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Determinants of Firm Value in the Banking Subsector Listed on the Indonesia Stock Exchange: The Role of Financial Ratios and Dividend Policy

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ABSTRACT

Firm value reflects market perceptions of a company's performance and future prospects. This study examines the influence of financial ratios and dividend policy on firm value in the Indonesian banking subsector. The population of this study comprises all banking companies listed on the Indonesia Stock Exchange (IDX), with a research sample consisting of 45 banks observed over the 2022–2024 period, resulting in balanced panel data. The data used are secondary data obtained from published annual reports and official IDX documentation. Data analysis was conducted using panel data regression techniques, including model selection through the Chow test and Hausman test, followed by estimation using the Fixed Effects Model with Feasible Generalized Least Squares (FGLS) to address heteroskedasticity and cross-sectional dependence. The results indicate that profitability, liquidity, and capital adequacy play essential roles in enhancing firm value, whereas firm size and dividend policy exhibit a negative effect on market valuation, and credit risk shows no significant impact. These findings suggest that strong internal fundamentals and efficient financial management are crucial in strengthening investor confidence and improving firm value within the Indonesian banking industry.

Keywords: Banking Sector; Dividend Policy; Financial Performance; Firm Value

1. INTRODUCTION

Indonesia's economy exhibits a substantial dependence on the stability of the financial sector as a key driver of economic activity. The role of financial institutions in mobilizing public funds and reallocating them to productive sectors positions the financial industry as a key pillar of sustaining national economic growth. Through financial intermediation, financial institutions facilitate capital flows, strengthen investment, and enhance the overall efficiency of the monetary system (Adriani, 2022). Consequently, the performance of financial institutions not only affects internal corporate profitability but also carries broader implications for macroeconomic stability.

In the capital market, the performance of the banking sector is also reflected in firm value, as shaped by market valuation mechanisms. Firm value is an important indicator of investors' perceptions of a company's future profitability and business sustainability. However, within the banking subsector listed on the Indonesia Stock Exchange, changes in firm value do not always align with improvements in financial performance. In some instances, banking companies exhibit relatively strong fundamental performance but do not experience a significant increase in firm value. This condition indicates heterogeneous market reactions to published financial information. It suggests that fundamental variables may not consistently explain changes in firm value, particularly in Indonesia's banking subsector during specific observation periods (Simanungkalit et al., 2022). This finding underscores that market valuation mechanisms for banking firms are more complex than those in other sectors.

Firm value is a primary measure for evaluating a business entity's performance. This indicator reflects the level of market confidence in a firm's future growth prospects and in management's effectiveness in using available resources (Dewi & Wirajaya, 2013). Moreover, firm value also represents investor welfare, as increases in firm value are generally associated with greater opportunities for capital gains. In this study, firm value is proxied by the Price-to-Book Value (PBV), which reflects the extent to which the market values a firm relative to its book value. Therefore, examining the factors that influence firm value is essential to supporting the competitiveness and sustainability of financial institutions amid continuously evolving market dynamics.

Numerous previous studies have examined the determinants of firm value, particularly those related to internal fundamental factors. Profitability is often regarded as a key determinant of firm value because it reflects a firm's ability to generate earnings. Several studies have found that profitability positively affects firm value (Dewi & Susila, 2021). However, other findings indicate that profitability does not always significantly influence firm value, especially in specific sectors (Rahmawati & Subakir, 2022).

In addition to profitability, liquidity is considered to play a role in shaping firm value, as it reflects a firm's ability to meet short-term obligations. Some studies suggest that liquidity has a positive effect on firm value. In contrast, others find that excessively high liquidity may signal inefficient asset utilization, thereby limiting its contribution to enhancing firm value. Capital adequacy is another factor that has attracted attention in firm value studies, particularly in the banking sector, which operates under strict regulatory frameworks. Strong capitalization is generally perceived as increasing investor confidence; however, empirical evidence shows mixed results on the impact of capital adequacy on firm value across studies. Firm size has also yielded inconsistent findings regarding firm value. On the one hand, larger firms are considered more stable and have better access to external financing. On the other hand, large firms may face higher agency costs and managerial inefficiencies that could ultimately suppress firm value (Nabilah et al., 2023). Dividend policy is another variable frequently associated with firm value, as it directly relates to decisions about how profits are distributed to investors. Some studies indicate that dividend policy positively affects firm value by signaling

strong performance. In contrast, others report adverse or insignificant effects, particularly when firms prefer to retain earnings for business expansion.

Consistent with this perspective, Tsania et al. (2025) emphasize that the formation of firm value in the banking sector is influenced not only by conventional financial indicators but also by corporate governance mechanisms, particularly institutional ownership structures, which shape market confidence in disclosed financial information. The increasingly dynamic business environment and financial markets have further altered investors' valuation behavior toward banking firms. Investors no longer focus solely on financial performance; they also consider non-financial factors such as governance quality, transparency, and firms' ability to adapt to innovation and digitalization in financial services. This shift in orientation further reinforces the complexity of the relationship between fundamental factors and firm value in the banking sector. The presence of divergent empirical findings regarding the effects of profitability, liquidity, capital adequacy, firm size, and dividend policy on firm value indicates an unresolved research gap, particularly within Indonesia's banking subsector. This condition highlights the need for further studies to re-examine the relationships between these fundamental variables and firm value in the national banking industry.

Based on the foregoing discussion, this study aims to analyze the determinants of firm value in the banking subsector listed on the Indonesia Stock Exchange, with a focus on financial ratios and dividend policy. This study is expected to provide more comprehensive empirical insights into the role of internal fundamental factors in shaping firm value and to help explain the inconsistencies observed in previous research findings.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS

This study is grounded in several theories that explain how internal financial factors may influence firm value. The primary theoretical underpinning of this research is Signaling Theory, which explains managerial behavior and market reactions to firms' disclosed financial information. Signaling Theory, introduced by Spence (1973), posits that information firms convey to the public serves as a signal for investors in assessing corporate conditions and future business prospects. In this study, financial indicators such as profitability, capital structure, and dividend policy are treated as signals of corporate performance and stability. When these signals are perceived positively, investors tend to increase their interest in the firm's shares, which ultimately drives an increase in firm value. Empirical evidence from the banking sector is also provided by Arumdani et al. (2025), who find that profitability indicators such as Earnings per Share (EPS) and Return on Risk Assets (RORA) play a significant role in shaping investor perceptions, as reflected in bank stock price movements. This evidence reinforces the argument that financial performance functions as a key signal in the formation of firm value in capital markets.

In addition, this study is grounded in Trade-Off Theory, developed by Kraus and Litzenberger (1973), which provides theoretical support for corporate financing

decisions and capital structure considerations. This theory explains that every financial decision involves a trade-off between risk and return. In the context of corporate finance, management must balance liquidity, credit risk, and profitability in order to achieve an optimal financial structure that enhances firm value (Wijaya dan Mappadang 2022).

Beyond Signaling Theory and Trade-Off Theory, this study is further supported by Agency Theory, proposed by Jensen and Meckling (1976). Agency Theory explains the potential conflicts of interest between management (agents) and shareholders (principals) arising from divergent objectives and information asymmetry. In the banking sector, managerial decisions related to asset management, financing policies, and dividend distribution may reflect efforts to balance internal interests with shareholder expectations. If agency conflicts are not effectively managed, they may erode investor confidence and negatively affect firm value. Collectively, these three theories provide the conceptual foundation for explaining the relationship between profitability (ROA), credit risk (NPL), liquidity (LDR), firm size (log of assets), capital adequacy (CAR), and dividend policy (DIV) on firm value (PBV). In other words, this study integrates signaling, agency, and trade-off perspectives to explain how financial indicators shape market perceptions of firm value.

Findings from prior studies are heterogeneous with respect to the effects of financial variables on firm value. While some studies report positive relationships, others report adverse or insignificant effects, indicating a research gap that warrants re-examination using more recent data and contextual settings. Profitability reflects a firm's ability to generate earnings from managed assets and thus serves as a primary indicator of managerial performance. Based on Signaling Theory, a high level of profitability is perceived as a positive signal indicating favorable prospects, thereby enhancing investor confidence and increasing firm value. Previous research conducted by Wijaya and Mappadang (2022) finds that profitability, measured by ROA, has a positive effect on firm value. This argument is further supported by the notion that capital markets perceive firms capable of generating consistent profits as more stable and promising. Therefore, higher profitability is expected to lead to higher firm value.

Based on this explanation, the first hypothesis is formulated as follows:

H₁: Profitability has a significant positive effect on firm value.

Credit risk, reflected by the Non-Performing Loan (NPL) ratio, indicates the quality of productive assets in banking firms. According to Trade-Off Theory, increasing credit risk raises potential losses and income uncertainty, which ultimately reduces firm value. Investors perceive high NPL levels as a negative signal, as they indicate weak credit risk management. Research by Anisa (2021) shows that NPL hurts firm value in the banking sector. Logically, the higher the level of non-performing loans, the lower the market's confidence in firm stability, leading to a decline in firm value. Accordingly, the second hypothesis is formulated as follows:

H₂: Credit risk has a significant adverse effect on firm value.

Liquidity describes a firm's ability to meet short-term obligations and its effectiveness in managing third-party funds. From a Signaling Theory perspective,

an optimal level of liquidity provides a positive signal regarding a firm's operational health. Abidi (2023) finds that an optimally managed Loan-to-Deposit Ratio (LDR) enhances investor confidence in banking performance. Theoretically, adequate liquidity enables firms to operate efficiently without excessive liquidity pressure, thereby positively influencing firm value. Based on this reasoning, the third hypothesis is formulated as follows:

H_3 : Liquidity has a positive effect on firm value.

Firm size reflects the scale of operations and the capacity of a firm's resources. According to Signaling Theory, larger firms are generally perceived as more stable and less prone to bankruptcy risk, making them more attractive to investors. Rahayu dan Sopian (2020) state that firms with larger total assets are better equipped to withstand economic uncertainty and access external financing. From an investor's perspective, large firms are considered more resilient and have better long-term prospects, suggesting that firm size may influence firm value. Therefore, the fourth hypothesis is formulated as follows:

H_4 : Firm size has a significant effect on firm value.

Capital adequacy, measured by the Capital Adequacy Ratio (CAR), reflects a banking firm's capacity to absorb potential losses. Within the Trade-Off Theory framework, a strong capital structure reduces bankruptcy risk and enhances market confidence. Research by Lambada (2025) indicates that adequate capitalization has a positive effect on firm value. Logically, firms with strong capital positions are perceived by investors as safer and more stable, thereby increasing their market value. Based on this explanation, the fifth hypothesis is formulated as follows:

H_5 : Capital adequacy has a significant positive effect on firm value.

Dividend policy reflects managerial decisions regarding the allocation of earnings between shareholder distribution and retained earnings for business development. According to Dividend Signaling Theory, dividend payments are viewed as signals regarding a firm's financial condition and prospects. Hidayat (2022) finds that dividend policy influences firm value. From an investor's perspective, consistent dividend policies enhance confidence in corporate performance, although in certain conditions, earnings retention may also be perceived as a long-term growth strategy. Therefore, dividend policy is considered one of the determinants influencing firm value. Accordingly, the sixth hypothesis is formulated as follows:

H_6 : Dividend policy affects firm value.

Overall, this study seeks to reconfirm previous findings using more recent data and employs a panel regression approach to obtain more accurate and robust results in explaining the determinants of firm value in Indonesia.

3. RESEARCH METHOD

This study employs a quantitative approach with a causal-comparative research design based on panel data. The research covers 45 banking companies in Indonesia as the units of analysis over the 2022–2024 period. The primary objective is to examine the simultaneous effects of financial ratios and dividend policy on

Price-to-Book Value (PBV), both over time and across firms. All data analyzed in this study are secondary data compiled annually for each firm and obtained from officially published annual reports available on the Indonesia Stock Exchange (IDX). The data were subsequently screened and adjusted to ensure consistent observation periods and a uniform panel structure throughout the study.

Operational Definition of Variables

Firm Value (Price to Book Value / PBV)

Firm value reflects how the market evaluates a firm's performance and future growth prospects. This indicator reflects investor confidence in the firm's ability to generate profits and maximize shareholder wealth. In this study, firm value is proxied by Price-to-Book Value (PBV), defined as the ratio of market price per share to book value per share. PBV reflects the extent to which the market values a firm relative to its accounting value and is therefore widely used to assess a firm's attractiveness and prospects from an investor's perspective (Brigham & Houston, 2019).

$$PBV = \frac{\text{Market Price per Share}}{\text{Book Value per Share}}$$

An increase in PBV indicates that the market places a higher valuation on the firm's performance and future potential.

Profitability (Return on Assets / ROA)

Return on Assets (ROA) is a profitability measure used to assess a firm's effectiveness in utilizing its total assets to generate net income. A higher ROA indicates greater operational efficiency, thereby signaling to investors and contributing to an increase in firm value (Naibaho et al., 2024).

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}} \times 100\%$$

A high ROA reflects a firm's effectiveness in managing its assets to generate profits. This condition is generally perceived favorably by investors and may strengthen firm value.

Credit Risk (Non-Performing Loan / NPL)

The Non-Performing Loan (NPL) ratio reflects the proportion of non-performing loans relative to total loans extended by a bank. Several studies, including Jagirani et al. (2023), find that NPL has a significantly adverse effect on firm value and bank profitability. Higher NPL levels indicate a greater risk of borrower default, which ultimately deteriorates asset quality in the banking sector.

$$NPL = \frac{\text{Non - Performing Loans}}{\text{Total Loans}} \times 100\%$$

An increase in the NPL ratio signals higher credit risk exposure, which may reduce investor confidence and lead to a decline in firm value.

Liquidity (Loan to Deposit Ratio / LDR)

The loan-to-deposit ratio (LDR) is a measure used to assess the extent to which banks channel funds collected from third parties into lending activities. According to Dendawijaya (2018), this ratio reflects both the liquidity level and the efficiency of a bank's intermediation function.

$$LDR = \frac{\text{Total Loans}}{\text{Total Third - Party Funds}} \times 100\%$$

An excessively low LDR indicates underutilization of funds, whereas an excessively high LDR signals liquidity risk. An optimal LDR provides a positive signal regarding bank efficiency and profitability, thereby influencing firm value.

Capital Adequacy (Capital Adequacy Ratio / CAR)

Capital Adequacy Ratio (CAR) reflects a bank's capacity to absorb potential losses arising from risk-weighted assets. This ratio serves as a key indicator of banking stability and resilience and is strictly regulated by the Financial Services Authority (OJK). A high CAR indicates that a bank has sufficient capital to support its operations and withstand potential risks, thereby enhancing investor confidence and firm value (Lambada, 2025).

$$CAR = \frac{\text{Capital}}{\text{Risk - Weighted Assets}} \times 100\%$$

An increase in CAR reflects stronger capital adequacy in managing risk, which ultimately enhances investor confidence and positively affects firm value.

Dividend Policy (Dividend Payout Ratio / DPR)

Dividend policy reflects management decisions regarding the proportion of earnings distributed to shareholders relative to retained earnings. According to Dividend Signaling Theory, dividend payments are perceived as signals of a firm's financial condition and prospects (Hidayat, 2022). A high dividend payout ratio may enhance investor confidence in a firm's stability, although, under certain conditions, retained earnings may also be interpreted as a long-term growth strategy.

$$DPR = \frac{\text{Dividend per Share}}{\text{Earnings per Share}} \times 100\%$$

A higher dividend payout ratio conveys a more positive signal to the market regarding firm performance, which may strengthen the firm's market value.

Firm Size

Firm size reflects the scale of operations and the magnitude of assets under the organization's control. Referring to Ahmed (2023), large firms generally possess more diversified funding opportunities, more mature management systems, and

relatively lower bankruptcy risk. In this study, firm size is measured using the natural logarithm of total assets.

$$\text{Firm Size} = \ln(\text{Total Assets})$$

Larger firm size is often associated with greater performance stability and stronger profit-generating capacity, which may contribute to higher firm value.

Table 1 presents the variables employed in this study along with their respective measurements.

Table 1. Research Variables

Label	Variable	Variable Type	Measurement
Y	PBV	Dependent	Ratio
X_1	ROA	Independent	Percentage (%)
X_2	NPL	Independent	Percentage (%)
X_3	LDR	Independent	Percentage (%)
X_4	LOG(ASSETS)	Independent	logpoints
X_5	CAR	Independent	Percentage (%)
X_6	DEV	Independent	Percentage (%)

To facilitate understanding of the relationships among the variables examined in this study, Figure 1 presents a conceptual framework illustrating the hypothesized effects of financial ratios and dividend policy on firm value (PBV).

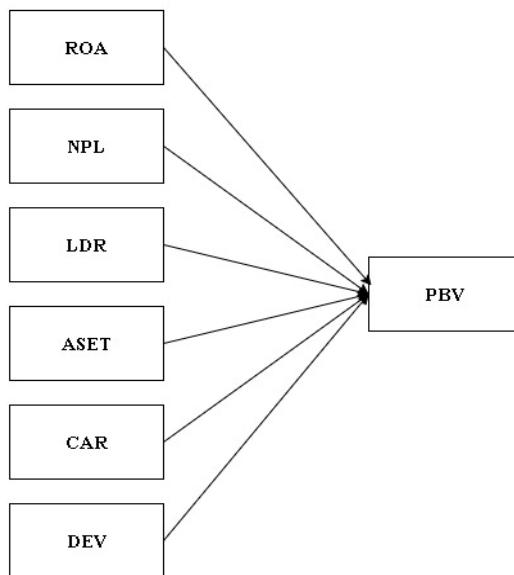


Figure 1. Conceptual Framework of the Study

Data Analysis Method

This study employs a panel-data estimation approach for inferential analysis, combining cross-sectional and time-series dimensions, thereby yielding

more efficient parameter estimates and reducing potential estimation bias. The analytical process was conducted using EViews and comprised several stages: descriptive statistics, classical assumption testing, regression model estimation, and parameter significance testing. The proposed econometric model is specified as follows:

$$Y_{it} = \alpha + \beta_1 X_{1,it} + \beta_2 X_{2,it} + \beta_3 X_{3,it} + \beta_4 X_{4,it} + \beta_5 X_{5,it} + \beta_6 X_{6,it} + \beta_7 X_{7,it} + \epsilon_{it}$$

where Y_{it} represents PBV for firm i in year t , while $X_{1,it}$ hingga $X_{6,it}$ respectively denote ROA, NPL, LDR, LOG(ASSETS), CAR, and DIV for the corresponding observation units. The term ϵ_{it} represents the error component not explained by the model. To obtain the most appropriate panel data model, three model selection procedures were employed, as described below.

Model Selection Procedures

To determine the most suitable estimation approach for the panel regression model, three standard model selection tests were applied:

a. Chow Test: The Chow test is used to determine whether the Common Effects Model (CEM) or the Fixed Effects Model (FEM) is more appropriate. The hypotheses are formulated as follows:

H_0 : No individual effects exist (CEM is more appropriate)

H_1 : Individual effects exist (FEM is more appropriate)

If the calculated F-statistic exceeds the critical value or if the p-value is less than 0.05, the null hypothesis is rejected, indicating that the FEM is more appropriate as it accounts for fixed individual effects across observation units.

b. Hausman Test: *The Hausman test is used to determine whether a fixed-effects model (FEM) or a random-effects model (REM) is more appropriate.* This test compares fixed- and random-effects estimators by examining whether individual effects are correlated with the independent variables (Le Gallo & Sénégas, 2023). The hypotheses are stated as follows:

H_0 : No correlation exists between the error term and independent variables

H_1 : A correlation exists between the error term and the independent variables

The FEM is selected if the Hausman test statistic exceeds the critical chi-square value at the relevant degrees of freedom or if the $p\text{-value} < 0.05$.

c. Breusch–Pagan Lagrange Multiplier (BP–LM) Test, The BP–LM test is used to compare the Common Effect Model (CEM) and the Random Effect Model (REM). The hypotheses are formulated as follows:

H_0 : No random individual effects exist (CEM is more appropriate)

H_1 : Random individual effects exist (REM is more appropriate)

If the LM statistic exceeds the critical chi-square value, or if the p-value < 0.05 , the null hypothesis is rejected, indicating that the REM is the more appropriate model; otherwise, the null hypothesis is not rejected.

Additional Diagnostic Testing

If the Fixed Effect Model (FEM) is selected, further analysis of the residual variance–covariance structure is conducted. This includes the Lagrange Multiplier (LM) test to detect heteroskedasticity and the λ_{LM} test to examine the presence of cross-sectional correlation among observation units. If both heteroskedasticity and cross-sectional correlation are detected, the model is estimated using the Feasible

Generalized Least Squares (FGLS) method with Seemingly Unrelated Regression (SUR) weighting. If only heteroskedasticity is present without cross-sectional correlation, the Weighted Least Squares (WLS) method is applied. However, if the residual structure is homoskedastic and free from cross-sectional correlation, the Ordinary Least Squares (OLS) estimator remains appropriate.

Classical Assumption Tests

Standard statistical assumptions are verified to ensure the validity of OLS estimation, including tests for normality of the residuals, homoscedasticity, absence of autocorrelation, and absence of multicollinearity among independent variables. In the context of panel data, the WLS and FGLS methods can address violations of the homoskedasticity and autocorrelation assumptions. Panel estimation using FGLS is more efficient in the presence of heteroskedasticity and cross-sectional correlation than conventional OLS (Bai, Choi & Liao, 2021).

Model Significance Testing

Model significance testing is conducted to evaluate the effects of independent variables on the dependent variable, both jointly and individually. The statistical techniques employed include the overall F-test, partial t-tests, and the adjusted R-squared statistic to assess the model's explanatory power for variations in firm value across firms and over time.

4. RESULTS AND DISCUSSION

Overview

Descriptive analysis is conducted to provide an initial overview of the characteristics of the research data prior to panel regression analysis. The variables examined include Price to Book Value (PBV) as a proxy for firm value, along with explanatory variables comprising Return on Assets (ROA), Non-Performing Loan (NPL), Loan to Deposit Ratio (LDR), firm size represented by total assets (ASSETS), Capital Adequacy Ratio (CAR), and Dividend Payout (DIV).

Table 2. Summary of Descriptive Statistics of Variables

	min	mean	median	max
PBV	0.05	1.49	0.86	7.37
ROA	-7.71	1.48	1.22	11.43
NPL	0.06	2.93	2.59	10.25
LDR	20.35	93.11	86.28	373.61
ASSET	4.38	224.13	27.38	2427.22
CAR	10.50	91.38	29.40	2523
DEV	0.00	1.93	0.00	9.77

Based on Table 2, the average PBV of 1.49 indicates that, in general, Indonesian banking firms are valued by the market at a premium to their book values. Nevertheless, the relatively wide range of PBV suggests substantial

differences in market perceptions across banks, with some institutions remaining undervalued. In contrast, others command higher valuations, consistent with stronger reputations and superior performance. This dispersion reflects heterogeneity in investor assessments of banking firms' fundamentals and growth prospects. In terms of profitability, the average ROA of 1.48 percent reflects a relatively sound ability of banks to generate profits from their assets. However, the considerable disparity in ROA values across banks is evident from negative minimum values and relatively high maximum values, indicating differences in managerial effectiveness in managing productive assets. This variation underscores unequal operational efficiency among banks within the sample. Credit risk, as measured by the NPL ratio, averages 2.93 percent, which remains within a relatively healthy threshold. Nonetheless, the substantial variation in NPL levels indicates that not all banks possess the same capacity to manage credit risk effectively. Such disparities may affect both financial performance and firm value, as higher credit risk tends to undermine investor confidence.

From an intermediation perspective, the average LDR of 93.11 percent indicates that the banking sector performs its fund intermediation function effectively. However, the presence of very high maximum LDR values indicates that certain banks may face potential liquidity risk due to imbalances between funds collected and loans disbursed. This condition highlights differences in liquidity management practices across banks. Firm size, measured by total assets, reveals significant disparities in operational scale among banks, as evidenced by a pronounced gap between the mean and median. This finding indicates that a small number of large banks dominate Indonesia's banking industry, while most banks operate on a relatively small scale. Such structural characteristics may contribute to differences in competitiveness and market valuation.

With respect to capitalization, the relatively high average CAR suggests that the banking sector generally maintains strong capital resilience. However, the wide dispersion in CAR values reflects heterogeneous capital strategies among banks, ranging from conservative approaches aimed at maintaining prudential buffers to more aggressive strategies intended to support business expansion. Finally, the DEV variable indicates that most banks do not consistently distribute dividends during the observation period, suggesting a tendency to retain earnings in order to strengthen capital structures and support long-term growth. Overall, the descriptive analysis reveals substantial heterogeneity in performance, risk profiles, and financial structures across Indonesian banking firms. This variation across financial indicators provides a crucial basis for further analysis using panel regression to examine the effects of each determinant on firm value.

Model Selection

The variation in PBV values across firms, as presented in Table 2, indicates structural heterogeneity in the economic characteristics of banking firms. This condition necessitates an analytical approach capable of capturing variations both across cross-sectional units and over time. Therefore, panel data regression is appropriate, as it allows simultaneous consideration of spatial and temporal dynamics.

Selecting the most appropriate model is a crucial initial step in panel data analysis, as it ensures accurate and efficient estimation. In this study, a series of statistical tests was conducted to determine the most suitable modeling approach among three alternatives: the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The Chow test was employed to evaluate whether the FEM provides a significant improvement over the CEM. In contrast, the Hausman test was utilized to determine the preferred model between FEM and REM. A summary of the results from both tests is presented in Table 3.

Table 3. Summary of Chow Test and Hausman Test Results

Test	Test Statistic	p-value
<i>Chow Test</i>	41,81	0,0000
<i>Hausman Test</i>	12,98	0,0431

Referring to the Chow test results in Table 3, the test statistic of 41.81 with a p-value below 0.05 leads to rejection of the null hypothesis, indicating that the fixed-effects model is more appropriate than the common-effects model. Furthermore, the Hausman test yields a test statistic of 12.98 with a statistically significant p-value, suggesting the presence of correlation between individual-specific effects and the explanatory variables. Consequently, the fixed-effects approach remains the most suitable specification compared with the random-effects model.

After establishing the fixed-effects model as the preferred specification, the next step is to examine the variance–covariance structure of the model residuals to assess the validity of the estimation. This diagnostic testing aims to detect potential violations of classical assumptions, such as heteroskedasticity and cross-sectional dependence. Accordingly, the Lagrange Multiplier (LM) test and the Breusch–Pagan Lagrange Multiplier (BP-LM) test were employed to assess the residual characteristics. A summary of these test results is provided in Table 4.

Table 4. Summary of Variance–Covariance Diagnostic Test Result

Test	Test Statistic	P-value
LM Test	2697,4	0,0000
BP-LM Test	1734,26	0,0000

Table 4 reports the results of the LM and Breusch–Pagan LM tests, which were conducted to examine the presence of individual random effects and the validity of classical assumptions in the panel model. Both tests consistently reject the null hypothesis, indicating significant individual variance and providing strong justification for the use of panel data modeling. Specifically, the LM statistic of 2697.40 and the BP-LM statistic of 1734.26 indicate the presence of heteroskedasticity and cross-sectional correlation among firms. These findings imply that classical assumptions are not fully satisfied; therefore. However, the fixed-effects model is retained as the most appropriate specification. Estimation proceeds using Feasible Generalized Least Squares (FGLS) with Seemingly

Unrelated Regression (SUR) weighting to obtain standard errors that are robust to heteroskedasticity and cross-sectional dependence.

Classical Assumption Testing

After estimating the residual variance-covariance structure using the FGLS-SUR approach to accommodate violations of heteroskedasticity and cross-sectional dependence, the next step is to examine whether the specified panel model satisfies the classical assumptions required to ensure the validity of the estimation results. The normality assumption is required to confirm that the model residuals are approximately normal and do not deviate substantially from normality. Meanwhile, multicollinearity testing aims to detect strong linear relationships among independent variables, which may distort the estimation of regression coefficients. The results of both tests are presented in Tables 5 and 6.

Table 5. Summary of Normality Test Results

Assumption	Test	Test Statistic	p-value
Normalitas	Jarque-Bera (JB)	3,832	0,074

The Jarque-Bera normality test indicates that the model residuals—defined as the difference between observed and predicted values—follow an approximately normal distribution. The test statistic of 3.832, with a p-value of 0.074 (well above the 5 percent significance level), suggests the absence of substantial deviations from normality. In other words, there is no substantial evidence indicating that the residuals significantly depart from a normal distribution, implying that the normality assumption is satisfied.

Table 6. Summary of Variance Inflation Factor (VIF) Results

Variable	VIF
ROA	1.378332
NPL	1.377561
LDR	1.346123
LOG(ASSETS)	1.588591
CAR	1.632161
DEV	1.128733

Meanwhile, the multicollinearity assessment presented in Table 6 indicates that there are no strong correlations among the independent variables. All Variance Inflation Factor (VIF) values are well below the commonly accepted threshold of 10, indicating that each explanatory variable contributes distinct and non-overlapping information to the model. Therefore, the panel regression model employed in this study satisfies two key classical assumptions—namely, normality of the residuals and absence of multicollinearity. This finding strengthens the reliability of the estimation results as a robust basis for drawing conclusions and formulating policy recommendations.

Panel Data Regression Estimation Results on Firm Value (PBV)

This section presents the results of panel-data regression estimation to assess the extent to which the explanatory variables affect firm value (PBV). The estimation is conducted using the fixed-effects model identified in the previous model-selection stage. The dependent variable analyzed is PBV, while the independent variables include Return on Assets (ROA), Non-Performing Loans (NPL), Loan to Deposit Ratio (LDR), firm size measured by total assets (ASSETS), Capital Adequacy Ratio (CAR), and Dividend Payout (DEV), as defined in Table 1. A summary of the estimation output is presented in Table 7.

Table 7. Summary of Fixed-Effect Model Estimation Results

Variable	Coefficient	Test Statistic	p-Value
C	15.739	11.094	0.0000*
ROA	0.0723	3.6803	0.0004*
NPL	-0.0146	-1.0713	0.2871
LDR	0.0018	2.6710	0.0091*
LOG(ASSETS)	-1.8790	-9.7937	0.0000*
CAR	0.0023	2.5992	0.0110*
DEV	-0.0347	-3.3844	0.0011*
F Statistik		357.63	0.0000*
Adj R-Square		0.9953	
R-Square		0.9925	

Dependent variable: PBV

* Significant at 5 percent alpha

The regression results indicate that the estimated model exhibits excellent goodness of fit, as reflected by an Adjusted R-squared of 0.9953. This implies that approximately 99.53 percent of the variation in firm value is explained by the variables included in the model. The F-statistic of 357.63 with a p-value of 0.0000 confirms that, collectively, at least one independent variable has a statistically significant effect on PBV. The constant term of 15.739 indicates that when all independent variables are set to zero, the predicted PBV is 15.739 units. This value is theoretical and represents the baseline level of firm value not explained by the financial variables incorporated into the model. The resulting panel regression equation is expressed as follows:

$$\widehat{Y}_t = 15,739 + \lambda + 0,0723 \widehat{X}_{1,t} - 0,0146 \widehat{X}_{2,t} + 0,0018 \widehat{X}_{3,t} - 1,0879 \widehat{X}_{4,t} \\ + 0,0023 \widehat{X}_{5,t} - 0,0347 \widehat{X}_{6,t}$$

Profitability (Return on Assets / ROA)

The ROA variable exhibits a positive coefficient of 0.0723 ($p = 0.0004$), indicating a statistically significant effect on PBV at the 1 percent significance level. This finding implies that a 1% increase in bank profitability is associated with a 0.0723-point increase in PBV, ceteris paribus. This result is consistent with the findings of Al-Najjar and Hussainey (2011), who report that profitability positively affects firm value through enhanced investor confidence and managerial efficiency.

The result also aligns with signaling theory, which posits that higher profits signal to investors the firm's future financial prospects.

Credit Risk (Non-Performing Loans / NPL)

The NPL coefficient is -0.0146 ($p = 0.2871$), indicating a negative but statistically insignificant effect on PBV. This suggests that an increase in non-performing loans does not significantly affect firm value during the study period. Nevertheless, the negative coefficient is consistent with Situmorang et al. (2025), who argue that higher NPL levels tend to reduce firm value by signaling elevated credit risk and declining asset quality. The lack of statistical significance may be attributed to differences in credit portfolio structures across banks, where larger banks may possess stronger risk management capabilities, thereby mitigating the observable impact of NPLs on market valuation.

Liquidity (Loan to Deposit Ratio / LDR)

The LDR variable shows a positive coefficient of 0.0018 and is statistically significant at the 1 percent level ($p\text{-value} = 0.0091$). This indicates that greater effectiveness in channeling public funds into productive lending activities positively affects firm value. The result supports previous findings by Liang et al. (2020), who demonstrate that effective banking intermediation enhances firm value by reflecting sound operational performance and efficient fund management.

Firm Size (ASSET)

The coefficient on LOG(ASSET) is -1.8790 ($p\text{-value} = 0.0000$), indicating a statistically significant adverse effect on PBV at the 1 percent level. This finding suggests that an increase in bank asset size tends to reduce PBV. This result contrasts with the traditional size effect hypothesis, which argues that larger firms are generally valued higher due to greater stability and superior risk management. However, the negative relationship can be explained by diseconomies of scale and agency cost theory. As firm size increases, operational complexity and agency costs may rise, potentially reducing managerial efficiency and decision-making flexibility. In the banking sector, large banks often face longer bureaucratic processes, complex organizational structures, and slower adaptation to technological innovation and changes in customer behaviour. Consequently, the market may assign a lower valuation despite the asset's growing size. This finding is consistent with Oktaviani and Setiawaty (2022), who argue that large banks do not necessarily create additional value when improvements in efficiency and profitability are not accompanied by asset growth. Therefore, the adverse effect of firm size on PBV reflects market emphasis on asset quality and value-creation capability rather than on asset scale alone.

Capital Adequacy (Capital Adequacy Ratio / CAR)

The CAR coefficient of 0.0023 with a $p\text{-value}$ of 0.0110 indicates that capital strength has a positive and statistically significant effect on PBV. This result implies that the market places greater value on banks with higher capital adequacy ratios, as they are perceived to possess greater financial resilience in absorbing potential

risks. This finding supports Kansil et al. (2021), who highlight that strong capitalization enhances investor confidence in a bank's long-term stability and reflects effective risk management. In line with this, Mulyani et al. (2025) emphasize that high-quality financial information plays a crucial role in strengthening investor trust and improving the efficiency of capital-market decision-making. Hence, capital strength not only improves internal bank performance but also positively influences market perception and valuation.

Dividend Policy (Dividend Payout Ratio / DPR)

The DEV variable has a coefficient of -0.0347 ($p = 0.0011$), indicating a statistically significant effect at the 1 percent level. This finding suggests that higher dividend payouts reduce firm value, as measured by PBV. This result contradicts the bird-in-the-hand theory, which argues that investors prefer certain dividend income over uncertain capital gains. However, this negative relationship can be explained by growth opportunity theory and the dividend irrelevance hypothesis. In the context of Indonesia's banking sector during 2022–2024, high dividend payouts may be interpreted by the market as signalling limited future investment and expansion opportunities. Investors may perceive retained earnings as providing greater flexibility to strengthen capital, support credit expansion, and finance sustainable digital innovation. Moreover, during the post-pandemic economic recovery and amid intensifying competition, particularly from digital banks, investors tend to favour earnings retention strategies over short-term dividend distribution. This finding is consistent with Adriani (2021), who argues that aggressive dividend policies may reduce firm value when the market interprets them as an indication of weak growth prospects. Thus, the adverse effect of dividend policy on PBV reflects a shift in investor preferences toward long-term growth over immediate dividend income.

Contribution of Firm-Specific Fixed Effects in Explaining PBV

The panel regression model employing a fixed-effects approach enables the analysis to capture firm-specific unobserved heterogeneity that influences corporate valuation, as reflected in Price-to-Book Value (PBV). These effects represent time-invariant characteristics unique to each firm, such as corporate culture, management quality, reputation, business strategy, and investor confidence, which cannot be directly measured through financial variables included in the model (Wooldridge, 2010). Consequently, this approach provides a more realistic representation of variations in firm value across the observed banking institutions.

In this study, estimation was conducted using the Feasible Generalized Least Squares – Seemingly Unrelated Regression (FGLS–SUR) method to address heteroskedasticity and cross-sectional correlation among firms. The estimated firm-specific fixed effects are presented in Table 8, which reports the individual intercepts of each bank relative to the industry average. A positive fixed effect indicates that a firm tends to exhibit a PBV above the industry average after controlling for all financial variables included in the model. In contrast, a negative value suggests that the firm's PBV is below the industry average.

Table 8. Firm-Specific Fixed Effect Estimates

No	Ticker	Effect	No	Ticker	Effect	No	Ticker	Effect
1	AGRO	-0.293	16	BDMN	0.28	31	BSWD	-1.54
2	AGRS	-1.795	17	BEKS	-1.781	32	BTPN	-1.798
3	AMAR	-2.769	18	BGTG	-2.464	33	BTPS	-1.017
4	ARTO	2.613	19	BINA	5.023	34	BVIC	-1.522
5	BABP	-1.533	20	BJBR	0.589	35	DNAR	-2.215
6	BACA	-1.559	21	BJTM	0.129	36	INPC	-1.411
7	BANK	1.692	22	BKSW	-2.073	37	MASB	-0.632
8	BBCA	5.806	23	BMAS	-0.54	38	MAYA	-0.179
9	BBKP	0.856	24	BMRI	3.411	39	MCOR	-1.599
10	BBMD	-0.924	25	BNBA	-2.234	40	MEGA	1.911
11	BBNI	2.235	26	BNGA	0.893	41	NISP	0.593
12	BBRI	1.6	27	BNII	0.141	42	NOBU	-0.553
13	BBTN	0.463	28	BNLI	0.717	43	PNBN	0.303
14	BBYB	-0.581	29	BRIS	2.23	44	PNBS	-1.635
15	BCIC	-0.894	30	BSIM	0.751	45	SDRA	-0.997

Based on the estimation results presented in Table 8, several banks exhibit markedly high firm-specific fixed effects. Bank Central Asia (BBCA) reports the most considerable fixed-effects value of 5.806, followed by Bank Ina Perdana (BINA) at 5.023, Bank Mandiri (BMRI) at 3.411, and Bank Jago (ARTO) at 2.613. These high fixed-effect values indicate that the market prices of these institutions substantially exceed the industry average, even after controlling for financial fundamentals such as profitability, liquidity, and capital adequacy. This finding suggests the presence of a market premium assigned to banks with strong fundamentals, high operational efficiency, advanced digital innovation, and strong public trust. For instance, BBCA is widely recognized for its superior corporate governance and consistently stable performance, which has enabled it to maintain a higher valuation over time. Similarly, BMRI, as the largest state-owned bank in Indonesia, benefits from an extensive asset base and customer network, along with stable profit generation, positioning it as one of the most highly valued banks in the Indonesian capital market. This disparity in fixed effects reflects firm-level heterogeneity that cannot be fully explained by financial variables alone (Baltagi, 2021).

In contrast, several banks exhibit relatively low or significantly adverse fixed effects. The lowest fixed effect is observed for Bank Amar Indonesia (AMAR) at -2.769, followed by Bank Ganesha (BGTG) at -2.464, Bank Bumi Arta (BNBA) at -2.234, and Bank Dinar Indonesia (DNAR) at -2.215. Negative fixed-effect values indicate that these banks tend to have PBV levels below the industry average, reflecting weaker market perceptions of their performance or long-term prospects. Such conditions may be attributed to factors such as a smaller operational scale, lower profitability, or suboptimal business strategies. Moreover, some of these banks focus on digital or micro-segment markets that are still in early stages of development, leading investors to adopt a more cautious stance when evaluating their growth potential.

Meanwhile, several banks exhibit fixed-effect values close to zero, including Bank Jatim (BJTM) at 0.129, Bank Maybank Indonesia (BNII) at 0.141, and Bank Panin (PNBN) at 0.303. Values close to zero indicate that the PBV of these banks does not differ substantially from the industry average, implying that firm-specific characteristics do not exert a significant additional effect on market valuation after controlling for the primary financial variables. This condition reflects a relatively stable and competitive position within the national banking industry, without pronounced advantages or disadvantages. The fixed-effects panel approach allows each cross-sectional unit to have a distinct intercept, capturing time-invariant firm characteristics (Wooldridge, 2010).

Overall, the estimation results indicate pronounced heterogeneity among Indonesian banking institutions. Large and well-established banks such as BBCA, BMRI, and ARTO command substantial market premiums because they are perceived to maintain performance stability, drive digital innovation, and maintain strong customer trust. Conversely, smaller or emerging digital banks continue to face challenges in improving market valuation. These findings emphasize that firm value in the banking sector is not determined solely by financial indicators but is also shaped by non-financial factors, including reputation, service quality, technological innovation, and investor perceptions of corporate governance.

From a policy perspective, these results offer several important insights. For bank management, understanding the magnitude and direction of firm-specific fixed effects can serve as a valuable tool for evaluating market perceptions of corporate strategy and performance. Banks with adverse fixed effects need to strengthen their corporate image and operational efficiency to enhance investor confidence. For investors and market analysts, the findings help identify banks with high market-value potential that conventional financial indicators may not fully capture. Meanwhile, for financial-sector policymakers, the results highlight the importance of maintaining industry stability through enhanced transparency, digital innovation, and sound corporate governance to ensure that all banks can enhance competitiveness and create sustainable value for shareholders.

Accordingly, the firm-specific fixed-effects estimates not only explain variation in PBV across banks but also indicate that firm value in the banking sector reflects a combination of strong financial performance and positive market reputation.

5. CONCLUSION & SUGGESTION

Based on the results of the Fixed Effect model estimation, this study demonstrates that profitability (ROA), liquidity (LDR), capital adequacy (CAR), and dividend policy (DEV) significantly influence firm value in the Indonesian banking sector. ROA, LDR, and CAR positively affect Price-to-Book Value (PBV), indicating that banks' ability to generate profits, efficiently channel credit, and maintain adequate capital levels plays a crucial role in enhancing investor confidence. In contrast, dividend policy has a significant adverse effect on PBV, suggesting that investors place a higher value on banks that retain earnings for

business expansion rather than on those that distribute high dividends. Meanwhile, firm size (LOG(ASSET)) has a significant adverse effect, whereas credit risk, as measured by Non-Performing Loans (NPL), does not have a significant effect on firm value.

Beyond financial fundamentals, the firm-specific fixed effect estimates reveal substantial heterogeneity across banks, reflecting the influence of unique, time-invariant characteristics on firm value. Large banks with strong reputations and high operational efficiency tend to exhibit positive individual effects, indicating stronger market perceptions of their performance and long-term prospects. Conversely, banks with weaker fundamentals or lower efficiency display adverse individual effects, implying that unobserved internal factors—such as corporate governance quality, reputation, and business strategy—also play a critical role in shaping firm value within the banking sector.

Despite these contributions, this study is subject to several limitations. First, the model focuses primarily on internal financial indicators and does not fully capture the influence of external factors, such as macroeconomic conditions, monetary policy, and broader financial market dynamics, that may affect firm value. Second, the Fixed Effect approach emphasizes intra-firm variation and does not explicitly account for long-term dynamics or potential endogeneity among variables. Third, the sample and observation period are confined to Indonesian banking institutions, which may limit the generalizability of the findings to other sectors or different time horizons.

Based on these findings, banking regulators, such as the Financial Services Authority (OJK) and Bank Indonesia (BI), are encouraged to formulate policies that prioritize the quality of banking-sector growth. Dividend policies should be more responsive to banks' fundamental conditions, taking into account capital adequacy and expansion needs. Furthermore, banking supervision should not focus solely on asset growth but also on operational efficiency and asset quality through strengthened risk-based supervision.

For bank management, the results suggest that dividend policies should be designed cautiously, balancing shareholder interests with internal financing requirements. Management is also advised to shift its strategic focus from merely expanding asset size toward improving operational efficiency and financial performance quality, ensuring that an increase in market valuation accompanies corporate growth.

Future research should broaden the scope of analysis by incorporating external variables that may influence firm value. These include interest rate conditions, inflationary pressures, economic growth trajectories, and government policy directions in both monetary and fiscal domains that are relevant to the banking industry.

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