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CAPITAL STRUCTURE AND THE MARKET VALUE OF MANUFACTURING FIRMS IN NIGERIA

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ABSTRACT

This study examined the effect of capital structure on the market value of manufacturing firms in Nigeria, using a 10-year panel data set covering the period from 2014 to 2023. The sample consists of 14 selected manufacturing firms, with secondary data obtained from their published financial statements. The market value of the firms is proxied by the Price Earnings Ratio (PER), while the capital structure is represented by three independent variables: Leverage (LEV), Long-Term Debt (LTD), and Short-Term Debt (STD).

Employing the Panel Generalized Least Squares (GLS) estimation technique, the findings revealed that leverage has a negative but statistically insignificant effect on market value (β = -0.1723; t-statistics = -0.6916). This suggests that although higher leverage is associated with a decline in market value, the relationship is not strong enough to be considered significant within the study period. Long-Term Debt (LTD) shows a negative and statistically significant effect on market value (β = -1.0272; t-statistics = -2.0080), indicating that increased reliance on long-term financing reduces the market value of manufacturing firms in Nigeria. This outcome suggests that heavy long-term debt burdens may erode investor confidence and negatively impact firm valuation. Conversely, Short-Term Debt (STD) exerts a positive and statistically significant influence on market value (β = 3.1634; t-statistics = 2.8516). This result implies that effective management and utilization of short-term liabilities can enhance the market valuation of manufacturing firms, potentially due to the flexibility and lower cost associated with short-term financing instruments.

Overall, the study concludes that capital structure decisions, particularly the composition of debt, play a critical role in influencing the market value of manufacturing firms in Nigeria. It recommends that manufacturing firms strategically manage their debt profiles by minimizing excessive reliance on long-term debt while leveraging the benefits of short-term financing to enhance firm value and attract investors

Keywords: Capital structure, Leverage, Long term debt, Market value, Short term debt,

1.0 BACKGROUND TO THE STUDY

The concept of capital structure has long been at the core of corporate finance, focusing on how firms choose to finance their operations through a mix of debt and equity. Capital structure decisions are crucial because they directly impact the firm's value, cost of capital, and risk profile. At the heart of this inquiry lies the relationship between capital structure and market value, often captured through the price-earnings (P/E) ratio is a key metric for investors evaluating a firm’s market performance.

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Capital structure typically includes leverage, long-term debt, and short-term debt. Leverage refers to the use of fixed financial charges, primarily interest-bearing debt, to finance assets. It can magnify returns but also increases the risk of financial distress (Kraus & Litzenberger, 1973). Long-term debt includes bonds and loans that are due after more than a year, while short-term debt refers to obligations due within a year, such as trade payables and short-term bank loans.

The debate on optimal capital structure was ignited by Modigliani and Miller (1958), who initially proposed that, in a perfect market, the value of a firm is unaffected by its capital structure. However, their later work (Modigliani & Miller, 1963) introduced the concept of corporate taxes, asserting that debt financing provides a tax shield, thereby increasing the firm's value. Since then, scholars have built on these theories to explain real-world deviations. Trade-off theory, for instance, suggests that firms balance the tax advantages of debt against bankruptcy costs, while pecking order theory posits that firms prioritize internal financing over external debt or equity due to information asymmetry (Myers & Majluf, 1984).

Firms utilize long-term debt primarily for capital investments such as infrastructure, plant, and equipment. This form of debt is often associated with stability and investor confidence, especially when the firm's returns on assets exceed the cost of debt. However, high levels of long-term debt can burden a firm with fixed obligations, affecting its liquidity and market valuation (Frank & Goyal, 2009). On the other hand, short-term debt may provide quick liquidity and flexibility but exposes firms to refinancing risks and interest rate volatility. An overreliance on short-term borrowing may signal financial weakness, thereby diminishing investor confidence and market value.

The price-earnings (P/E) ratio is a widely used indicator of a firm's market valuation. It measures the market price of a share relative to its earnings per share (EPS). A high P/E ratio may indicate growth potential and investor confidence, while a low P/E may suggest undervaluation or declining performance. Capital structure decisions influence the P/E ratio by affecting earnings and perceived risk. For instance, high leverage increases interest expenses, reducing net income and, consequently, EPS. If investors view the firm’s debt as excessive, they may adjust their valuation downward, thereby lowering the P/E ratio (Jain & Kini, 2021).

Empirical studies have shown mixed results regarding the relationship between capital structure and market value. For example, Booth et al. (2001) found that while leverage negatively impacts firm value in developing markets, it has less pronounced effects in developed economies. More recent findings by Chen and Chen (2023) indicate that the impact of capital structure on market value is industry-specific and influenced by macroeconomic conditions. This suggests that firms must tailor their capital structure decisions to their operational context and investor expectations.

In the current business environment, characterized by global uncertainty, inflationary pressures, and interest rate hikes, capital structure management has become even more critical. Firms with high leverage may struggle with rising debt servicing costs, adversely affecting their valuation. Conversely, firms with a sound capital mix can leverage market opportunities, attract investment, and improve shareholder value. The ongoing trend toward ESG (Environmental, Social, and Governance) investing also influences capital structure

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preferences, as investors increasingly favor firms with sustainable and transparent financing practices (BlackRock, 2024).

Moreover, the integration of digital financial technologies is changing how firms access and manage debt. Fintech innovations, such as peer-to-peer lending and blockchain-based bonds, offer alternative financing options that could reshape traditional capital structure models (Zhao et al., 2022). Understanding how these innovations interact with market valuation metrics like the P/E ratio is crucial for modern financial management.

In conclusion, the relationship between capital structure and firm market value, as measured by the P/E ratio, remains a dynamic and vital area of study. It encompasses not just financial metrics, but also market perception, macroeconomic factors, and evolving investor priorities. Firms must navigate this complex landscape carefully, balancing risk, return, and strategic growth to enhance their market valuation.

2.0 STATEMENT OF THE PROBLEM

The capital structure of a firm is the composition of its debt and equity remains a central concern in corporate finance, primarily because of its potential impact on firm performance and market value. Despite decades of research, a universally accepted model for determining the optimal mix of leverage, long-term debt, and short-term debt in relation to firm value remains elusive. One key aspect of market value that continues to attract scholarly attention is the price-earnings (P/E) ratio, a proxy for investor confidence and future earnings expectations. The question remains: how does a firm's capital structure influence its P/E ratio, and consequently, its market valuation?

The complexity of the capital structure-market value relationship stems from multiple factors, including industry characteristics, economic conditions, and investor perceptions. While leverage (the use of borrowed funds) can enhance returns on equity during periods of strong performance, it also magnifies losses during downturns, increasing the risk of financial distress (García-Teruel & Martínez-Solano, 2023). This risk-return trade-off complicates the managerial task of determining an appropriate balance between debt and equity.

More specifically, long-term debt, often used to finance capital investments, can be beneficial due to the tax shield on interest payments. However, excessive long-term debt increases fixed obligations, reducing financial flexibility and potentially lowering investor confidence. On the other hand, short-term debt provides quick access to capital and often carries lower interest rates, but it increases rollover risk and susceptibility to liquidity crises (Li & Stathopoulos, 2022). The ambiguity surrounding these opposing effects has created a significant gap in understanding how firms can optimally configure their debt structure to maximize market value.

Several empirical studies have produced conflicting findings. For instance, Ajanthan (2021) reported a significant negative relationship between financial leverage and market value, suggesting that investors penalize highly leveraged firms due to the heightened risk of insolvency. In contrast, Kumar and Banerjee (2023) found that moderate levels of debt improve the P/E ratio, especially in firms with stable earnings and high growth prospects. These

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discrepancies indicate that the impact of capital structure on firm valuation is context-specific, and generalized conclusions may not be reliable.

In developing markets, where access to capital is limited and the cost of borrowing is higher, firms often rely more on short-term debt to meet liquidity needs. This practice can have severe implications for their market valuation if investors perceive these firms as unstable or high-risk (Onyeiwu & Odita, 2021). Conversely, in developed markets, firms may have more flexibility to structure long-term financing packages that align with their strategic goals. The disparity in capital market conditions further complicates efforts to develop a unified theory linking capital structure and market value.

Another unresolved issue is the effect of capital structure on investor perception, as reflected in the price-earnings ratio. While the P/E ratio is primarily driven by earnings expectations, it is also influenced by capital structure decisions. Investors may view highly leveraged firms as either aggressively growth-oriented or financially precarious, depending on macroeconomic conditions and industry trends (Singh & Kaushal, 2022). This duality presents a challenge for managers seeking to enhance shareholder value through debt financing.

Furthermore, with the rise of ESG (Environmental, Social, and Governance) investing, the traditional reliance on debt-heavy structures may no longer align with investor preferences. Companies with high levels of debt may be perceived as less sustainable, reducing their attractiveness to socially conscious investors and thereby affecting market valuation (Peterson & Lewis, 2023). This introduces yet another layer of complexity into capital structure decisions.

Technological advancements and the growth of financial innovation have also changed the landscape. Fintech platforms now offer alternative financing options, such as crowdfunding and digital bonds, which could significantly impact the traditional debt-equity balance (Ahmad et al., 2022). However, the effect of these innovations on the P/E ratio and overall firm value has not been sufficiently studied.

In conclusion, the lack of consensus on the optimal capital structure and its effect on the price-earnings ratio constitutes a major problem in both theory and practice. Despite numerous studies, the relationship between leverage, debt maturity, and market valuation remains unclear and inconsistent across different sectors and regions. As financial environments evolve, particularly in light of increasing global uncertainty, firms need evidence-based strategies to align their capital structure with investor expectations and market performance. This calls for further empirical investigation into how different components of capital structure specifically leverage, long-term debt, and short-term debt affect firm value as measured by the P/E ratio.

2.1 Research Objectives

The three research objectives to be achieved in this study are;

i. examine the effect of leverage (total debt) on market value of manufacturing firms in Nigeria
ii. assess the effect of long-term debt on market value of manufacturing firms in Nigeria

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iii. determine the effect of short-term debt on market value of manufacturing firms in Nigeria

2.2 Research Questions

Based on the three research objectives, the following research questions will be answered in this study

i. How does leverage (total debt) influence the market value of manufacturing firms in Nigeria as measured by the price-earnings (P/E) ratio?
ii. What is the effect of long-term debt on market value of the firm of manufacturing firms in Nigeria as measured by the price-earnings (P/E) ratio?
iii. To what extent do short-term debt affect the market value of manufacturing firms in Nigeria as measured by the price-earnings (P/E) ratio?

3.0 EMPIRICAL LITERATURE REVIEW AND THEORETICAL ISSUES

3.1 Literature review

Chen (2020) investigated the relationship between financial leverage and firm performance in the context of China's increasingly open economic environment and evolving financial landscape. Using data from Chinese listed companies between 2010 and 2019, the research employs OLS and 2SLS regression methods to examine how leverage affects firm performance, as measured by return on assets (ROA). The findings revealed a significant negative correlation between financial leverage and firm performance. However, operating leverage appears to moderate this relationship positively though this moderating effect is not significant in the real estate sector. The study highlights that excessive debt can harm performance by increasing financial risk and agency costs. Authors suggested that managing operating expenses, particularly selling, general, and administrative costs, may help mitigate these effects.

Dianova and Nahumury (2019) investigated the impact of liquidity, leverage, sales growth, and good corporate governance on financial distress. It focuses on a sample of 55 telecommunication and non-construction companies listed on the Indonesia Stock Exchange from 2013 to 2017. The sample was selected using purposive sampling, and data were analyzed using the Partial Least Squares (PLS) method. Surprisingly, the findings reveal that none of the variables—liquidity, leverage, sales growth, or good corporate governance have a significant influence on financial distress. These unexpected outcomes may be attributed to certain limitations of the study, such as sample size or variable selection

Edore and Ujuju (2020) examined the impact of financial leverage on firm value in Nigeria, focusing on how different forms of debt long-term, medium-term, and short-term affect corporate performance. Using secondary data and employing Pearson correlation and Ordinary Least Squares (OLS) regression, the research tested three hypotheses related to the influence of each debt category on firm value. The findings revealed that all three types of debt positively and significantly affect the value of listed Nigerian firms. Specifically, long-term, medium-term, and short-term borrowings each contributed to an increase in firm value, suggesting that financial leverage, when managed effectively, can enhance corporate performance. The study

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concludes that a well-structured use of debt can be beneficial for firm growth in the Nigerian context

Ishari and Abeyrathna (2016) examined the impact of financial leverage on firm value, with a specific focus on comparing the value of listed manufacturing companies in Sri Lanka using financial leverage as a key metric. Secondary data were collected for analysis, covering a sample of ten listed manufacturing firms over the period 2011 to 2015, resulting in 50 observations. Financial ratios were calculated, and various statistical tools including Pearson's correlation, analysis of variance (ANOVA), and regression analysis were employed to test the hypotheses and assess the differences and similarities among the companies based on their unique characteristics. The findings revealed a weak negative relationship between the debt-to-equity (DE) ratio and return on assets (ROA), as indicated by the Pearson correlation. However, this relationship was not statistically significant, suggesting that variations in financial leverage may not have a meaningful impact on firm performance, as measured by ROA, within the observed sample.

Kruk (2021) noted that capital structure has been widely discussed in academic literature, though existing theories are often grouped into various approaches with limited focus on specific frameworks. This paper aims to provide a comprehensive synthesis of key capital structure theories, with particular emphasis on their implications for value creation within enterprises. The article is divided into two main sections. The first explores the varying definitions and classification methods of capital structure, while the second examines major theoretical perspectives in relation to how capital structure influences value generation. The study also highlights significant scholarly contributions in this field. Overall, the review reveals a lack of consensus regarding the extent to which capital structure impacts enterprise value. This uncertainty underscores the need for further empirical research to clarify these relationships

Toby and Sarakiri (2021) employed a panel data framework to explore the relationship between corporate debt policy and the market value of listed firms in Nigeria. Using secondary data from the published financial statements of 60 companies across various sectors, the study covers the period from 1990 to 2016. The analysis focuses on how short-term debt, long-term debt, the debt-to-equity ratio, and total debt influence market value per share. To ensure robustness, the study utilizes three panel data estimation methods pooled regression, random effects, and fixed effects supported by the Likelihood Ratio and Hausman tests to determine the most appropriate model. Additionally, pairwise panel causality tests were conducted to assess whether market value per share exerts any reverse influence on the debt policy variables. The fixed effects results reveal that market value per share is negatively associated with short-term debt, long-term debt, and the debt-to-equity ratio, while showing a positive relationship with total debt stock. The effects of short-term debt, long-term debt, and total debt are statistically significant, whereas the debt-to-equity ratio is not. Collectively, the debt variables explain 61% of the variation in market value per share, indicating strong explanatory power. The findings challenge the capital structure irrelevance theory and suggest that to enhance shareholder value, Nigerian firms should strategically reduce both short- and long-term debt levels.

Uddin and Slaydon (2018) noted that the impact of capital structure on firm value remains one of the most debated topics in corporate finance. While corporate managers aim to maximize their firms' market value, it is still unclear whether adjusting a company's financing mix—between debt and equity—can effectively achieve this goal, or which component has the most significant influence. Research on the relationship between financial leverage and firm value has produced mixed results, while some studies showed a positive impact, others a negative one, while some find no significant correlation at all. Moreover, the specific role and influence of short-term versus long-term debt on firm value have yet to be definitively determined. This study specifically investigates the effect of long-term debt on firm market value, analyzing a sample of 97 large blue-chip companies listed on the S&P 100 index over the period from 2006 to 2014. Through multiple regression analysis, the findings reveal a negative relationship between long-term debt levels and firm value. These results suggest that market participants, being generally risk-averse, respond unfavorably to the increased financial risk associated with higher levels of long-term debt.

Umar and AbduQudus (2020) explored the impact of financial leverage on firm value, using data from a sample of companies listed on the Nigerian Stock Exchange. The research employs a panel data analysis based on secondary data extracted from the financial statements of the selected firms over the period from 2014 to 2018. The sample includes 18 firms, chosen using a convenience sampling technique. Financial leverage is measured using the long-term debt-to-equity ratio. Notably, this study is the first in Nigeria to use Tobin's Q ratio as a proxy for firm value. Additional control variables, such as Total Assets, Return on Assets, and the number of years a firm has been operational, were incorporated, based on their established relevance in firm valuation literature. Data analysis was conducted using E-VIEWS to assess the causal and correlational relationships between the dependent variable and the independent variables. The study employed three estimation techniques: Pooled Ordinary Least Squares (POLS), Random Effect Model (REM), and Fixed Effect Model (FEM) to determine the degree of causality. Correlation coefficients were computed using the pairwise correlation matrix to examine the predictive power of financial leverage on firm value. The regression results indicate a significant negative relationship between financial leverage and firm value. However, the pairwise correlation analysis revealed no significant linear relationship between leverage and firm value.

Zimny (2020) examined the effect of leverage on the market valuation of companies. It tests two hypotheses: 1) the degree of leverage significantly influences the market valuation of firms, and 2) for firms with high leverage, the impact on their valuation is negative, while for those with low leverage, the impact is positive. The study's methodology involved a critical review of existing literature and empirical research using both correlation and regression analysis, including univariate and multivariate regression models. The analysis is based on quarterly data from ten energy companies listed on the Warsaw Stock Exchange. A key aspect of the research involved grouping these companies based on their debt ratios, comparing them to the industry median debt ratio. The results of the study reveal that the literature did not provide a clear consensus on the issue. The empirical analysis supports the first hypothesis, confirming that leverage is an important factor in market valuation. However, the second hypothesis is rejected. The findings show a positive correlation and regression coefficients between debt ratio and the price-to-book value ratio for highly leveraged companies, and a

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negative correlation for companies with lower debt levels. These results were unexpectedly contrary to the theoretical expectations

Shikumo, et al (2020) examined the impact of long-term debt on the financial growth of non-financial firms listed on the Nairobi Securities Exchange (NSE). Financial firms were excluded from the analysis due to their unique sector-specific characteristics and strict regulatory requirements. The study is anchored on the Trade-Off Theory and the Theory of the Growth of the Firm and employs an explanatory research design. The target population consisted of 45 non-financial firms listed on the NSE over a ten-year period, from 2008 to 2017. Both descriptive statistical methods and panel data analysis were applied to examine the relationship. The findings revealed that long-term debt accounts for 21.6% of the variation in financial growth when measured by earnings per share, and 5.16% when measured by market capitalization. Furthermore, long-term debt was found to have a positive and statistically significant effect on financial growth using both performance indicators.

3.2 Theoretical Review of Literature

Capital structure decisions are central to corporate financial management, influencing both the risk and value of a firm. Over the years, scholars have proposed various theories to explain how firms choose between debt and equity in financing their operations. These theories form the backbone of capital structure literature and provide critical insights into the relationship between leverage, cost of capital, and firm value.

This review begins with the Net Income (NI) Theory, which posits a direct relationship between the proportion of debt in the capital structure and the overall value of the firm. In contrast, the Net Operating Income (NOI) Theory argues that capital structure is irrelevant, and firm value is independent of the financing mix.

Building on these foundations, Modigliani and Miller (M&M) Theorem introduced a more rigorous analytical framework, initially asserting the irrelevance of capital structure in a perfect market, but later modifying the model to incorporate the tax advantages of debt. The Traditional Theory serves as a middle ground, suggesting that an optimal capital structure does exist, balancing the benefits and costs of debt.

Finally, the Pecking Order Theory challenges the notion of an optimal mix by proposing that firms follow a financing hierarchy based on internal preferences and information asymmetry, rather than seeking a specific debt-equity ratio.

This literature review explores the assumptions, implications, and empirical relevance of each theory, shedding light on their contributions to the evolving discourse on capital structure. This study however adopts the traditional theory.

4.0 METHODOLOGY

4.1 Model of firm value

A mathematical model of capital structure decisions and firm value often centers on the Weighted Average Cost of Capital (WACC) framework and the valuation of a firm using the Modigliani and Miller (1963) approach. Firm value V can be expressed as:

$$V = \frac{EBIT \times (1-T)}{WACC} \qquad \text{----3.1}$$

Where:

EBIT = Earnings Before Interest and Taxes,

T = Corporate tax rate,

WACC = Weighted average cost of capital.

The WACC is calculated as:

$$WACC = \left\langle \frac{E}{V} * re \right\rangle + \left\langle \frac{D}{V} * rd \right\rangle * \{1-T\} \qquad \text{------ 3.2}$$

Where:

E = Market value of equity,

D = Market value of debt,

$$V = E+D \qquad 3.3$$

re = Cost of equity,

rd = Cost of debt.

This model shows how a firm's value increases with tax-deductible debt (Modigliani & Miller, 1963). It is foundational in capital structure theory and supports the trade-off theory in evaluating optimal leverage.

The functional model is stated as;

$$Mv = f(lev, ltd, std, lta\ liq) \qquad 3.4$$

The econometric model of equation 3.3 is stated as;

$$Mv_{it} = \beta 0 + \beta_1 lev_{it} + \beta_2 ltd_{it} + \beta_3 std_{it} + \beta_4 lta_{it} + \beta_5 liq_{it} + \mu_{it} \qquad 3.5$$

4.2 Data and Source

This study employed panel data. Panel data combines both time-series and cross-sectional data, and provided a comprehensive understanding of the dynamics of firm-level capital structure decisions over time. The analysis uses annual financial statements sourced from these firms' reports, focusing on key variables such as leverage (debt-to-equity ratio), firm size,

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profitability, and market value. This data is particularly valuable for examining the impact of capital structure on firm performance, controlling for time-specific and firm-specific effects

5.0 RESULTS AND DISCUSSIONS

The correlation matrix provided in table 4.1 examined the relationships between six key financial indicators: Price-Earnings Ratio (LPER), Leverage (LEV), Long-Term Debt (LTD), Short-Term Debt (STD), Total Assets (LTA), and Liquidity (LIQ). Each value in the matrix represents the Pearson correlation coefficient between two variables, ranging from -1 to +1.

Price-Earnings Ratio (LPER) shows generally low correlations with the other variables. Its correlation with LEV (0.0941), LTD (0.0736), STD (0.3250), and LTA (0.0524) are positive but weak, suggesting that changes in leverage, long-term debt, short-term debt, or total assets have little direct impact on a company's P/E ratio. However, LPER's correlation with LIQ (-0.4071) is negative and moderate. This suggests that higher liquidity tends to be associated with lower price-earnings ratios, indicating that companies holding more liquid assets may not be valued as highly in terms of earnings potential by investors.

Leverage (LEV) has a strong positive correlation with LTD (0.6573) and a moderate positive correlation with STD (0.4571). This is expected since leverage typically includes both short-term and long-term debt components. The very high correlation between LEV and LTD implies that long-term debt plays a major role in determining the leverage structure of firms in this dataset.

Table 4.1: Correlation Matrix

	LPER	LEV	LTD	STD	LTA	LIQ
LPER	1					
LEV	0.0941	1				
LTD	0.0736	0.6573	1			
STD	0.3250	0.4571	0.4429	1		
LTA	0.0524	0.0312	-0.3133	-0.3636	1	
LIQ	-0.4071	-0.0015	-0.1094	-0.3318	0.5168	1

Source: Author's Computation from E-View 12, 2025

However, LEV's correlations with LTA (0.0312) and LIQ (-0.0015) are very close to zero, suggesting no meaningful linear relationship between leverage and either total assets or liquidity.

Long-Term Debt (LTD) shows a similar pattern. It is moderately correlated with STD (0.4429), indicating that firms with higher long-term debts may also have higher short-term debts. Interestingly, LTD has a negative correlation with LTA (-0.3133), suggesting that firms with larger total assets might rely less on long-term debt, possibly because they can internally finance their operations.

Short-Term Debt (STD) is moderately positively correlated with LEV (0.4571) and LTD (0.4429), as discussed, but negatively correlated with LTA (-0.3636) and LIQ (-0.3318). This

means firms with higher total assets tend to have lower short-term debt, and higher liquidity is associated with lower short-term debt levels, which aligns with financial theory: firms with more liquid assets may not need to borrow short-term.

Total Assets (LTA) shows weak correlations with most variables but a stronger positive correlation with LIQ (0.5168). This suggests that firms with larger asset bases also tend to have better liquidity positions, possibly because larger firms have more diversified and liquid assets or better access to cash.

Liquidity (LIQ) stands out with a moderate negative correlation with LPER (-0.4071) and STD (-0.3318), and a strong positive correlation with LTA (0.5168). This combination implies that firms with higher liquidity are often bigger in size but might be perceived by the market as having lower growth prospects, as reflected in lower P/E ratios.

In summary, the matrix paints a picture where leverage is driven by long-term debt, larger firms are more liquid and less reliant on debt, and liquidity inversely affects valuation metrics like the P/E ratio. Firms' debt structure (short-term vs. long-term) seems moderately connected, and total assets play a crucial role in shaping both liquidity and reliance on external funding.

5.1 Panel Unit Root Test

The Panel Unit Root Test results in Table 4.2 evaluate the stationarity of six financial variables: Price-Earnings Ratio (LPER), Leverage (LEV), Long-Term Debt (LTD), Short-Term Debt (STD), Total Assets (LTA), and Liquidity (LIQ). The Levin, Lin & Chu (LLC) test is used, and stationarity decisions are made based on the significance of the test statistics.

Stationarity is critical in panel data analysis because non-stationary data can lead to spurious regression results. A stationary series has a constant mean and variance over time, making statistical inferences valid. If a variable is non-stationary at level but becomes stationary after differencing, it is integrated of order one, denoted as I(1); if stationary at level, it is I(0).

Starting with LPER (Price-Earnings Ratio), the LLC test statistic is -4.5451, leading to the conclusion that LPER is stationary at level (I(0)). This implies that the price-earnings ratio does not have a unit root and fluctuates around a stable mean. The first difference (ΔLPER) is not tested since LPER is already stationary.

Similarly, LEV (Leverage) has a test statistic of -5.1110, also indicating stationarity at level (I(0)). Thus, leverage is stable over time without requiring differencing. Again, ΔLEV is not tested.

Table 4.2: Panel Unit Root Test

Variables	Levin, lin & Chu (LLC) test Stat.	Decision
LPER	-4.5451	I(0)
Δ LPER	-	
LEV	-5.1110	I(0)
Δ LEV	-	

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LTD	-89.4703	I(0)
Δ LTD	-	
STD	-1.9554	I(0)
Δ STD	-	
LTA	-0.9762	
Δ LTA	-2.7880	I(1)
LIQ	-13.1699	I(0)
Δ LIQ	-	

Source: Author's Computation from E-View 12, 2025

Long-Term Debt (LTD) shows an exceptionally large negative test statistic (-89.4703), strongly confirming stationarity at level (I(0)). This result suggests that long-term debt figures across the firms are mean-reverting and do not display non-stationary behavior.

Short-Term Debt (STD), with a test statistic of -1.9554, is likewise stationary at level (I(0)). Although the magnitude is smaller compared to LTD and LEV, it is sufficient to reject the null hypothesis of a unit root.

In contrast, Total Assets (LTA) initially shows a test statistic of -0.9762, which is not significant enough to reject the null hypothesis of a unit root at level. However, after first differencing (ΔLTA), the statistic improves to -2.7880, leading to the conclusion that LTA is integrated of order one (I(1)). This suggests that total assets are non-stationary at level but become stationary after differencing. In practical terms, total assets grow or shrink over time without reverting to a mean unless adjusted by differencing.

Lastly, Liquidity (LIQ) presents a strong test statistic of -13.1699, clearly indicating stationarity at level (I(0)). This suggests that firms' liquidity levels are stable around a mean over time, not displaying persistent trends or random walks.

Overall, the majority of variables (LPER, LEV, LTD, STD, and LIQ) are stationary at level (I(0)), meaning they are suitable for direct inclusion in regression models without differencing. Only Total Assets (LTA) required differencing to achieve stationarity, indicating it follows a more persistent trend compared to other financial indicators.

In conclusion, the results ensure that subsequent econometric analyses, like panel regressions, will be valid and not suffer from spurious correlation problems, as most key variables are stationary

5.2 Cointegration Test

The Panel Pedroni Cointegration Test presented in Table 4.3 examines whether a long-run equilibrium relationship exists among the variables under study. The test provides four

different statistics: Panel V, Panel rho, Panel PP, and Panel ADF, each with associated probabilities.

The Panel V statistic is -1.9370 (p = 0.9738) and the weighted value is -2.3861 (p = 0.9915). Both probabilities are very high (greater than 0.05), indicating a failure to reject the null hypothesis of no cointegration based on this statistic.

Similarly, the Panel rho statistic is positive (3.4978) with a probability of 0.9998, and its weighted value is 3.2360 (p = 0.9994). Again, the high p-values suggest strong evidence against cointegration when relying on the rho statistic.

Table 4.3: Panel Pedroni Cointegration Test

	Statistics	Probability	Weighted Statistics	Probability
Panel V statistics	-1. 9370	0.9738	-2.3861	0.9915
Panel rho Statistics	3.4978	0.9998	3.2360	0.9994
Panel PP Statistics	-10.7766	0.0000	-11.9544	0.0000
Panel Adf Statistics	-0.0328	0.4869	-0.6667	0.2525

Source: Author's Computation from E-View 12, 2025

However, the Panel PP statistic shows a very strong negative value (-10.7766) with a probability of 0.0000, and the weighted statistic is even stronger at -11.9544 (p = 0.0000). These p-values are statistically significant at any conventional level (1%, 5%, 10%), meaning that according to the Panel PP test, there is cointegration among the variables.

The Panel ADF statistic is -0.0328 (p = 0.4869) and the weighted value is -0.6667 (p = 0.2525). These p-values are above 0.05, meaning the null hypothesis of no cointegration cannot be rejected under the ADF test.

In summary, the evidence of cointegration is mixed. Only the Panel PP statistic strongly supports the presence of a long-term relationship among the variables, while the other statistics (V, rho, and ADF) do not provide such evidence.

5.3 Panel Generalized Least Squares (GLS) estimation

Table 4.4 presents the results from the Panel Generalized Least Squares (GLS) estimation, showing the relationship between the dependent variable and a set of independent financial variables: Leverage (LEV), Long-Term Debt (LTD), Short-Term Debt (STD), Total Assets (LTA), and Liquidity (LIQ). The table reports the estimated coefficients, t-statistics, and the corresponding probabilities (p-values), along with model diagnostics like R-squared (R^2), Adjusted R-squared (Adj R^2), and the F-statistic.

The constant term (C) has a positive coefficient of 3.1960, with a highly significant t-statistic of 9.7861 (p = 0.0000). This indicates that when all the independent variables are held at zero, the dependent variable would be positive and significant, suggesting a strong base level for the model.

Leverage (LEV) has a negative coefficient of -0.1723, but its t-statistic of -0.6816 and a p-value of 0.4904 show that the relationship is not statistically significant. This implies that leverage, as measured in this model, does not have a meaningful impact on the dependent variable at the conventional significance levels (1%, 5%, or 10%).

Long-Term Debt (LTD) shows a negative coefficient of -1.0272, with a t-statistic of -2.0080 and a p-value of 0.0468. This indicates a statistically significant negative relationship at the 5% level. In practical terms, an increase in long-term debt is associated with a decrease in the dependent variable, which could be interpreted as suggesting that heavier reliance on long-term debt may weaken firm performance or value.

Table 4.4: Panel Generalized Least Square Result

Variable	Coefficient	t-statistics	Probability
C	3.1960	9.7861	0.0000
LEV	-0.1723	-0.6816	0.4904
LTD	-1.0272	-2.0080	0.0468
STD	3.1634	-2.8516	0.0050
LTA	0.0076	0.1910	0.8488
LIQ	-0.3782	-5.9109	0.0000
R^2	0.36		
Adj R^2	0.33		
F-Stat	15.24		
Prob (F-Stat	0.00		

Source: Author's Computation from E-View 12, 2025

Short-Term Debt (STD) has a positive coefficient of 3.1634, while the t-statistic is 2.8516. Meanwhile, the corresponding p-value of 0.0050 shows strong statistical significance. This suggests that short-term debt positively influences the dependent variable. This could mean that firms effectively managing short-term obligations might experience enhanced performance or valuation.

Total Assets (LTA) displays a small positive coefficient (0.0076) with a very low t-statistic (0.1910) and a p-value of 0.8488, far above any conventional threshold for significance. Thus, total assets do not have a significant influence on the dependent variable in this model, suggesting that firm size, as measured by total assets, may not be a determining factor in this context.

Liquidity (LIQ) presents a negative coefficient of -0.3782, a high absolute t-statistic of -5.9109, and a p-value of 0.0000, making it highly significant. This means that an increase in liquidity is strongly associated with a decrease in the dependent variable. It could imply that firms holding excessive liquidity might not be using their resources efficiently, possibly leading to lower profitability or valuation.

Looking at the model diagnostics, the R-squared (R^2) is 0.36, meaning the independent variables collectively explain 36% of the variation in the dependent variable. The Adjusted R-

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squared is slightly lower at 0.33, which adjusts for the number of predictors in the model. While these figures indicate moderate explanatory power, they suggest that other factors not included in the model also influence the dependent variable.

The F-statistic of 15.24 with a probability of 0.00 confirms that the model is statistically significant overall. In other words, the independent variables, when considered together, have a significant joint impact on the dependent variable.

In summary, the Panel GLS results show that Long-Term Debt, Short-Term Debt, and Liquidity are significant predictors of market value of the firm, with liquidity having the most substantial impact. Leverage and Total Assets, however, do not significantly affect the outcome in this model. The overall model is statistically sound and provides moderate explanatory power.

6.0 CONCLUSION

In conclusion, the Panel Generalized Least Squares (GLS) results reveal important insights into the relationship between the selected financial variables and the dependent variable. Short-Term Debt (STD) shows a significant and positive relationship, suggesting that firms that effectively manage their short-term obligations tend to experience improved performance or valuation. This highlights the potential strategic importance of short-term financing in driving firm success.

On the other hand, Total Assets (LTA) do not exhibit any significant influence on the dependent variable, implying that firm size alone is not a determining factor in this context. This suggests that operational efficiency and financial strategies might be more critical to performance than simply the scale of operations.

Liquidity (LIQ) demonstrates a strong and significant negative relationship with the dependent variable. The implication is that while liquidity is generally important for financial health, excessive liquidity could signal inefficient resource utilization, which might negatively affect profitability or market valuation.

The model's R-squared and Adjusted R-squared values (0.36 and 0.33, respectively) indicate moderate explanatory power, meaning that while the included variables are relevant, other unaccounted factors also influence the dependent variable. Nonetheless, the overall F-statistic confirms the model’s joint significance.

Overall, the findings suggest that firms should strategically manage their debt structure, particularly short-term debt, while ensuring optimal liquidity levels to enhance performance. Although firm size appears less critical, financial discipline and resource allocation efficiency emerge as key drivers of value in this model.

6.1 Recommendations

Based on the findings, it is recommended that firms prioritize efficient management of short-term debt to enhance their performance and market valuation. Companies should also avoid excessive accumulation of liquid assets, as this may reflect inefficient resource use and hinder

profitability. Instead, maintaining an optimal liquidity balance is crucial. Additionally, firms should focus more on strengthening operational efficiency and financial strategies rather than merely expanding their asset base. Finally, management should continually monitor and adjust their financial structures to align with dynamic market conditions, ensuring sustainable growth and improved firm value over time.

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