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Descriptive and Correlation Analysis of Bank Financial Performance on Market Capitalization: Evidence from National Banks in Indonesia (2020–2024)

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Abstract
This study examines the relationship between bank financial performance and market capitalization of Indonesian national banks during 2020–2024. Using a quantitative approach with 75 observations, the research analyzes Return on Equity (ROE), Operating Expenses to Operating Income (BOPO), Non-Performing Loans (NPL), and Capital Adequacy Ratio (CAR) as independent variables, with the natural logarithm of market capitalization (LnMC) as the dependent variable. Descriptive statistics reveal variations across banks, with ROE averaging 11.43%, BOPO 75.05%, CAR 24.71%, and NPL at a relatively low level after log transformation. Correlation results show that ROE has a strong, positive, and significant relationship with market capitalization, while BOPO has a significant negative relationship. In contrast, NPL is negatively associated but insignificant, and CAR shows no significant effect. These findings highlight that profitability and efficiency are the main drivers of market capitalization in Indonesian banks, while credit risk and capitalization levels play less important roles. The study contributes to the literature on banking and finance in emerging markets and provides practical insights for bank managers, regulators, and investors in strengthening performance and market value. These findings reinforce signaling theory and agency theory in the context of banking in emerging markets, confirming that profitability and operational efficiency are the primary signals considered by investors in valuing banks. This study provides new empirical evidence on the limited influence of CAR and NPL on market valuation when these ratios are already above strict regulatory thresholds.

Keywords: ROE, NPL, BOPO, CAR, Market Capitalization, Indonesian Banks

INTRODUCTION

Indonesia's banking industry plays a crucial role in the national economy, with total assets reaching IDR 11,817 trillion at the end of 2023 (OJK, 2024). Despite positive growth, the sector faces complex challenges amid global economic uncertainty, interest rate fluctuations, and the lingering impact of the post-COVID-19 pandemic. This situation requires banks to maintain strong financial performance to attract investor confidence and influence market valuations. Market capitalization is an important indicator that reflects investors' perceptions of the value and future prospects of banks (Ali, 2023; Eze, 2019; Köster & Zimmermann, 2017; Malchev & Bozhinovska-Lazarevska, 2023; Yadav, 2025). However, the relationship between financial performance—such as profitability, efficiency, credit risk, and capital adequacy—and market capitalization in Indonesia still needs to be examined more thoroughly, particularly in the context of the 2020–2024 economic recovery period (Maulana et al., 2024; Muuna et al., 2024; Putri et al., 2025; Rahayu et al., 2024; Siraj et al., 2024).

Several studies have examined the link between financial performance indicators and market valuation in the banking sector (Aayale et al., 2022; Eklof et al., 2020; Golovkova et al., 2019; Gwatiringa, 2020; Sharma et al., 2016). Profitability ratios such as ROA and earnings

per share (EPS) have been found to significantly influence the stock prices of state-owned banks in Indonesia, while ROE does not consistently exhibit an effect (Riwayati & Aviliani, 2022). Similarly, NPL and liquidity risk (LDR) negatively affect firm value, whereas BOPO does not have a significant effect, confirming the central role of credit risk and operational efficiency in determining firm valuation (Wiadnyani & Artini, 2023).

Other empirical evidence indicates that CAR, NPL, ROE, LDR, EPS, and PER simultaneously affect the stock prices of large Indonesian commercial banks, with EPS and PER emerging as dominant determinants (Anggraini, 2022). Financial ratios such as CAR, LDR, NIM, BOPO, and NPL also significantly influence profitability in conventional banks, suggesting that these ratios have fundamental implications for long-term sustainability and indirectly shape market capitalization (Hutahuruk, Sudarno, Valencia, Angelina, & Priyono, 2024). Moreover, operational efficiency measured by BOPO is not only a determinant of profitability but also a key factor in shaping the competitiveness of Indonesian banks (Ischak, Maarif, Hermadi, & Asikin, 2024).

This research has several novelties, including: (1) using the latest data covering the pandemic period and economic recovery, (2) applying logarithmic transformations to NPL and market capitalization variables to improve data normality and analysis accuracy, (3) focusing the analysis on the direct correlation between financial performance variables and market capitalization, and (4) involving a diverse sample that includes state-owned banks, private sector banks, and foreign joint ventures. The purpose of this study is to analyze the relationship between ROE, BOPO, NPL, and CAR with the market capitalization of Indonesia's national banks. The benefits of this research include providing empirical contributions to the financial and banking literature, and offering practical insights for bank management, regulators, and investors in making strategic decisions to enhance market performance and value.

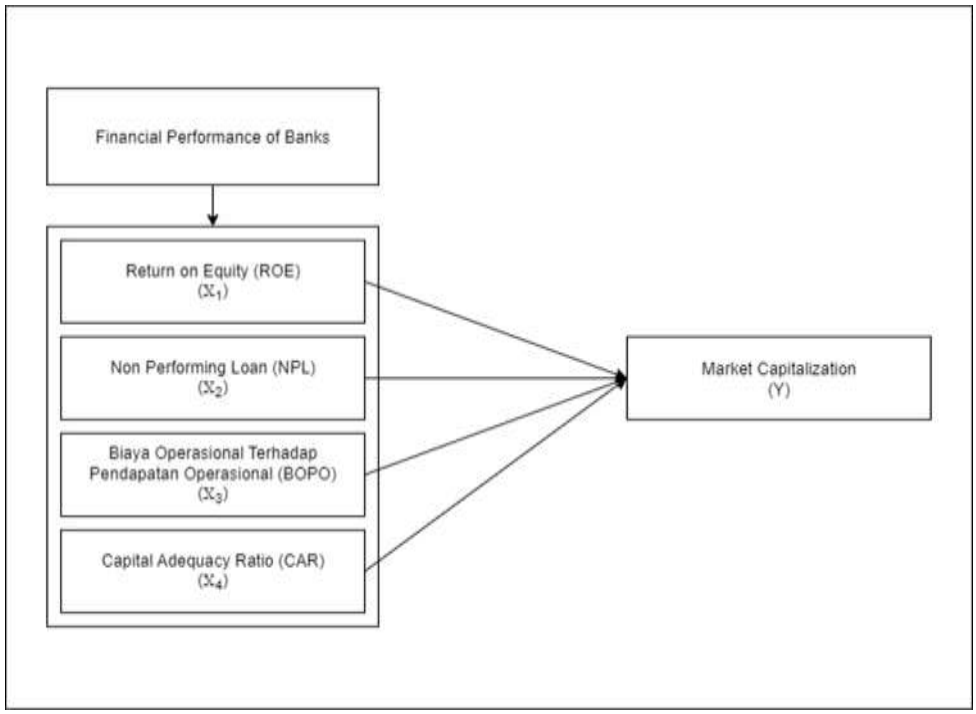

Figure 1. Research Conceptual Framework
Source: Processed by the author (2024)

RESEARCH METHOD

This study employed a quantitative research design with both descriptive and correlational approaches. Descriptive analysis presented the statistical characteristics of the research variables, while correlational analysis examined the strength and direction of the relationships between financial performance indicators—ROE, NPL, BOPO, CAR—and market capitalization.

The study population consisted of all banks listed on the Indonesia Stock Exchange (IDX). Through purposive sampling criteria, the research focused on 15 national banks that consistently published annual financial statements and market capitalization data from 2020 to 2024. The selected banks represented a mix of state-owned, private national, and foreign joint-venture banks, providing a comprehensive overview of the Indonesian banking sector. The sample comprised the following banks: BBCA, BBNI, BBRI, BBTN, BDMN, BMRI, BNGA, BNII, BNLI, BRIS, BSIM, MEGA, NISP, NOBU, and PNBN.

Secondary data were obtained from annual reports of national banks published via the IDX website and the banks' official websites, IDX market capitalization data, and Otoritas Jasa Keuangan (OJK) publications for supporting financial indicators. The observation period covered 2020 to 2024, capturing both the pandemic and post-pandemic recovery phases.

The dependent variable was market capitalization (LnMC, Y), measured as the market value of equity and transformed using the natural logarithm to normalize the data for quantitative analysis. Independent variables included ROE (X1), measured as net income after tax divided by total equity; LnNPL (X2), calculated as the ratio of non-performing loans to total loans with log transformation applied; BOPO (X3), calculated as operating expenses divided by operating income; and CAR (X4), measured as total capital divided by risk-weighted assets.

Three main data analysis techniques were used:

- Descriptive statistics to summarize the characteristics of each variable.
- Correlation analysis (Pearson or Spearman), chosen based on the distribution of the data, to assess the strength and direction of the relationships among financial indicators and market capitalization.
- Significance testing at the 5% significance level ($\alpha = 0.05$) to determine statistical significance of the correlations.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 presents the descriptive statistics of the research variables, namely Return on Equity (ROE/X1), Non-Performing Loans in natural logarithm form (LnNPL/X2), Operating Expenses to Operating Income (BOPO/X3), Capital Adequacy Ratio (CAR/X4), and the natural logarithm of Market Capitalization (LnMC/Y). The analysis is based on 75 observations during the period 2020–2024.

Table 1. Descriptive Statistics

	X1	X2	X3	X4	Y
Mean	11.43413	-0.323924	75.04973	24.71480	31.57787
Median	10.51000	-0.342490	76.50000	24.02000	31.13000
Maximum	27.31000	0.940007	111.7000	35.70000	34.71000

Minimum	1.070000	-1.609438	41.70000	16.80000	28.59000
Std. Dev.	6.873868	0.602334	14.93343	4.688042	1.493628
Skewness	0.480102	-0.045976	-0.331746	0.613335	0.536014
Kurtosis	2.147354	2.883484	2.660982	2.712095	2.621720
Jarque-Bera	5.153111	0.068847	1.734855	4.961275	4.038567
Probability	0.076035	0.966162	0.420031	0.083690	0.132751
Sum	857.5600	-24.29428	5628.730	1853.610	2368.340
Sum Sq. Dev.	3496.505	26.84767	16502.55	1626.353	165.0885
Observations	75	75	75	75	75

Source: Data processed with E-Views (2024)

Interpretation:

1. ROE (X1): The mean ROE is 11.43%, with a maximum of 27.31% and a minimum of 1.07%. This indicates that, on average, national banks in the sample generate a relatively healthy level of profitability, although performance varies across institutions.
2. LnNPL (X2): The average log-transformed NPL is -0.32, ranging from -1.61 to 0.94. The natural logarithm transformation stabilizes the data distribution. The results suggest that most banks maintain non-performing loans at relatively low levels, below the regulatory threshold.
3. BOPO (X3): The mean BOPO ratio is 75.05%, with wide variation (41.70% – 111.70%). This reflects differences in operational efficiency among banks, where some operate efficiently, while others exceed 100%, indicating inefficiency.
4. CAR (X4): The average CAR is 24.71%, with a minimum of 16.80% and a maximum of 35.70%. All banks in the sample remain well above the regulatory minimum of 8%, indicating strong capitalization and resilience.
5. Ln Market Capitalization (Y): The mean value is 31.58 with a standard deviation of 1.49. This shows differences in bank size and market valuation, although most banks remain within a relatively narrow range.

According to the Jarque-Bera normality test, all variables have p-values above 0.05 (except ROE and CAR, which are close to the threshold), suggesting that most variables follow a normal distribution. Therefore, the Pearson correlation method can be applied in the subsequent analysis, while the Spearman correlation may be used as a robustness check for variables with borderline normality.

Correlation Analysis Results

The following table presents the results of the Pearson correlation test between the independent variables (ROE, LnNPL, BOPO, CAR) and the dependent variable (Ln Market Capitalization).

Table 2. Correlation Analysis

Covariance Analysis: Ordinary					
Sample: 2020 2024					
Included observations: 75					
Correlation					
Probability	**X1**	**X2**	**X3**	**X4**	**Y**
X1	1.000000				

X2	-0.147291	1.000000			
	0.2073	-----			
X3	-0.656845	0.402811	1.000000		

	0.0000	0.0003	-----		
X4	-0.234340	-0.048590	-0.105537	1.000000	
	0.0430	0.6789	0.3675	-----	
Y	0.713325	-0.170288	-0.603358	-0.005132	1.000000
	0.0000	0.1441	0.0000	0.9651	-----

Source: E-Views output, processed for research purposes (2024)

Interpretation:

1. ROE (X1) and LnMC (Y):
   a. Correlation coefficient = 0.713, p-value = 0.000.
   b. This indicates a strong positive and statistically significant relationship.
   c. Interpretation: The higher the profitability (ROE), the greater the market capitalization of banks. This supports Hypothesis 1 (H1).
2. LnNPL (X2) and LnMC (Y):
   a. Correlation coefficient = -0.170, p-value = 0.144.
   b. The relationship is negative but not statistically significant.
   c. Interpretation: Non-performing loans tend to reduce market capitalization, but the effect is not strong enough to be statistically meaningful. Thus, Hypothesis 3 (H3) is not supported.
3. BOPO (X3) and LnMC (Y):
   a. Correlation coefficient = -0.603, p-value = 0.000.
   b. This shows a moderately strong negative and statistically significant relationship.
   c. Interpretation: The more efficient the bank (lower BOPO), the higher the market capitalization. This strongly supports Hypothesis 2 (H2).
4. CAR (X4) and LnMC (Y):
   a. Correlation coefficient = -0.005, p-value = 0.965.
   b. The relationship is very weak and not significant.
   c. Interpretation: Capital adequacy does not significantly influence market capitalization in the observed sample. This, Hypothesis 4 (H4) is not supported.

The findings confirm that profitability (ROE) and operational efficiency (BOPO) are the key drivers of market capitalization for Indonesian national banks. Investors appear to reward banks with higher profitability and greater efficiency with higher market valuations.

Conversely, credit risk (NPL), although negatively associated with market capitalization, does not have a statistically significant impact. This may suggest that as long as NPLs remain within regulatory thresholds, investors do not perceive them as a major threat to firm value.

Unexpectedly, capital adequacy (CAR) shows no significant correlation with market capitalization. This result contrasts with previous studies (e.g., Al Zaidanin, 2020), and may reflect the fact that all sample banks already maintain CAR well above regulatory requirements, making differences in CAR less relevant for market valuation.

CONCLUSION

This study investigated the relationship between key financial performance indicators—Return on Equity (ROE), Operating Expenses to Operating Income (BOPO), Non-Performing Loans (NPL), and Capital Adequacy Ratio (CAR)—and market capitalization (LnMC) among Indonesian national banks from 2020 to 2024, finding that profitability (ROE) and operational

efficiency (BOPO) were the main factors influencing market valuation, while credit risk (NPL) and capitalization (CAR) had much weaker or insignificant effects. These findings suggest that investors place the greatest emphasis on profitability and efficiency when assessing bank value, highlighting the need for banks to focus on these areas to maximize market capitalization. Future research should explore additional factors such as digital transformation strategies, environmental, social, and governance (ESG) performance, or macroeconomic influences to gain a more holistic understanding of what drives market capitalization in the evolving banking industry.

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