

The impact of income diversification on the market value of Indonesian banking companies

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Abstract

This study examines the effect of bank income diversification on the market value of Indonesian banking firms. The sample consists of eight banks listed on the Indonesia Stock Exchange over the 2015 to 2021 period. Income diversification is measured by the proportion of Net Non-Interest Income (NNII), market value is proxied by Tobin's Q, and bank profitability, measured by return on assets (ROA), is included as a control variable. The sample was selected purposively based on data availability and consistency, resulting in 56 observations. The study employs multiple linear regression analysis. The results indicate that income diversification has a positive and statistically significant effect on market value. These findings suggest that diversifying income sources can enhance bank valuation and encourage banks to expand non-interest income streams to sustain value creation. However, the study is limited by its sample size and observation period, which leaves room for broader future research. Theoretically, the findings support signaling theory and portfolio theory, which suggest that income diversification can serve as a positive signal to investors while reducing the risks associated with dependence on interest income. In practice, the study highlights the importance of income diversification strategies for improving market valuation and strengthening the competitiveness of Indonesian banks.

Keywords: Income diversification, Market value, Bank profitability, Tobin's Q, ROA

Abstrak

Studi ini menganalisis dampak diversifikasi pendapatan bank terhadap nilai pasar perusahaan perbankan di Indonesia. Sampel terdiri dari delapan bank yang terdaftar di Bursa Efek Indonesia dari tahun 2015 hingga 2021. Diversifikasi pendapatan diukur dengan proporsi Pendapatan Non-Bunga Bersih (NNII), nilai pasar diwakili oleh Tobin's Q, dan profitabilitas bank (ROA) digunakan sebagai variabel kontrol. Sampel dipilih secara purposive berdasarkan ketersediaan dan konsistensi data, sehingga diperoleh 56 observasi. Analisis ini menggunakan regresi linier berganda. Hasil penelitian menunjukkan bahwa diversifikasi pendapatan memiliki pengaruh positif dan signifikan terhadap nilai pasar. Temuan ini menunjukkan bahwa diversifikasi sumber pendapatan dapat meningkatkan valuasi bank dan mendorong bank untuk memperluas aliran pendapatan non-bunga guna mempertahankan penciptaan nilai. Namun, studi ini terbatas oleh ukuran sampel dan jangka waktu, yang menunjukkan peluang untuk penelitian yang lebih luas di masa mendatang. Secara teoritis, hasil ini mendukung teori sinyal dan teori portofolio yang menjelaskan bahwa diversifikasi pendapatan dapat menjadi sinyal positif bagi investor sekaligus menurunkan risiko ketergantungan pada pendapatan bunga. Secara praktis, penelitian ini menegaskan pentingnya strategi diversifikasi pendapatan untuk meningkatkan valuasi pasar dan memperkuat daya saing perbankan di Indonesia.

Kata Kunci: Diversifikasi pendapatan, Nilai pasar, Profitabilitas bank, Tobin's Q, ROA

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1. Introduction

The banking sector holds a strategic role in Indonesia's economy as a driver of growth and national financial stability. As an intermediary institution, banks collect public funds in the form of deposits and redistribute them as credit to various business sectors. This role makes banking a crucial foundation for strengthening the real sector and supporting economic activities in trade, industry, and services. Amid global economic dynamics, Indonesia's banking industry continues to undergo significant changes, influenced by technological developments, regulatory reforms, and macroeconomic fluctuations.

The COVID-19 pandemic had a substantial impact on Indonesia's banking sector, particularly by reducing economic activity and credit demand (Seto & Septianti, 2021; Sumadi, 2020; Saparinda, 2021; Basmar et al., 2022). This decline led to increased credit risk, as many borrowers struggled to meet their loan obligations due to social restrictions and economic slowdown. Banks became more cautious in extending credit, resulting in a contraction of their intermediation function and pressure on profitability. However, one strategic approach widely adopted during these challenges was income diversification expanding sources of revenue beyond traditional interest income. Diversification has become increasingly relevant as banks face regulatory changes, interest rate fluctuations, and global economic uncertainty. It can be pursued through product, market, and sector diversification, aiming to improve operational efficiency and reduce risks arising from dependence on a single income source.

Bank income diversification can be measured using the Net Non-Interest Income (NNII) ratio, which reflects the proportion of non-interest income to total bank income. This strategy is expected to enhance efficiency and reduce reliance on interest income, which is vulnerable to interest rate fluctuations and credit risk. In this study, diversification is measured through NNII, while bank market value is assessed using Tobin's Q as an indicator. The research aims to evaluate how the market perceives banks' income diversification strategies. Specifically, it examines whether diversification positively affects banks' market value, particularly in the context of developing countries. Cross country studies show mixed results: Alyousef et al. (2019) in Kuwait concluded that NNII plays an important role in determining market valuation, while Ghosh (2010) in India found that diversification effectiveness depends heavily on operational efficiency and economies of scale.

Not all studies report positive impacts. Aggressive diversification without careful planning may negatively affect banks' market value. Vo (2017) in Vietnam found that diversification negatively influenced stock market value, suggesting investor preference for banks focused on traditional activities. Similarly, Shahu (2017) in Nepal concluded that NNII, when included in market valuation models with Tobin's Q, could negatively affect valuation if not accompanied by sound risk management. These differences indicate that diversification effectiveness is strongly influenced by industry structure, regulation, and managerial efficiency.

Although theoretically bank diversification is believed to reduce risk and enhance firm value, empirical evidence shows mixed outcomes. Some studies support the hypothesis that diversification increases market value, while others find negative or insignificant effects. Thus, debate remains regarding the extent to which income diversification can enhance banks' market value. This study aims to analyze the effect of bank income diversification, measured by NNII, on market value, measured by Tobin's Q, with profitability (ROA) as a control variable. The study uses data from eight banks listed on the Indonesia Stock Exchange during 2015–2021. The findings are expected to provide empirical contributions to understanding the effectiveness of diversification strategies in enhancing bank market value in Indonesia, as well as serving as a reference for policymakers and banking industry practitioners.

2. Literature review

Signaling Theory

Signaling theory explains that under conditions of information asymmetry—where company management possesses more knowledge about the firm's internal conditions than investors the company can send signals to the market through various financial disclosures. These signals aim to reduce information asymmetry and influence investors' perceptions of the firm's value and prospects (Spence, 1973). In the banking context, signals may take the form of income diversification (NNII), asset growth, and other financial indicators. High levels of bank diversification serve as positive signals to investors, suggesting sound risk management, operational efficiency, and stable growth prospects. Investors who receive such positive signals tend to assign higher valuations to banks, reflected in an increase in Tobin's Q ratio.

According to signaling theory, firms that demonstrate strong financial performance through transparent financial reporting are more likely to gain investor trust, thereby increasing share prices and market value. Conversely, negative signals such as low profitability or reliance on a single income source can erode investor confidence and reduce the firm's market value.

Portfolio Theory

Portfolio theory was introduced by Harry Markowitz in 1952. This theory emphasizes the importance of asset diversification within a portfolio to minimize risk and maximize returns (Fabozzi et al., 1952). Previous studies have stated that the theory explains investors' tendency to avoid risk, and that diversification strategies within a portfolio are key to achieving the objective of maximizing profits with measurable risk (Liestyawati et al., 2023).

In the banking context, portfolio theory provides the foundation for banks not to rely solely on one source of income (such as interest income), but to also develop alternative sources of revenue, such as non-interest income (Net Non-Interest Income/NNII) derived from fees, commissions, service charges, and other investments. This diversification helps banks reduce the risk of dependence on a single income source and stabilize overall revenue streams.

The purpose of diversification is to lower the risk associated with reliance on one source of income and to stabilize banks' overall revenue flows. If one source of income declines, other sources can compensate, making bank revenues more stable and reducing total risk. Kwan and Laderman (1999) demonstrated that banks with diversified income portfolios have lower insolvency risk and reduced earnings volatility. In banking research, diversification is measured using the NNII ratio, which represents the proportion of non-interest income to total bank income. The higher the NNII, the greater the level of income diversification achieved by the bank.

Market Value

Market value is viewed as a key indicator of shareholder prosperity, which is simply reflected through rising stock prices. For owners, a high corporate valuation is a strategic objective because it directly correlates with shareholder well-being. Efforts to maximize corporate value enable management to deliver optimal value when the company interacts with the market. The resulting corporate value also opens up new investment opportunities that can be exploited through various managerial decisions, including banking diversification strategies that have the potential to increase profits. In this study, corporate value was measured using Tobin's Q as a proxy for market perception of the company's performance and growth prospects (Brigham & Houston, 2014). In the banking sector, Tobin's Q is frequently used as a proxy to assess investors' valuation of managerial performance and the growth prospects of financial institutions. According to Dzahabiyya et al. (2020), the formula for calculating Tobin's Q.

Tobin's Q reflects how effectively a company's management utilizes its assets. When Tobin's Q is greater than one, it indicates that the company's management is considered successful in managing its assets, and the firm is viewed as overvalued, suggesting strong growth potential or efficient asset use. Conversely, when Tobin's Q is less than one, it implies that management is assumed to have failed in optimizing asset utilization, and the firm is regarded as undervalued, signaling weak performance. Meanwhile, a Tobin's Q equal to one suggests that management is stagnant in managing the company's assets, with the firm perceived as performing at an average level, neither showing significant growth nor decline.

Diversification

Bank income diversification is an important strategy in modern banking, where banks do not rely solely on interest income but also on other sources such as service fees, trading, and investments. Non-interest income is measured using the Net Non-Interest Income (NNII) indicator. According to Shahu (2017), diversification can strengthen banks' income resilience against market fluctuations and enhance financial stability. However, this strategy also introduces new and complex risks, requiring strong managerial capabilities.

Profitability Bank

In this study, bank profitability is used as a control variable and is measured using Return on Assets (ROA), which assesses the effectiveness of asset utilization in

generating net income. In many studies, ROA is employed as a control variable because profitability can influence market value. According to Chiou et al. (2012), ROA also serves as an indicator of managerial efficiency and should be controlled in models that examine the impact of other variables on market valuation. ROA is a profitability ratio that demonstrates a bank's ability to generate earnings by utilizing all of its assets. The higher the ROA value, the better the bank's ability to generate profits from the assets it owns.

Diversification and Market Value

Bank income diversification allows institutions not only to rely on interest income from lending but also to generate revenue from fees, commissions, service charges, and other investments. This makes bank income more stable, reduces business risk, and enhances investor confidence. As a result, the market assigns higher valuations, reflected in an increase in Tobin's Q for banks with well-diversified income streams.

This study explains the relationship between bank diversification (NNII) and market value (Tobin's Q) through two theoretical perspectives: signaling theory and portfolio theory. According to signaling theory (Spence, 1973), banks that successfully diversify their income send positive signals to the market and investors, indicating sound risk management, stable growth prospects, and adaptability to market changes. Such positive signals are then rewarded by the market with higher valuations (Tobin's Q). Meanwhile, portfolio theory (Markowitz, 1952) posits that diversifying income sources reduces total risk and stabilizes revenue. In the banking context, income diversification (NNII) represents the application of portfolio theory to mitigate the risk of dependence on a single income source, such as interest income from loans.

Banks that diversify their income are generally valued more highly by the market. This theoretical perspective aligns with previous studies. For example, Baele et al. (2007) demonstrated that diversification positively influences market value in Europe, showing that higher levels of income diversification correspond to higher market valuations of banks in European capital markets. In India, Ghosh (2010) reinforced these findings, revealing that the effectiveness of diversification depends heavily on operational efficiency and economies of scale. Similarly, Sawada (2013) examined the impact of income diversification on market value using data from Japanese banks. Income diversification is typically measured by the proportion of non-interest income to total bank income. Alyousef et al. (2019) in Kuwait further supported these results, concluding that NNII and Tobin's Q are closely linked, with non-interest income playing a significant role in determining market valuation. On the other hand, Vo (2017) found that diversification had a negative impact on Tobin's Q in Vietnam, due to increased operational risks and business complexity.

H1: Bank income diversification has a significant positive effect on market value.

3. Research methods

This study employs a quantitative approach, which aims to test hypotheses based on numerical data. The analysis is conducted by examining the influence of independent

variables on dependent variables using statistical tools, thereby allowing objective conclusions to be drawn from the research results and discussion. This approach enables researchers to generalize the relationships among variables across a broader population. Nevertheless, the use of statistical methods must be accompanied by an understanding of the underlying assumptions and limitations, as well as accurate interpretation of the results (Sugiyono, 2017).

Table 1. Operational Definition

Variable	Indicator	Source	Measurement	reference
Market Value	Tobin's Q	Financial Reports and Stock Prices	Tobin's Q = (MVS +Debt) / Total Asset	Baele et al. (2007); Prima et al. (2016)
Diversification	<i>Net Interest Income</i> (NNII)	Bank Annual Profit and Loss Report	NNII = Non-Interest Income / Operating Income	Ghosh (2011); Shahu (2017)
Profitability	Return on Assets (ROA)	on Income Statement and Balance Sheet	ROA = Net Income / Total Asset	Chiou et al. (2014); Dzahabiyya et al. (2020)

This study uses a quantitative approach to assess the impact of revenue diversification on the market value of banks in Indonesia. The data analyzed are derived from the annual financial reports of eight banks listed on the Indonesia Stock Exchange (IDX) from 2015 to 2021. The sample was selected purposively, considering the completeness and consistency of the data throughout the observation period. To ensure robustness, the study employs panel data regression analysis, which allows for controlling both cross-sectional and time-series variations. This method provides more accurate estimates of the relationship between revenue diversification (NNII) and market value (Tobin's Q), while also incorporating profitability (ROA) as a control variable.

The research model for hypothesis testing is as follows:

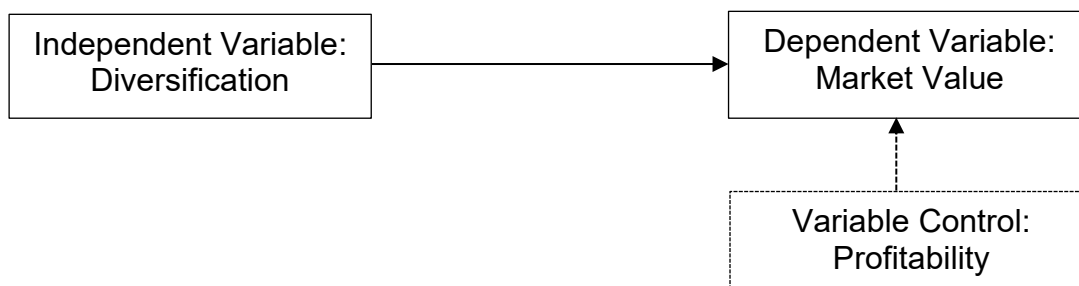


Figure 1. Research Model

The data analysis technique used in this study was multiple linear regression analysis, with the aim of determining the simultaneous and partial effects of independent variables on the dependent variable.

Analysis Model

The analysis model in this study is as follows:

$$\text{Tobin's } Q_{i,t} = \beta_0 + \beta_1 \text{NNII}_{i,t} + \beta_2 \text{ROA}_{i,t} + \varepsilon_{i,t}$$

Note:

$\text{Tobin's } Q_{i,t}$: Market Value Proxy of Company i in year t

$\text{NNII}_{i,t}$: Diversification of Company i in year t

$\text{ROA}_{i,t}$: Profitability of Company i's bank in year t

β_0 : Constanta

β_1, β_2 : Regression coefficient

$\varepsilon_{i,t}$: error term

4. Results and Discussion

4.1. Result

Statistical Description

This research results description provides a statistical description of the variables used in this study. Table 2 shows a description of the research variables, including the number of observations (N), minimum, maximum, mean, and the standard deviation of the variables used.

Table 2. Statistical Description of Research Variables

	N	Min	Max	Mean	Std. Dev
Tobin's Q	56	0,920	1,296	1,030	0,106
NNII	56	0,069	0,279	0,170	0,058
ROA	56	0,001	0,030	0,014	0,006

This study used 56 data obtained from financial reports listed on the Indonesia Stock Exchange from 2015-2021 for Indonesian banking. The dependent variable in this study used the Tobin's Q proxy to measure market value. The results in Table 2 show a minimum value of 0.920, indicating that there are companies whose total market value is lower than their asset value, indicating that the market considers the company to be less prospective or undervalued. Meanwhile, a maximum of 1.296 indicates that there are companies whose market value is much higher than their asset value, indicating that the market is very optimistic about the company's prospects (overvalued or has large intangible assets). An average of 1.030 means that in general, the companies in the sample have a market value slightly higher than their asset value, indicating positive investor expectations regarding the company's performance or growth. The relatively small standard deviation (0.106) indicates that the variation in Tobin's Q values between companies in the sample.

The independent variable is diversification (NNII). NNII describes the proportion of non-interest income to the company's total income. A minimum value of 0.069 indicates that a company only obtains around 6.9% of its total income from non-interest sources, so the bank is still highly dependent on interest income. The maximum value in this study is 0.279, which means that there are companies that are able to obtain up to 27.9% of their income from non-interest sources, indicating a higher level of bank

diversification. The average of 0.170 indicates that around 17% of the company's income comes from non-interest sources. This shows a trend that banks are starting to diversify their income, although the majority of income still comes from interest. The standard deviation value of 0.058 indicates that the data distribution, namely diversification (NNII), is quite narrow.

ROA measures a company's profitability based on its assets. In this study, a minimum value of 0.001 indicates that some banks have very low profitability, generating only 0.1% of their total assets in net profit. A maximum value of 0.030 indicates that some banks are able to generate up to 3% of their total assets in net profit, indicating high efficiency and profitability. An average of 0.014 indicates that companies are generally only able to generate around 1.4% of their total assets in net profit, indicating that the profitability of the banks in the sample is still relatively low, but relatively stable across banks. A standard deviation of 0.006 indicates that the variation in profitability (ROA) between companies is also relatively small, so that most banks have almost the same level of profitability.

Multiple Linear Regression Analysis

Based on the Multiple Linear Regression Table 3, the following are the results of the analysis and hypothesis testing of the multiple linear regression model using the dependent variable is Tobin's Q (market value), while the independent variables are NNII and control profitability (ROA).

Table 3. Results of Multiple Linear Regression Analysis

Variable	Coefficients	Sig t.
<i>(Constant)</i>	0.807	(0.000)
NNII	0.450	(0.017)**
ROA	9.912	(0.000)***
F	39.156	
<i>R-Square</i>	0.596	
N	56	

Dependent Variable: Tobin's Q, ***, **, *: Significant on α 1%, 5%, 10%

Based on Table 3, the constant value (Constant) of 0.807 with a significance level of 0.000 in the results of the multiple linear regression analysis indicates that if the values of the independent variables, namely Bank Diversification (NNII) and Profitability (ROA) are considered equal to zero, then the expected Tobin's Q value is 0.807. A significance level of 1% ($\alpha = 0.01$) indicates that this constant value is statistically significantly different from zero. In other words, even though there is no contribution from Bank Diversification (NNII) or Profitability (ROA), the model still predicts a baseline Tobin's Q value of 0.807 in the sample companies, which reflects other factors outside the model that also affect the company's market value. Tobin's Q is an important indicator for measuring Market Value. From the data above, it can be concluded that the majority of companies in the sample have a market value slightly higher than the value of their assets, which reflects market optimism about the prospects of these companies.

The Effect of Bank Diversification on Market Value with a coefficient value of 0.450. The Significance Value is 0.017, meaning a significance level of 5% ($\alpha = 0.05$). The results of this study show that bank diversification has a positive and significant effect on Market Value. This means that the greater the proportion of non-interest income (the higher the diversification of bank income), the greater the Market Value (Tobin's Q). This occurs because income diversification can improve the stability and growth prospects of banks, so they are valued higher by the market. Bank diversification is important for banks to reduce the risk of dependence on interest income, especially amidst interest rate fluctuations and competition in the banking industry. High bank diversification (NNII) reflects the innovation of bank products and services.

The Effect of Profitability (ROA) on Market Value (Tobin's Q). The coefficient value is 9.912 and the significance value is 0.000, meaning a significance level of 1% ($\alpha = 0.01$). Profitability (ROA) has a positive and highly significant effect on Market Value (Tobin's Q). This means that the higher a bank's profitability, the higher its market value. This is logical, because banks that are efficient in generating profits from their assets will be more valued by investors and the market. A high ROA indicates that a bank is able to manage its assets well to generate profits. Conversely, a low ROA may indicate efficiency or profitability problems.

The R-Square value of 0.596 means that 59.6% of the variation in Tobin's Q value can be explained by variations in bank diversification (NNII) and profitability (ROA). This means that the multiple regression model used in this study has a fairly good ability to explain changes in market value (Tobin's Q) based on changes in bank diversification (NNII or Net Non-Interest Income) and profitability (ROA or Return on Assets) variables.

The F value of 39.156 indicates that the regression model used as a whole is significant and suitable for use in predicting Tobin's Q. This high and significant F-count indicates that the independent variables Bank Diversification (NNII) and Profitability (ROA) have an influence on Tobin's Q, so that the multiple linear regression model built can be trusted for further analysis.

4.2. Discussion

Diversification on Market Value

Diversification measured by Net Non-Interest Income (NNII) shows a positive and significant effect on market value (Tobin's Q). This result supports hypothesis 1, namely that bank diversification measured by Net Non-Interest Income (NNII) shows a positive and significant effect on the market value of banking companies proxied by Tobin's Q. The results of this study are in line with the first theory, namely the signaling theory, which states that companies can send signals to the market through published financial information, such as financial reports and key performance indicators. In the context of this study, income diversification measured by Net Non-Interest Income (NNII) is one of the most important positive signals for investors. When a bank is able to increase the proportion of non-interest income in its total income, this signals to the market that the bank has good risk management capabilities, is more adaptive to

changes in the business environment, and does not depend on only one main source of income, namely interest income.

As explained in signaling theory, investors will respond positively to any information that indicates a company's future growth prospects and sustainability. High revenue diversification in a bank also indicates its ability to create revenue stability, thus better coping with economic volatility and interest rate fluctuations. Therefore, banks that successfully diversify their revenues will gain a higher level of investor trust, which is ultimately reflected in an increase in the company's market value, as measured by the Tobin's Q ratio.

The second theory is portfolio theory, which states that distributing revenue sources across various business lines will reduce the total risk faced by a bank. If one revenue source declines, other sources can cover the shortfall, thus stabilizing the bank's overall revenue. This is reflected in the research results, which show that NNII has a positive and significant effect on market value (Tobin's Q). In other words, the more diversified a bank's revenue, the higher its market value, as perceived by investors.

Banks that effectively diversify their revenues tend to achieve higher market valuations. This is consistent with findings in the academic literature showing a positive relationship between revenue diversification and bank market value. For example, Baele et al. (2007) showed that in the European banking market, higher levels of revenue diversification significantly contributed to increased bank market value. This research indicates that the capital market places greater value on banks that successfully reduce their reliance on interest income through non-interest income sources.

Similar findings were also obtained in the Asian banking context. Ghosh (2011) emphasized that the effectiveness of revenue diversification is highly dependent on a bank's operational efficiency and economies of scale. In other words, diversification will provide optimal benefits if a bank is able to efficiently manage non-interest income sources and utilize adequate operational scale to reduce costs. Research by Sawada (2013), using data from Japanese banks, also supports this by measuring revenue diversification based on the proportion of non-interest income to total revenue. The results indicate that revenue diversification has a positive effect on a bank's market value, but this effect is influenced by factors such as cost structure and operational risk. Furthermore, a study by Alyousef et al. (2019) in Kuwait strengthens empirical evidence regarding the important role of non-interest income in determining bank market valuations. This study found that NNII has a positive and significant correlation with Tobin's Q, indicating that the market places a higher value on banks that successfully increase the contribution of non-interest income to their revenue structure.

Overall, these cross-country studies confirm that revenue diversification is not only a strategy for expanding revenue sources but also a crucial factor in increasing a bank's market value. However, the success of a diversification strategy depends heavily on the bank's ability to maintain operational efficiency and manage risks arising from non-interest activities. Therefore, bank management needs to simultaneously

consider both efficiency and risk management when designing a sustainable diversification strategy. The research confirms that banks that are able to diversify their revenues, particularly by increasing the contribution of non-interest income, are more highly valued by the market. Investors view such banks as institutions with better growth prospects and stronger financial resilience, making them more suitable investment options. Therefore, the results of this study not only conceptually support signaling theory but also align with empirical evidence in Indonesia demonstrating the importance of revenue diversification in increasing bank market value.

5. Conclusion

The results of this study indicate that revenue diversification, as measured by Net Non-Interest Income (NNII), and bank profitability, as measured by Return on Assets (ROA), have a positive and significant impact on bank market value, as represented by the Tobin's Q ratio. This finding indicates that a revenue diversification strategy can improve investor perceptions of bank valuation, especially when supported by efficient financial performance. The regression model used in this study was able to explain approximately 59.6% of the variation in market value, indicating fairly good predictive power of the independent variables and controls used. Thus, revenue diversification can be viewed as an effective strategy in strengthening banks' market position in Indonesia.

However, this study is limited by the limited sample size of eight banks during the 2015–2021 period. Further studies are recommended to expand the data coverage, add other variables such as bank size, Capital Adequacy Ratio (CAR), and Non-Performing Loan (NPL) ratio, and explore the differences between conventional and Islamic banks. Practically, the results of this study can serve as a reference for bank management in designing more diversified and sustainable revenue strategies. Furthermore, these findings are also relevant for regulators in formulating policies that support the stability and competitiveness of the national banking sector.

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