliani and Millers theory in a taxed setting.

Conversely, trade-off theory suggests that businesses should evaluate the benefits of debt financing rather than the bankruptcy risk or financial distress to maximize value through capital structure optimization (Eleftheriadis, 2018). High business risk may be mitigated by adjusting financial leverage, as firms with lower business risk typically have higher optimal debt ratios (Pohan et al., 2022). A firms optimal capital structure represents a trade-off among personal taxes, corporate taxes, bankruptcy costs, and agency costs. The theory suggests that there is a positive correlation between a firms debt level and its profitability, based on empirical evidence that supports this claim. Resultantly, all the above-mentioned theories add to the current research by defining how firms use financial leverage to increase company’s profitability while maintaining liquidity. In Pakistan, due to elevated bankruptcy costs and information asymmetry, enterprises carefully balance the trade-off between the tax advantages of debt and the expenses associated with financial hazards.

Ngatno and Youlianto (2021) found that capital structure financing decisions positively impact financial performance in micro-financial institutions by using moderated regression analysis. Another study disclosed a strong positive correlation between capital structure and profitability in 50 enterprises (Singh & Bagga, 2019). Dakua (2019) found profitability to be highly positively correlated with debt ratio and significant correlations among determinants including profitability, asset structure, size, growth opportunities, non-debt tax shield, liquidity, and risk in the

Indian steel industry for the time period 2010-2017. These studies highlight the importance of capital structure in financial performance. Additionally, the findings of Habibniya et al. (2022) suggest that debt finance may lead towards financial risk but could also increase profitability in normal business scenario. A study using yearly data from 2012-2020 of the telecom sectors found that the total liability-to-total-assets ratio (TLsTAs) and total equity-to-total-assets (TETAs) ratio significantly impact the profitability of firms in the telco sector. The study emphasized the significance to understand the impact of debt finance on profitability in the telecommunication sector. Moreover, Mehzabin et al. (2023) studied the impact of capitalization, including debt ratio, long-term debt, and non-interest revenue, on the profitability of financial sector. They used a fixed effect regression model and panel data from 492 banks from 2004-2018. Results showed that a rise in the overall debt ratio increased bank profit margins. Resultantly, the following hypothesis was constructed:

H1: Profitability has a positive impact on financial leverage

Liquidity takes into account how easily business entities may handle their short-term obligations (Boateng et al., 2022). Researchers have confirmed the association between capital structure and liquidity, with mixed results. For instance, some experts (e.g., Güner, 2016; Kahya et al., 2020) showed a negative correlation between liquidity and leverage, however, others (Kaur et al., 2020; Rani et al., 2020) represented a direct relationship. Fau and Gohae (2022) used capital structure (DER) as an intervening variable to investigate how profitability (ROE) and liquidity (CR) affect the value of the business (PBV). The findings show that capital structure significantly and negatively affects liquidity (CR). Suhartono (2022) claims that company's liquidity negatively affects the debt-equity ratio. A study examining 103 Indonesian manufacturing companies from 2011 to 2017 found that liquidity was negatively correlated with capital structure (Mardani & Indrawati, 2023). Another study investigated the role of capital structure in influencing profitability, enterprise size, and liquidity in the value of manufacturing firms listed on the Indonesia Stock Exchange. The study used secondary data from 2017-2020 financial statements and purposive sampling for data collection. Results showed that liquidity negatively impacts capital structure (Pertiwi et al., 2023). Resultantly, the following hypothesis was constructed:

H2: Liquidity has a negative impact on financial leverage

Research Methodology

The current study analyzes the profitability of non-financial businesses listed on the KSE-100 index from 2016-2022. The availability and accessibility of data throughout this time frame is the grounds for its selection. Additionally, utilizing the most recent data enhances the relevance and precision of the findings, offers up-to-date insights, and elevates the overall quality and application of the research within a swiftly evolving economic landscape. The population of this research comprises all listed enterprises on Pakistan Stock Exchange (PSX), as it is an active Asian market as well as considered as the small and highly volatile developing market of Asia. The current study chose the non-financial sector because non-financial firms account for 80% of the PSX and represent major industries, such as high-tech, textiles, cement, oil and gas, autos, and pharmaceuticals.

The KSE-100 index is selected due to higher market capitalization, as non-financial enterprises account for 69% of the PSXs market capitalization, compared to 31% for financial firms. The study sample comprised 50 non-financial firms. These are selected based on the availability of complete financial data for the study period. Firms with missing or incomplete data during the study period are excluded from the sample to ensure the accuracy and reliability of results. The current study uses secondary data and quantitative methods to analyze the relationships between FL, PROF, and LIQ. The study employs random sampling to offer a fair representation of the population, decreasing potential biases, and enhancing the accuracy of the results (Lohr, 2021). This method is very important to ensure that the sample reflects the diversity of population which supports the reliability and correctness of research findings.

The study also utilizes the Ordinary Least Square Method (OLS) to estimate linear regression model parameters by minimizing the squared differences between observed and predicted values. However, due to the possibility for endogeneity in the panel data, the current study applied the Hausman test to determine the appropriateness of fixed effects or random effects method and the test's *p*-value, indicating that the Random Effects Model (REM) is more appropriate. However, since the REM also has some limitations, the study opted for a more specialized technique, that is, the GMM). This method is opted to resolve the issue of endogeneity in the results where independent variable may be correlated with the error term. It

allows current levels of the independent variable to be influenced by the past effects of the response variable. The "GMM" estimator improves the OLS model in three ways. Firstly, it includes firm fixed effects to account for unobservable (fixed) heterogeneity. Secondly, it accounts for the influence of previous shocks to the dependent variable on present levels of the explanatory variable. Thirdly, it supports the addition of firm fixed. Finally, it enables the employment of explanatory variables prior values (lags) as legitimate instruments for endogeneity correction. The data has been analyzed using E-Views software. This software is well-suited for econometric modeling and robust analysis, ensuring the validity and reliability of the results.

$$FL_{i,t} = \alpha + \beta_1 PROF_{i,t} + \beta_2 LIQ_{i,t} + \beta_3 FS_{i,t} + \beta_4 ETR_{i,t} + \varepsilon$$

where,

FL -- Financial Leverage (Dependent variable)

LIQ -- Liquidity (Independent variable)

PROF -- Profitability (Independent variable)

ETR -- Effective Tax Rate (Control variable)

FS -- Firm Size (Control variable)

Dependent Variable

The dependent variable is dependent on the independent variable, representing the observed and measured outcome (Ledford et al., 2018). The research employs capital structure as a dependent variable. Several previous studies utilized leverage as a dependent variable by using the proxy of leveraged total debt over total equity (Afolabi et al., 2019; Ibrahim & Isiaka, 2020). Omodara (2023) continues that the D/E ratio is a key performance indicator that shows how much liabilities and owner's equity a firm has utilized in relation to its assets as a means of financing those assets. This ratio serves as an indicator of financial leverage. A corporation may boost earnings per share by maintaining a high D/E ratio, a crucial indicator for strategic planning. In the current study, the capital structure is represented by the total liability over stockholder's equity.

Debt to equity ratio/Gearing ratio/Risk ratio = Total Debt/Shareholder's Funds or Total equity

Independent Variable

Profitability

An independent variable is a variable that a researcher manipulates or selects to examine its influence on the response variable (Barton et al., 2018). Profitability and liquidity are the explanatory variables in this research. Profitability is a organization's capacity to create profit in proportion to its sales, and profitability has been found to have a substantial effect on the capital structure (Pohan et al., 2022). Profitability significantly impacts a company's financial decision-making, as profitable companies optimize debt levels to manage effective tax rates (ETR). Profitability is measured by ROA (Rinaldi et al., 2023).

Liquidity

A company's liquidity is its capacity to swiftly and efficiently turn its liquid assets into cash to fulfill its short-term liabilities (Setyowati et al., 2018). Companies with high liquidity use less debt because they have enough liquid assets to cover their expenses. Liquidity ratio is calculated by the current ratio (Hasanuddin et al., 2021).

Control Variables

Firm Size

Control variables refer to several significant variables. An extraneous variable is defined as any parameter that remains constant or limited in a research endeavor. It is a variable extraneous to the study's goals, however, it is managed as it might influence the results (Lin & Chou et al., 2018). In this study, business size and effective tax rate are used as control factors, as they have independent impacts on financial leverage, as demonstrated by Lin and Chan et al. (2018). Company size, measured by total assets and capitalization (Cindy & Ginting, 2022), significantly impacts financial leverage. In this research, firm size is calculated by taking the log of total assets (Utami & Supriadi, 2023).

Effective Tax Rate

The actual proportion of earnings paid in taxes after accounting deductions, credits, and other considerations is known as the effective tax rate (Tandean & Winnie, 2016). A company's capital structure may have an effect on ETRs since interest costs are tax deductible. Enterprises that

effectively handle their taxes can minimize their tax obligations, which would allow them to accomplish ETR more efficiently (Nurkholisoh & Hidayah, 2019). In this study, the ETR was calculated by dividing the total tax liability by the profit before taxes (Nurkholisoh & Hidayah, 2019). ETR = T. Tax Burden / Pre-Tax Profit

Results

Descriptive Statistics

This study is based on 50 non-financial firms listed on the KSE 100 index over a period of 2016–2022. Descriptive statistics provide quantitative information in a flexible and straightforward manner, breaking down large datasets into manageable reports and summaries. They explain the components of a dataset including the distribution of values (Reddy & Pulluru, 2024). In the current study, the descriptive study of the given variables is exhibited below to properly explain the way of variables. Descriptive statistics of variables for the whole study are displayed in Table 1.

Table 1

Descriptive Statistics (N = 356)

	M	Median	Max	Min	*SD*	Skewness	Kurtosis
FL	0.336	0.206	4.205	-1.590	1.051	0.856	3.816
PROF	2.773	2.569	5.445	-8.064	1.384	0.675	11.721
LIQ	0.315	0.256	3.995	-1.132	0.532	1.451	10.040
ETR	-1.618	-1.291	1.127	-8.478	1.149	-2.897	14.766
FS	11.142	10.767	13.921	8.665	1.086	1.103	3.457

Note. FL = Financial Leverage, PROF = Profitability, LIQ = Liquidity, ETR = Effective Tax Rate, FS = Firm Size

Table 1 displays the outcomes of the descriptive statistics of non-financial sector of the KSE-100 index for all of the study's variables which include 356 annual data. The Financial Leverage (FL) data series has a mean of 0.336 and a median of 0.206, indicating a right-skewed distribution. The max (maximum) or min (minimum) series have a range of 4.205 and -1.590, with a S.D (standard deviation) of 1.051. Skewness and kurtosis are used to measure the data normality, with values +1, -1, and 2-4, indicating regular distribution around the mean. The 0.856 skewness value indicates right skew, while 3.816 indicates heavy tails in the distribution.

The profitability mean value is 2.773, indicating an average PROF over a sample period. The median is 2.569, indicating a positively skewed distribution. The max and min series have two extreme values, 5.445 and -8.064, with a S.D of 1.384. The skewness is 0.675, indicating positive skewness, and the kurtosis is 11.721, suggesting distribution has extreme peaks and heavy tails. The liquidity index (LIQ) series has an average mean value of 0.315, with a median of 0.256. The data range shows max and min values of 3.995 and -1.132, correspondingly, with a S.D of 0.532. The skewness and kurtosis values 1.451–10.040 indicate right skew with heavy tails.

Fully Modified Least Square (FMOLS)

The results of the Fully Modified Least Squares (FMOLS) shed light on the long-term relationship between financial leverage and its determinants which include firm size, profitability, liquidity, and effective tax rate.

Table 2

Fully Modified Least Square

Variables	Coefficient	Prob
Profitability	0.086	0.000
Liquidity	-0.705	0.000
Effective Tax Rate	-0.033	0.026
Firm Size	-0.040	0.719
C	-0.608	
R^2	0.924	

The coefficient value of 0.086 for PROF indicates that profitability is positively related to financial leverage, suggesting that firms with higher profitability tend to use more debt in their financing structure to get more tax benefits. Conversely, the coefficient of -0.705 for LIQ shows a negative relationship between LIQ and FL, indicating that more liquid firms use lower leverage in their financial structures to avoid bankruptcy risk. The high R^2 value of 0.924 reveals a strong explanatory power of the model.

Ordinary Least Square Regression (OLS)

Table 3 shows the outcome of OLS method for non-financial enterprises.

Table 3
Ordinary Least Square Regression

Variables	Coefficient	Prob
Profitability	0.063	0.064
Liquidity (LIQ)	-1.050	0.000
Effective Tax Rate (ETR)	0.074	0.064
Firm Size (FS)	0.194	0.000
C	-1.555	0.001
R^2	0.388	
Adjusted R^2	0.380	
F-statistic	52.512	
Prob(*F*-statistic)	0.000	

The findings show a positive association between the PROF and FL. This supports the first hypothesis that an appropriate level of financial leverage leads to an increase in profitability. A coefficient value of 0.063 for profitability shows that results are marginally significant at the 10% level, indicating that lagged PROF has a weak but positive impact on leverage. The coefficient sign of LIQ, -1.050, is negative, indicating a negative association between LIQ and FL. This means that the higher LIQ reduces the FL to an optimal level. This outcome is highly significant at the 1% level, demonstrating that LIQ has a considerable influence on leverage. The low value of R^2 (0.384) suggests that the independent variables explain only some of the variance in FL. Moreover, there are other firm-specific and macroeconomic factors that are not included in the estimated model which may also have a substantial effect on FL decisions. This is not unusual in corporate finance-type studies in emerging markets, such as Pakistan, where firm behavior is influenced by a wide variety of unobservable factors. The *p*-value of *F*-statistic shows that the overall model is statistically significant.

Hausman Test

The Hausman test's *p*-value shows whether a fixed or random effects model is suitable. The Hausman test result interpretation is straightforward: if the *p*-value is equal to or < 5% significance threshold, the null hypothesis is rejected.

Table 4

Hausman Test

Test Summary	Chi-Sq. Statistic	*df*	Prob.
Cross-section random	8.752	4	0.067

The *p*-value of the Hausman test is 0.067 more than the 5% or even the 1% significance threshold. As a consequence, the study failed to reject the null hypothesis. The findings show that there is no significant relationship between time-invariant factors and time-variant explanatory variables. This indicates that a random effects model is appropriate for regression analysis of the non-financial sector.

Random Effects Model

Hausman value indicates that the random effects model is suitable for non- financial firms, so the outcome of the random effects model for non-financial firms is shown in Table 5.

Table 5

Random Effects Model

Variables	Coefficient	Prob
Profitability (PROF)	0.068	0.000
Liquidity (LIQ)	-0.695	0.000
Effective Tax Rate (ETR)	-0.022	0.411
Firm Size (FS)	0.084	0.244
C	-0.608	
F-statistic	42.452	
Prob(*F*-statistic)	0.000	

As shown in Table 5, the results support the first hypothesis. The coefficient sign of the PROF is positive, so there exists a positive and significant association between PROF and FL. The PROF coefficient 0.068 value shows that a 1-unit increase in PROF would lead to an increase in FL by 0.068 units, a result persistent with the trade-off theory. As per this theory, higher profitable organizations use more liabilities in their financial structure to get tax benefits. This is because the interest paid on debt is tax deductible as it is treated as an expense. The findings are in line with some previous studies, such as Akhtar et al. (2022), Bui et al. (2023), Faizan et al. (2024), and Mehzabin et al. (2023). The table exhibits that the value of the

coefficient of LIQ is -0.695 with a significance level of 1%. This means that LIQ has a strong negative impact on the FL, showing that more liquid firms use less leverage in their capital structure to avoid financial risk. More FL increases the risk of bankruptcy, especially when firms have to make interest payments on a regular basis. This reduces current cash which, in turn, weakens LIQ. The results of fixed effects regression support the second hypothesis. The findings are supported by Pertiwi et al. (2023), Fau and Gohae (2022), and Suhartono (2022). The *p*-value of F-statistic shows that the overall regression model is statistically significant.

Generalized Method of Moments (GMM)

Table 6 shows the findings of GMM for non-financial sector enterprises to describe the relationships between dependent and independent variables.

Table 6

Generalized Method of Moments (GMM)

Variables	Coefficient	Prob
Profitability (PROF)	0.039	0.002
Liquidity (LIQ)	-0.764	0.000
Effective Tax Rate (ETR)	0.036	0.379
Firm Size (FS)	0.004	0.991
J-statistic	12.705	
Prob (*J*-statistic)	0.549	

The statistically significant positive coefficient (0.039) of PROF shows that a 1% increase in the PROF leads to a 0.039 unit increase in FL, assuming all other variables remain constant. This positive and statistically significant relationship confirms the first hypothesis. This hypothesis states that more profitable corporations use more liabilities in their capital structure to get tax benefits because the interest paid on debt is tax deductible as it is treated as an expense (Faizan et al., 2024). On the other hand, the statistically significant negative coefficient (-0.764) indicates that LIQ has a negative influence on FL. A one-unit increase in LIQ is related to a 0.76-unit decrease in FL, revealing that more liquid firms use less leverage in their capital structure to avoid financial risk.

The J-statistic is used in GMM estimation to test the validity of the instruments. The Prob (J-Statistic) value of 0.549 is quite high, which means that there is no evidence to refuse the null hypothesis that the instruments

are valid. In simple words, the instruments used in the model are not significantly problematic.

Discussion

The current study investigated the association between financial leverage, profitability, and liquidity for the time period 2016-2022. The dependent variable, financial leverage, was measured by the D/E ratio. The proxy was selected because this ratio serves as an indicator of financial leverage. The regression analysis revealed a positive association between profitability and financial leverage and a negative one between liquidity and financial leverage. Therefore, based on empirical findings, the hypothesis of the current study was analyzed through an REM. The results, after statistical data analysis, exhibited that all proposed hypotheses of the current study were accepted. The first hypothesis, that is the profitability is positively related to financial leverage (Sembiring et al., 2025), is supported by the results.

The results of the current study are persistent with the previous literature exhibiting a positive association between PROF and FL (Dakua, 2019; Habibniya et al., 2022; Ngatno & Youlianto, 2021; Singh & Bagga, 2019). This reveals that profitable corporations raise their leverage to take tax benefits, as interest paid on debt is tax deductible, decreasing taxable income. If a company adopts more debt, it would benefit from less income tax, on the other side, financial risk would increase (Salehi & Salami, 2020). The findings confirm the second hypothesis, indicating a negative association between LIQ or FL. The findings are in line with the prior studies, such as Kahya et al. (2020), Pertiwi et al. (2023), and Suhartono (2022). This suggests that more liquid firms use less debt to avoid financial risk because more leverage leads to an increase in bankruptcy cost if firms have to make regular interest payments (Amoa-Gyarteng & Dhliwayo, 2023).

The findings shed light on the dynamics of profitability, leverage, and the role of liquidity in financial decision-making by illustrating that firms must balance their tax benefits and financial leverage to avoid financial distress without compromising liquidity. The positive relationship between profitability and financial leverage indicates that profitable firms must use an appropriate level of debt in their capital structure to get tax benefits as interest payments are tax deductible. While the negative relationship

between liquidity and financial leverage indicates that more liquid firms tend to use less debt in their capital structure to avoid bankruptcy risk.

Many prior studies have investigated the direct impact of capital structure on profitability (Eshwari & Baby, 2023; Nguyen & Pham, 2023; Singh & Bagga, 2019), suggesting that an appropriate level of debt enhances profitability. However, excessive leverage leads to increased bankruptcy risk (Amoa-Gyarteng & Dhliwayo, 2023), especially when firms have to make regular interest payments, which may reduce their available cash and weaken their liquidity. Therefore, the current study used liquidity because it has a very strong impact on firm leverage. So, this study highlighted the importance of liquidity in financial leverage decision-making and how much debt firms should use in their capital structure. This is because it directly affects the financial choices of the business in a way that just profitability cannot. Secondly, the current study is worthwhile in the context of developing economies where higher information asymmetry, less advanced financial markets, and a regulatory environment are more critical than in developed economies (Janský, 2023).

Practical Implications

The practical implications of this study are particularly important for the 50 examined firms, which are major players in the non-financial sector of Pakistan. For corporate business managers, these results imply that although profitability gives the chance to use debt for the purpose of tax shields, having an adequate liquidity situation is also important in order not to incur financial distress. Corporate managers can use debt wisely to maximize tax benefits and balance financial risks, especially in developing markets. Such information may be helpful for managers in arranging their capital in a manner that would generate profit without overleveraging, securing their financial strength in the long run. Furthermore, understanding the influence of liquidity on financial leverage can also help investors to evaluate firm risk profiles more efficiently. Understanding the impact of liquidity on capital structure could align financial plans with investor preferences, potentially leading towards better finances and increased investment. Policymakers should create tax policies that encourage investment while mitigating risks associated with high corporate debt levels. This approach promotes long-term growth and financial stability.

Limitations and Recommendations

The current study is subject to limitations in terms of its sample size (50 listed firms) and time period (2016–2022) as well as focusing exclusively on the PSX. The small set of estimation methods and few control variables further limit the findings. Future research should expand the time period to obtain more generalized results and examine different estimation techniques. Cross-country or even cross-regional comparisons may provide a more generalized view of how various economic environments affect capital structure choices. Finally, future studies may further expand the horizon to understand what factors drive financial leverage by adding more control variables other than simply effective tax rate and business size.

Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study was provided by the corresponding author upon request.

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