DETERMINANTS OF BANKING FIRM VALUE IN THE LQ45 INDEX: THE ROLE OF LIQUIDITY, LEVERAGE, ASSET TURNOVER, AND PROFITABILITY

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ABSTRACT

This study investigates the determinants of banking firm value listed in the LQ45 Index of the Indonesia Stock Exchange during the 2017–2023 period, focusing on the roles of liquidity, leverage, asset turnover, and profitability. Using secondary data derived from annual financial statements, panel data regression was employed, with the optimal model selected based on the Chow and Lagrange Multiplier (LM) tests. The findings reveal that Return on Assets (ROA) and Total Asset Turnover (TATO) exert a positive and statistically significant influence on Price to Book Value (PBV), while Return on Equity (ROE), Debt to Asset Ratio (DAR), and Loan to Deposit Ratio (LDR) do not demonstrate significant effects. The model yields an R-squared value of 0.6530 and an adjusted R-squared of 0.5932, indicating that approximately 65.3% of the variance in PBV can be explained by the independent variables. ROA and TATO are thus identified as the key determinants of banking firm value in the LQ45 Index during the study period.

Keywords: Liquidity, Leverage, Asset Turnover, Profitability, Firm Value, LQ45 Index.

INTRODUCTION

The LQ45 Index, which comprises 45 stocks of companies with high liquidity and large market capitalization on the Indonesia Stock Exchange (IDX), serves as a crucial benchmark for investors in assessing the performance of banking stocks (IDX Data Services Division, 2023). The banking sector, as the backbone of the economy, plays a strategic role in delivering stable and efficient financial services (Mishkin, 2021). However, the value of banking firms included in the LQ45 Index is influenced not only by market conditions but also by various fundamental factors such as liquidity, leverage, asset turnover, and profitability (Brigham & Houston, 2019). In recent years, market volatility and regulatory changes have underscored the need for a deeper analysis of the key determinants of banking firm value within the LQ45 Index.

Previous studies have shown varied results regarding the impact of financial fundamentals on firm value. Liquidity, as measured by the Loan to Deposit Ratio (LDR), has demonstrated varied effects on firm value (Melda, Sumatriani, & Usman, 2022; Budi, 2018; Amrulloh & Amalia, 2020). Some literature suggests that high liquidity may enhance investor confidence and strengthen the firm's

financial position (Gitman & Zutter, 2017), while others argue that excessive liquidity can reduce profitability due to idle funds (Ross et al., 2019). Leverage, commonly measured by the Debt to Equity Ratio (DER), is also considered a key variable in determining firm value. An optimal capital structure can enhance returns for shareholders, but excessive leverage increases the risk of financial distress (Modigliani & Miller, 1963) and (Altman et al., 2019).

Other factors, such as asset turnover and profitability, also play essential roles in influencing firm value. The Asset Turnover Ratio (ATO) reflects how efficiently a firm utilizes its assets to generate revenue (Brigham & Ehrhardt, 2020), while Return on Assets (ROA) and Return on Equity (ROE) are commonly used to assess the effectiveness of management in generating profits for investors (Baker & Martin, 2011). Nevertheless, prior empirical findings regarding the relationship between these variables and firm value remain inconsistent (Aziz & Abbas, 2019; Hidayat, 2022; Ayuba et al., 2019), necessitating further investigation, particularly within the context of banking firms listed on the LQ45 Index.

This study aims to address this research gap by comprehensively examining the simultaneous effects of liquidity, leverage, asset turnover, and profitability on the firm value of banking companies listed in the LQ45 Index. Unlike previous studies that tend to explore partial relationships, this research adopts a holistic approach that considers the interaction among these variables in determining firm value. Additionally, the use of recent data provides a more relevant picture of current market dynamics.

This study holds both academic and practical significance. Academically, the findings are expected to enrich the literature on the determinants of firm value in the banking sector. Practically, the study offers insights for investors, bank management, and regulators in making informed investment and strategic policy decisions. Therefore, this research contributes not only to academic discourse but also to the practical domain of banking regulation and business strategy in Indonesia.

LITERATURE REVIEW

Firm Value and Its Measurement

Gitman and Zutter (2017) explain that firm value encompasses not only the market value of equity but also emphasizes the importance of growth and efficient management in maximizing shareholder wealth. Firm value is also influenced by fundamental aspects such as profitability, leverage, and well-managed asset growth.

Brigham and Houston (2019) define firm value as the total market value of a company, which can be simply calculated by multiplying the stock price by the number of outstanding shares. Moreover, firm value is often viewed as a reflection of market expectations regarding the company's future earnings potential and financial stability.

Several market-based financial ratios are commonly used to measure firm value. The Price to Earnings Ratio (P/E Ratio) measures the market value of a company relative to its earnings per share (EPS). This ratio reflects market

expectations of future earnings growth, where a higher P/E ratio generally indicates stronger growth expectations (Brigham & Houston, 2019). The Price to Book Ratio (P/B Ratio), or Price to Book Value (PBV), compares the market price per share with the book value per share, reflecting how much investors are willing to pay for each unit of book value. This ratio serves as an indicator of investor perceptions of the value of a company's net assets (Gitman & Zutter, 2017).

In this study, firm value is measured using the Price to Book Value (PBV), which reflects the market's assessment of the company by comparing the market price per share with the book value per share. According to Gitman and Zutter (2017), the PBV can be calculated using the following formula:

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

Liquidity and Its Effect on the Firm Value of Banks

The operations of banking institutions differ from those of non-financial firms, leading to different liquidity measures. In the banking sector, liquidity is commonly assessed using the Loan to Deposit Ratio (LDR), which represents the proportion of total loans disbursed by a bank relative to the total third-party funds collected through deposits and savings (Bank Indonesia Regulation No. 15/7/PBI/2013). It is calculated as follows:

$$Loan\ to\ Deposit\ Ratio\ (LDR) = \frac{Total\ Loans}{Total\ Deposits}\ X\ 100\%$$

LDR affects firm value, as measured by PBV, because it indicates the efficiency with which a bank utilizes depositor funds in lending activities. A higher LDR can enhance profitability when the disbursed loans are productive, thus potentially increasing PBV. However, an excessively high LDR may signal higher liquidity risk, which could reduce investor confidence and lower PBV.

Kristanti and Rahardjo (2019), in a study of banks listed on the Indonesia Stock Exchange between 2013 and 2017, found that LDR had a significant positive influence on PBV. They concluded that liquidity management, as reflected by the LDR, affects investor perceptions of the bank's market value.

Leverage and Its Influence on Firm Value Measured by PBV

This study considers financial leverage, typically proxied by the Debt to Asset Ratio (DAR), which indicates the extent to which a firm uses debt to finance its assets. DAR is calculated by dividing total debt by total assets (Gitman & Zutter, 2017), as shown in the formula below:

$$Debt\ to\ Asset\ Ratio\ (DAR) = \frac{Total\ Debt}{Total\ Assets}$$

The effect of DAR on firm value, as proxied by PBV, can vary. Brigham and Houston (2019) suggest that a high DAR may lower PBV due to increased bankruptcy risk, which deters investors. A high level of debt implies greater financial risk, especially when profitability declines. However, when used

prudently, leverage may enhance firm value if the debt finances productive investments yielding returns exceeding the cost of debt (Ross et al., 2019).

Hidayat and Utama (2019), in their study of banks listed on the Indonesia Stock Exchange, found that DAR had a negative relationship with PBV. This implies that higher leverage increases financial risk, reducing investor attractiveness and, consequently, the market valuation of the company's stock.

Asset Turnover (AT) and Its Effect on Firm Value

According to Brealey et al. (2017), the **Asset Turnover Ratio (AT)** measures how efficiently a firm utilizes its total assets to generate revenue. A higher AT indicates greater efficiency in asset utilization. The formula is as follows:

$$Asset\ Turnover\ (AT) = \frac{Net\ Sales}{Total\ Assets}$$

In the banking sector, even though asset structures consist mainly of financial investments rather than inventory or physical assets, AT remains relevant for assessing how effectively assets are used to generate income.

AT positively influences PBV, as a high AT suggests operational efficiency, which enhances market perception of firm value. A study by Saputra and Prasetyo (2020), on banking companies listed on the Indonesia Stock Exchange found a significant positive relationship between AT and PBV. This suggests that higher operational efficiency contributes to increased market valuation.

Return on Equity (ROE) and Its Influence on PBV

Return on Equity (ROE) measures the return generated on shareholders' equity and is calculated as follows (Besley & Brigham, 2019):

$$Return\ on\ Equity\ (ROE)) = \frac{Net\ Income}{Total\ Equity}$$

ROE reflects how effectively a company generates profit from the shareholders' invested capital. A high ROE indicates a firm's ability to maximize returns on equity, thereby enhancing its attractiveness to investors (Brealey et al., 2017), which is reflected in stock prices.

Higher ROE is generally associated with higher PBV. Mardiyati and Dwiatmini (2019), found a significant positive relationship between ROE and PBV among companies listed on the Indonesia Stock Exchange. This suggests that increasing ROE leads to an improved market valuation.

Return on Assets (ROA) and Its Effect on Firm Value (PBV)

Return on Assets (ROA) measures a company's ability to generate net income from its total assets. It reflects how much profit is earned per unit of assets. This ratio is a key indicator of operational efficiency and profitability. According to Brigham and Daves (2019), ROA indicates how well a company manages its assets to produce earnings. It is calculated as:

$$Return\ on\ Asset\ (ROA)) = \frac{Net\ Income}{Total\ Assets}$$

ROA also provides an indication of the return generated on the capital invested by both creditors and shareholders (Besley & Brigham, 2019).

As a measure of profitability, ROA is generally positively correlated with PBV. A high ROA signals strong performance in asset utilization and profitability, which can enhance investor confidence and increase firm value. Mardiyanto and Azhar (2019), found that ROA had a significant positive effect on PBV in financial sector companies listed on the Indonesia Stock Exchange, indicating that higher asset profitability contributes to greater market valuation.

Conceptual Framework

Based on the literature review and previous empirical studies, the conceptual framework illustrating the relationship between the dependent and independent variables in this study can be described as shown in Figure 1 below.

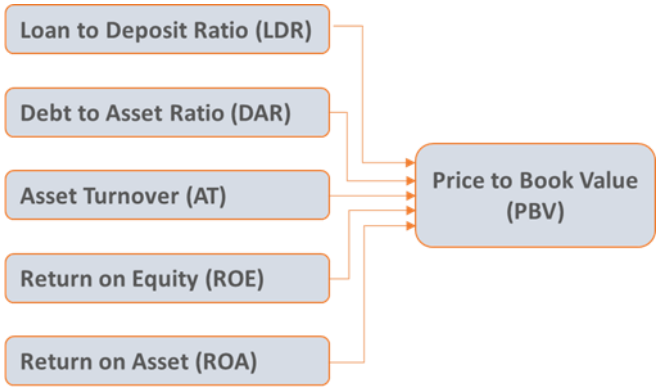

Figure 1: Conceptual Framework of the Research Variables

Explanation:

- Loan to Deposit Ratio (LDR) is theoretically expected to have a positive effect on Price to Book Value (PBV). This theoretical expectation is supported by empirical evidence from studies conducted by Kristanti & Rahardjo (2019) and Diani (2016), which also found a positive relationship.
- Debt to Asset Ratio (DAR) may theoretically have either a positive or negative effect on firm value, as suggested by Brigham and Houston (2019) and Ross et al. (2018). Nevertheless, empirical findings are inconsistent. For instance, Hidayat and Utama (2019) identified a negative relationship, whereas Nurul Fadhilah and Abidin (2022) found a positive influence.
- Asset Turnover (AT) is theoretically linked to higher firm value, indicating that the more efficiently a company utilizes its assets, the better its valuation. This is supported by Brealey et al. (2017) and reinforced by empirical findings from Utami (2021) and Rahmani (2023), both of whom found a positive association between asset turnover and firm value.
- Return on Equity (ROE) is theoretically positively correlated with firm value, as high ROE reflects better performance and profitability for shareholders. This is in line with theories proposed by Brealey et al. (2017),

and supported by empirical studies, including those by Mardiyati et al. (2019) and Utami (2021).

- Return on Assets (ROA) also theoretically has a positive effect on firm value, suggesting that higher asset profitability improves valuation. This theoretical view is supported by Brigham and Houston (2019) and confirmed by empirical studies conducted by Mardiyanto & Azhar (2019) and Rahmani (2023).

Hypotheses

Based on the conceptual framework and prior empirical studies, the following hypotheses are proposed:

H1: The Loan to Deposit Ratio (LDR) has a significant positive effect on the firm value of banking companies, as measured by the Price to Book Value (PBV), listed in the LQ45 Index of the Indonesia Stock Exchange during the period 2017–2023.

H2: The Debt to Asset Ratio (DAR) has a significant negative effect on the firm value of banking companies, as measured by the Price to Book Value (PBV), listed in the LQ45 Index of the Indonesia Stock Exchange during the period 2017–2023.

H3: Asset Turnover (AT) has a significant positive effect on the firm value of banking companies, as measured by the Price to Book Value (PBV), listed in the LQ45 Index of the Indonesia Stock Exchange during the period 2017–2023.

H4: Return on Equity (ROE) has a significant positive effect on the firm value of banking companies, as measured by the Price to Book Value (PBV), listed in the LQ45 Index of the Indonesia Stock Exchange during the period 2017–2023.

H5: Return on Assets (ROA) has a significant positive effect on the firm value of banking companies, as measured by the Price to Book Value (PBV), listed in the LQ45 Index of the Indonesia Stock Exchange during the period 2017–2023.

METHODS

Research Methodology

This study adopts a quantitative research design with a causal-comparative approach, aiming to examine the influence of independent variables including liquidity, leverage, asset turnover, and profitability on firm value. The data utilized in this research are secondary data obtained from the annual financial reports of banking companies listed in the LQ45 Index on the Indonesia Stock Exchange (IDX) during the period 2017–2023.

Object and Population of the Study

The object of this study is banking companies included in the LQ45 Index on the Indonesia Stock Exchange (IDX) during the period of 2017–2023. The selection of the banking sector as the object of research is based on its strategic role in the national economy, particularly as a financial intermediary that channels funds from surplus units to deficit units. Moreover, banking companies listed on the IDX generally provide comprehensive, standardized, and publicly accessible financial reports, which support the reliability of data for quantitative analysis.

The population of this study consists of all banking companies that were constituents of the LQ45 Index on the IDX throughout the 2017–2023 period. The selection of this time frame aims to obtain sufficient and relevant data for analyzing the influence of liquidity, leverage, asset turnover, and profitability on firm value from a longitudinal perspective.

Sampling Method

The sampling technique used in this study is purposive sampling, which involves deliberately selecting individuals or subjects based on specific characteristics or criteria considered relevant to the research objectives (Creswell, 2014). The criteria applied in this study are as follows:

1. Banking companies that have been consistently listed in the LQ45 Index of the Indonesia Stock Exchange during the research period (2017–2023);
2. Companies that provide complete and publicly accessible annual financial statements throughout the study period;
3. Companies that were not delisted or suspended during the observation period.

Data and Sources

This study utilizes secondary data, which refers to data collected by other parties or from pre-existing sources rather than being gathered directly by the researcher for the specific purpose of the current study (Bougie, 2019). The secondary data used in this study were obtained from the official website of the Indonesia Stock Exchange (https://www.idx.co.id/) and from the official websites of the selected companies included in the sample.

Data Analysis Methods

Descriptive analysis is employed to present an overview of the sample based on the descriptive statistical values of each variable used in the study. The descriptive statistics considered relevant include: the number of observations (N), to indicate the sample size; the mean, to describe the central tendency of each research variable; the minimum and maximum values; and the standard deviation, which reflects the dispersion of the data around the mean. Additionally, skewness is used to assess the degree of asymmetry in the data distribution relative to a normal curve.

The data used in this study are both cross-sectional and time-series in nature, commonly referred to as panel data (Gujarati, 2003). Given the panel data structure, the appropriate regression model is panel data regression. According to Baltagi (2011) and Gujarati (2003), panel data regression offers several key advantages:

1. It accounts for individual or unit heterogeneity,

2. It improves estimation efficiency,
3. It captures temporal dynamics, and
4. It reduces multicollinearity.

Model Selection in Panel Data Regression

There are three primary panel data regression models: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM) (Wooldridge, 2010; Baltagi, 2011). In order to determine the most appropriate model for the panel data used in this study, the following model selection tests are applied:

1. Chow Test is conducted to compare the Fixed Effect Model with the Common Effect Model. The data processing in this study utilizes EViews 13, which allows for straightforward execution of the Chow test using built-in procedures.
2. Hausman Test is used to compare the Fixed Effect Model with the Random Effect Model to assess whether individual-specific effects are correlated with the independent variables.
3. If the Chow test suggests that the Common Effect Model is more appropriate than the Fixed Effect Model, then the next step is to compare the Common Effect Model with the Random Effect Model using the Lagrange Multiplier Test.

Classical Assumption Tests

Once the most suitable panel data regression model (CEM, FEM, or REM) has been selected, classical assumption testing is carried out on the chosen model. According to Wooldridge (2010) and Baltagi (2011), while some classical assumptions may be less relevant for panel data, several remain important. The following considerations apply:

1. Normality Test: Testing for residual normality is not strictly required in panel data regression, especially with large samples. According to the Central Limit Theorem (CLT), the distribution of residuals tends to approximate normality as the sample size increases (Wooldridge, 2010).
2. Multicollinearity Test: Multicollinearity remains relevant in panel data regression as strong correlations among independent variables can distort coefficient estimates and interpretation (Gujarati, 2003).
3. Heteroskedasticity Test: Heteroskedasticity often occurs in panel data when residual variances differ across individuals or time. The Breusch-Pagan or White test can be used to detect it, and robust standard errors are applied to correct for it (Baltagi, 2011).
4. Autocorrelation Test: Autocorrelation is particularly relevant in time-series dimensions of panel data. The Durbin-Watson test or Breusch-Godfrey LM test may be used to detect serial correlation (Wooldridge, 2010).

The classical assumption tests in this study were conducted based on the final panel regression model used for hypothesis testing.

Hypothesis Testing

Based on the previously formulated hypotheses, the final stage of data analysis is hypothesis testing, which includes the F-test, t-test, and coefficient of determination (R^2). The analysis is conducted using EViews 13. EViews provides output for the selected panel regression model (CEM, FEM, or REM), including the significance values of the F-test, t-test, and R^2. Accordingly, this study interprets and discusses the findings systematically and coherently..

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

The descriptive statistics for all variables in this study are presented in Table 1 below.

Tabel 1 Nilai Statistik Deskriptif Variabel Penelitian

	ROA	ROE	DAR	TATO	LDR	PBV
Mean	0.019516	0.136953	0.830544	0.066242	0.862703	3.086705
Median	0.019414	0.137549	0.831766	0.066535	0.856987	1.836174
Maximum	0.034556	0.208880	0.889725	0.091279	1.096087	17.05300
Minimum	0.000671	0.008779	0.745163	0.030610	0.652685	0.603573
Std. Dev.	0.009312	0.045752	0.036830	0.016036	0.091834	4.277465
Skewness	-0.313077	-0.832280	-0.587250	-0.276946	0.002270	2.806421
Kurtosis	1.983682	3.534216	2.516189	2.195387	3.530272	9.251149
Jarque-Bera	2.078082	4.456883	2.353055	1.391541	0.410097	102.9304
Probability	0.353794	0.107696	0.308348	0.498690	0.814608	0.000000
Sum	0.683054	4.793358	29.06903	2.318468	30.19461	108.0347
Sum Sq. Dev.	0.002948	0.071169	0.046119	0.008743	0.286736	622.0881
Observations	35	35	35	35	35	35

Source: Processed research data using EViews 13

Based on Table 1, the research variables can be described as follows:

1. **Return on Assets (ROA)**, ROA reflects the efficiency of asset utilization among the sampled banks, which appears to be relatively low, indicated by an average ROA of 1.95%. The minimum value of 0.07% suggests suboptimal profitability, while the maximum value of 3.45% indicates above-average efficiency. A small standard deviation (0.93%) implies that the performance variation among the banks is relatively low. The distribution is negatively skewed (skewness -0.31), suggesting that the majority of banks have ROA values close to the average.
2. **Return on Equity (ROE)**, The average ROE among the sampled banks is 13.69%, with a standard deviation of 4.58%, reflecting fairly competitive profitability. The moderate standard deviation indicates some variation in performance, with certain banks showing significantly higher or lower profitability. The minimum value of 0.88% indicates inefficiency in some banks, while the maximum value of 20.88% reflects optimal performance. The negatively skewed distribution (skewness -0.83) suggests that most banks have ROE below the average.

3. **Debt to Asset Ratio (DAR)**, The average DAR is 83.05% with a standard deviation of 3.68%, indicating a high reliance on debt financing among the sampled banks. Minimum and maximum values of 74.51% and 88.97%, respectively, show varied levels of dependence on external funding. The left-skewed distribution (skewness -0.58) implies that most banks have leverage levels above the average.
4. **Total Asset Turnover (TATO)**, The average TATO is 0.0662 with a standard deviation of 0.0160, suggesting relatively low efficiency in utilizing assets to generate revenue. The low standard deviation implies minimal variation in performance across banks. With a minimum value of 0.0410 and a maximum of 0.0912, the near-symmetric distribution indicates that most banks fall within a similar range of operational efficiency.
5. **Loan to Deposit Ratio (LDR)**, The average LDR is 86.27% with a standard deviation of 9.18%, indicating that most banks channel nearly all their deposit funds into loans. The relatively small standard deviation reflects uniformity in liquidity strategies. A minimum value of 65.27% indicates a conservative approach, while the maximum value of 109.08% suggests potential liquidity risk. The nearly symmetric distribution confirms the similarity in strategies among banks.
6. **Price to Book Value (PBV)**, The average PBV among the sampled banks is 3.0867 times with a standard deviation of 4.2775, reflecting a generally positive investor perception. However, the PBV ranges widely from a minimum of 0.6037 to a maximum of 17.053 times the book value, indicating significant variations in market valuation. The high standard deviation highlights diverse investor assessments, and the strongly right-skewed distribution (skewness 2.80) indicates that a few banks have valuations far exceeding the average.

In summary, the sampled banks exhibit relatively strong performance in terms of profitability (ROA and ROE) and liquidity (LDR). However, there is a high dependence on debt financing (DAR) and room for improvement in asset utilization efficiency (TATO). The market valuation, as reflected by the Price to Book Value (PBV), varies considerably, indicating significant differences in investor perceptions regarding each bank's performance and prospects.

Panel Data Regression Analysis

As outlined in the methodology section, panel data regression can be estimated using three different models: the Common Effect Model (also known as Ordinary Least Squares or OLS), the Fixed Effect Model, and the Random Effect Model. In order to determine the most appropriate model for estimating the regression equation, the following steps were undertaken:

1. **Chow Test**, to select the better model between the Common Effect Model and the Fixed Effect Model. The criteria used are as follows:
   - If the probability value of the cross-section F-statistic is greater than 0.05, then the Common Effect Model (OLS) is selected.
   - If the probability value of the cross-section F-statistic is less than 0.05, then the Fixed Effect Model is selected.

The results of the Chow test, based on data processing using the EViews 13 statistical software, are presented in Table 2 below.

Table 2. Chow Test (Redundent Fixed Effects Tests) Result

Redundent Fixed Effects Tests
Equation: Untiteled
Test Cross-section fixed effects

Effects Test	Statistic	d.f.	Prob
Coss-section F	1.185392	(4.25)	0,3414
Cross-Section Chi-square	6.078446	4	0,1934

Source: Processed research data using EViews 13

As shown in Table 2, the probability value for the cross-section F-statistic is 0.3414, which is greater than 0.05. Based on this result, it can be concluded that the appropriate model for estimating the regression equation in this study is the Common Effect Model, also referred to as the Ordinary Least Squares (OLS) or Pooled Least Squares (PLS) model.

2. Lagrange Multiplier Test

The next step in determining the most appropriate panel data regression model is conducting the Lagrange Multiplier (LM) test, which also serves as the final step in the model selection process. The criteria applied are as follows:

- If the p-value of the Breusch-Pagan cross-section test is greater than 0.05, then the null hypothesis (H_0) is accepted, indicating that the Common Effect Model (CEM) or Pooled Least Squares (PLS) is the most appropriate model.
- If the p-value is less than 0.05, then the null hypothesis is rejected, suggesting that the Random Effect Model (REM) should be used.

The results of the Lagrange Multiplier test are presented in Table 3.

Table 3: Results of the Lagrange Multiplier Test

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No Effects
Alternative hypotheses:Two-side (Breusch-Pagan) and one-sided (all others) Alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	0,001673 (0.9674)	3.279038 (0.0702)	3.280711 (0.0701)
Honda	-0.040898 (0.5163)	-1.810811 (0.9649)	-1.309356 (0,9048)
King-Wu	-0.040898 (0.5163)	-1.810811 (0.9649)	-1.76937 (0.8804)
Standardized Honda	1.673813 (0.0471)	-1.506395 (0.9340)	-4.006251 (1.0000)
Standardized King-Wu	1.673813 (0.0471)	-1.506395 (0.9340)	-3.899484 (1.0000)

Gourieroux, at al.	--	--	0.000000 (1.0000)

Source: Processed research data using EViews 12

As presented in Table 3, the p-value of the Breusch-Pagan cross-section test is 0.9674, exceeding the 0.05 significance level. Therefore, the null hypothesis cannot be rejected, suggesting that the Common Effect Model (CEM) or Pooled Least Squares (PLS) is the most appropriate model for estimating the regression equation in this study..

Classical Assumption Test

As described in the methodology section, the selected regression model must undergo a classical assumption test to satisfy the criteria for BLUE (Best Linear Unbiased Estimator). The first classical assumption tested is the normality of the data, which is evaluated using the Jarque-Bera Test. The hypotheses used in this test are as follows:

H_0: The data are normally distributed

H_1: The data are not normally distributed

The criteria for accepting or rejecting the null hypothesis are:

- If the probability or p-value of the Jarque-Bera statistic is greater than 0.05, then H_0 is accepted, indicating that the data are normally distributed.
- If the probability or p-value of the Jarque-Bera statistic is less than 0.05, then H_0 is rejected, indicating that the data are not normally distributed.

Figure 2 below presents the results of the normality test using the Jarque-Bera method in EViews 13.

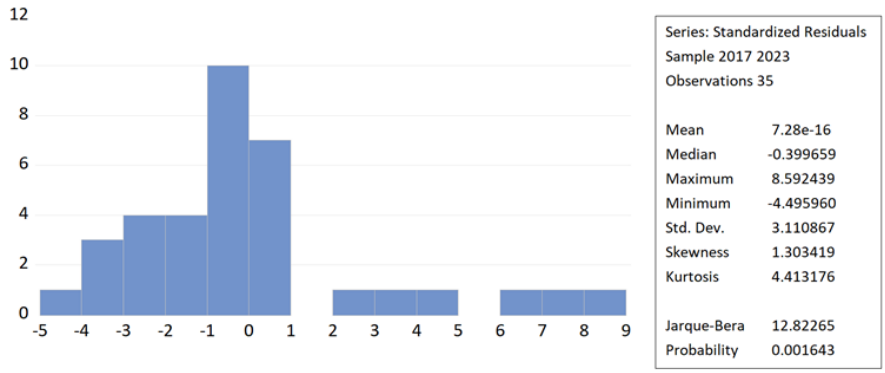

Figure 2. Results of the Normality Test using the Jarque-Bera Test

Based on the results, the Jarque-Bera value is 12.82265 with a p-value of 0.001643. Therefore, it can be concluded that the data do not follow a normal distribution.

Due to the violation of this first classical assumption, subsequent tests such as the multicollinearity test, heteroskedasticity test, and autocorrelation test were not conducted. To ensure that the selected model—Common Effect Model or Pooled Least Squares (PLS)—meets the classical assumptions, the panel data regression was re-estimated using the OLS method with robust standard errors in EViews. The results of this robust estimation are presented in Table 4 below.

Table 4. Output of Robust Least Squares Estimation Using EViews 13

Dependent Variable: PBV
Method: Robust Least Squares
Date: 12/29/24 Time: 18:56
Sample: 2017 2023
Included observations: 35
Method: M-estimation
M settings: weight=Bisquare, tuning=4.685, scale=MAD (median centered)
Huber Type I Standard Errors & Covariance

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	4.479604	2.250621	1.990386	0.0465
ROA	71.93167	18.30447	3.929732	0.0001
ROE	-4.669173	2.966250	-1.574099	0.1155
DAR	-4.471862	2.499530	-1.789081	0.0736
TATO	22.35172	5.252651	4.255322	0.0000
LDR	-1.303205	0.765737	-1.701896	0.0888

Robust Statistics

R-squared	0.653044	Adjusted R-squared	0.593224
Rw-squared	0.881940	Adjust Rw-squared	0.881940
Akaike info criterion	52.37969	Schwarz criterion	65.82890
Deviance	4.455591	Scale	0.316438
Rn-squared statistic	163.2814	Prob(Rn-squared stat.)	0.000000

Non-robust Statistics

Mean dependent var	3.086705	S.D. dependent var	4.277465
S.E. of regression	4.490028	Sum squared resid	584.6502

Source: Processed research data using EViews 13

Table 4 presents the final model employed to explain the results of this study. The R-squared value exceeds 0.5, indicating that the model is sufficiently robust in explaining the relationship between the dependent and independent variables.

Hypothesis Testing

F-Test

In the Robust Least Squares model, the joint significance of all independent variables on the dependent variable is assessed using the Rn-squared statistic. As shown in Table 4, the Rn-squared value is 163.2814, with a significance level of 0.0000 well below the conventional 0.05 threshold. This indicates that the independent variables Return on Assets (ROA), Return on Equity (ROE), Debt to Asset Ratio (DAR), Total Assets Turnover (TATO), and Loan to Deposit Ratio (LDR) jointly exert a statistically significant influence on firm value, as measured by the Price to Book Value (PBV).

Z-Test (Substitute for t-Test)

Instead of the conventional t-test, this study employed the Z-test by examining the significance probability of the Z-statistics. The test results indicate that there are two performance variables that significantly influence firm value:

1. Return on Assets (ROA), which serves as a proxy for the company's profitability performance in utilizing its assets, shows a p-value of 0.0001. This

value is far below the significance threshold of 0.05, indicating a statistically significant effect on firm value.

2. Total Assets Turnover (TATO), which reflects the effectiveness of asset management performance, has a p-value of 0.0000, also well below the 0.05 significance level, thus confirming a significant influence on firm value.
3. Meanwhile, the significance levels (p-values) of the Z-statistics for Return on Equity (ROE), Debt to Asset Ratio (DAR), and Loan to Deposit Ratio (LDR) are all above 0.05. Therefore, it can be concluded that these variables do not have a statistically significant effect on firm value, as proxied by Price to Book Value (PBV).

Coefficient of Determination (R-squared Test)

As shown in Table 4, the coefficient of determination is indicated by the R-squared value of 0.653044, which means that 65.30% of the variation in the dependent variable, firm value (PBV), can be explained by the variation in the independent variables: Return on Assets (ROA), Return on Equity (ROE), Debt to Asset Ratio (DAR), Total Assets Turnover (TATO), and Loan to Deposit Ratio (LDR). The remaining 34.70% is explained by other factors outside the scope of this study.

DISCUSSION

Profitability (ROA and ROE)

1. **Return on Assets (ROA**): Based on the Z-test results, ROA has a positive and statistically significant coefficient (p-value < 0.05), indicating that increased efficiency in generating profits from total assets positively contributes to firm value, as measured by Price to Book Value (PBV). This finding aligns with the financial theory proposed by Brigham & Houston (2019), which asserts that profitability is a primary indicator of a firm's success in gaining investor trust, subsequently enhancing its market value. Empirical studies by Rossa et al. (2023), Sukanti & Rahmawati (2023), and Dafika V. D. & Fauzan (2017) also support this view, concluding that ROA has a significant positive influence on firm value in the banking sector. Higher ROA reflects greater ability to generate profit, thereby increasing investor confidence.
2. **Return on Equity (ROE):** ROE shows a negative but statistically insignificant coefficient (p-value > 0.05). This suggests that an increase in net income relative to shareholders' equity does not necessarily enhance firm value. Gitman and Zutter (2017) note that this relationship can be influenced by suboptimal capital structures or dividend policies misaligned with investor expectations. This finding is consistent with studies by Murni & Sabijono (2018) and Kusumawati et al. (2020), which highlight that ROE may not significantly impact firm value due to the influence of other variables such as dividend policy and capital structure, which play crucial roles.

Debt Management (Debt to Asset Ratio – DAR)

The coefficient of DAR is negative and statistically insignificant (p-value > 0.05), indicating that a higher debt-to-asset ratio does not positively impact firm value. In the context of banking institutions, this may reflect investor concerns about liquidity risks or overreliance on debt financing. According to the Trade-off Theory of capital structure (Myers, 1984), an excessive focus on debt may increase the risk of financial distress. Rahmawati et al. (2019) found that high debt levels in banking capital structures do not necessarily create additional value. Investors often perceive high debt levels as increasing the risk of default. This also explains the negative impact of ROE on firm value in this study, since excessive leverage could diminish shareholder returns.

Asset Management (Total Asset Turnover – TATO)

TATO has a positive and statistically significant coefficient (p-value < 0.05), suggesting that a bank's ability to efficiently manage its assets has a positive and significant impact on firm value. This is supported by literature such as Zutter & Smart (2022), which emphasizes the importance of asset management in achieving operational efficiency and enhancing market perception of firm value. Empirical studies by Hidayat & Utama (2019) and Ahmadi et al. (2023) reinforce that asset management efficiency, as measured by TATO, improves market perception of corporate performance. Efficient utilization of assets to generate revenue is considered a key indicator of sound management. Furthermore, research by Ahmadi et al. (2023) and Wicaksono et al. (2020) found that firms with higher TATO levels demonstrate better capabilities in generating revenue from their assets, thus increasing firm value.

Liquidity (Loan to Deposit Ratio – LDR)

LDR exhibits a negative and statistically insignificant coefficient (p-value > 0.05). Although a higher LDR reflects greater aggressiveness in lending activities, it can also heighten liquidity risks, potentially deterring investor interest in banking firms. Rose and Hudgins (2013) emphasize the importance of balancing liquidity and profitability to maintain stable firm value. Research by Arifin et al. (2021) similarly suggests that excessively high LDR may increase liquidity risks, particularly in the banking sector, causing investors to act cautiously in valuing the firm. However, Sari & Fitriani (2020) noted that the effect of LDR on firm value can vary depending on how management balances liquidity and profitability. In contrast, Rizqi Nugrahani Utami (2021) found that LDR has a positive and significant effect on firm value.

CONCLUSION

This study reveals that profitability, as measured by Return on Assets (ROA), and operational efficiency, as measured by Total Asset Turnover (TATO), significantly influence the firm value of banking companies listed in the LQ45 index. In contrast,

leverage (proxied by the Debt to Asset Ratio - DAR) and liquidity (proxied by the Loan to Deposit Ratio - LDR) do not show a significant effect on Price to Book Value (PBV). These findings highlight that, in the banking sector, efficient asset utilization and profitability are the primary drivers of firm value. The findings provide strategic insights for banking management, particularly in making decisions related to enhancing profitability and optimizing asset management as key levers to increase firm value. The study is constrained by a relatively limited sample size and short observation period, which may restrict the generalizability of the conclusions across the broader banking industry. Future studies are encouraged to broaden the sample scope and extend the research period to capture longer-term dynamics. Moreover, incorporating additional variables such as credit risk, cost efficiency, or corporate governance factors may offer deeper insights into the determinants of firm value in the banking sector.

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