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Determinants of Bank Profitability: Evidence from Indonesian Conventional Banks

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ABSTRACT

Purpose: This study aims to examine the effect of fee-based income, Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), and firm size on profitability.

Method: This study employed a quantitative approach, targeting conventional commercial banks listed on the Indonesia Stock Exchange (IDX) from 2020 to 2024. The sample was determined through purposive sampling, resulting in 201 observations. Data analysis techniques used were SPSS version 26, which included descriptive statistical analysis, classical assumption testing, multiple linear regression analysis, and hypothesis testing.

Finding: The results show that fee-based income has no positive effect on profitability. Conversely, the Capital Adequacy Ratio (CAR) and firm size have a positive effect on profitability, indicating that capital adequacy and a larger asset scale can increase a bank's ability to generate profits. Meanwhile, Non-Performing Loan (NPL) have a negative effect on profitability, indicating that increased credit risk can reduce a bank's ability to generate profits.

Novelty: This study extends prior literature by examining profitability determinants in the post-pandemic period and by integrating fee-based income, Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), and firm size within a single empirical framework.

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INTRODUCTION

The Indonesian banking industry has undergone significant transformation in recent years, mainly due to the acceleration of digitalization that has changed customer transaction and interaction patterns. These changes have also affected the income structure and financial performance of banks. Profitability, which is generally measured using Return on Assets (ROA), has become a key indicator in assessing the effectiveness of banks in managing assets that are largely dominated by loans to generate profits. Indonesian Banking Statistics data shows that the ROA of conventional commercial banks has been on an upward trend during the 2020–2024 period, reflecting an improvement in the industry's overall performance.

Along with digital transformation, the contribution of fee-based income as a source of non-interest income has also increased significantly. Several large banks such as Bank Rakyat Indonesia, Bank Mandiri, Bank Central Asia, and Bank Negara Indonesia reported growth in non-interest income driven by the expansion of digital services and e-channel transactions (Mayasari, 2024). Based on Table 1, all four banks recorded positive growth in fee-based income in 2024, with BRI showing the highest growth compared to the other banks. This indicates that the optimization of digital services and increased customer transaction activity can strengthen the contribution of non-interest income within the banking revenue structure. This phenomenon reinforces the assumption that revenue diversification through fee-based income can be a key strategy in supporting financial performance and improving bank profitability.

Table 1
Growth of fee-based income of conventional commercial banks in Indonesia in 2024

Bank Name	Fee-based income (in trillion rupiah)	Growth YoY (%)
Bank Rakyat Indonesia (BRI)	17,15	10,3
Bank Mandiri	12,9	13
Bank Central Asia (BCA)	13,8	7
Bank Negara Indonesia (BNI)	5,23	2,8

Source: (Mayasari, 2024)

However, an increase in fee-based income is not always accompanied by an increase in ROA. Based on the data presented in Figure 1, although BRI and Bank Mandiri saw growth in fee-based income in 2024, the ROA of both banks actually declined compared to the previous year (Lotus Andalan Sekuritas, 2025). This condition shows that the relationship between fee-based income and profitability is not automatic, so further analysis is needed by considering other internal factors such as capital adequacy, credit risk, and firm size.

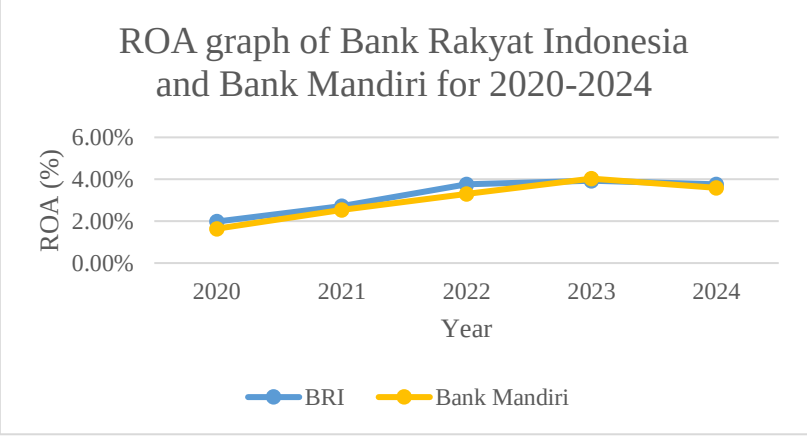


Figure 1 ROA graph of Bank Rakyat Indonesia and Bank Mandiri for 2020-2024

In explaining the determinants of banking profitability, several internal factors are of primary concern, one of which is income structure. Fee-based income (FBI) as a source of non-interest income is growing in line with the acceleration of banking service digitalization. Revenue diversification through FBI is expected to reduce dependence on interest income and increase profit stability. A number of studies have found that fee-based income contributes positively to profitability (Hidayat & Anabel, 2025; Rachma & Wardana, 2023; Arianti et al., 2022). However, other studies show insignificant results (Yaqinah & Wardana, 2022; Septyana et al., 2024), and there are even findings that show a different direction of the relationship (Ridwan et al., 2021; Galang et al., 2023). These differing findings indicate that the role of FBI in profitability is still not entirely consistent.

In addition to income structure, capital adequacy as reflected in the Capital Adequacy Ratio (CAR) is also an important factor in maintaining bank stability and performance. CAR indicates a bank's ability to absorb potential losses due to business risks. Theoretically, strong capital provides room for business expansion and increases market confidence. Several studies have found that CAR contributes positively to profitability (Pratama et al., 2025; Hananto & Amijaya, 2021), while other studies show different results (Permatasari & Andriani, 2020). This inconsistency indicates that the impact of capital on profitability can be influenced by the bank's operational conditions and strategies.

Another factor that is no less important is credit risk, which is proxied by Non-Performing Loan (NPL). High NPL rates reflect an increase in problem loans that have the potential to reduce profits through the creation of loss reserves. Most studies show that NPL are associated with a decline in profitability (Permatasari & Andriani, 2020; Chandrawati et al., 2021), although there are also findings that show an insignificant relationship (Rahmawati et al., 2021). This shows that the effectiveness of credit risk management also determines its impact on financial performance.

Furthermore, firm size is also considered a determinant of profitability. The phenomenon shown in Figure 1 where an increase in fee-based income (FBI) is not always accompanied by an increase in ROA suggests that banks' ability to manage non-interest income varies. This indicates that higher non-interest income does not automatically translate into better financial performance, suggesting the presence of other influencing factors. One potential factor is firm size. Bank with larger assets tend to have greater capacity to develop fee-based services, particularly through investments in digital technology, as well as the ability to manage operating costs more efficiently. Thus, firm size has the potential to influence the effectiveness of FBI growth in driving bank profitability. A number of studies have found that firm size contributes positively to profitability (Pratama et al., 2025; Hananto & Amijaya, 2021). However, there are also studies that show that firm size is not always the main determinant of profit performance (Syafi'i & Haryono, 2021).

Based on these empirical findings, it appears that research on the determinants of banking profitability still shows inconsistencies. Therefore, this study integrates fee-based income, capital adequacy ratio, non-performing loan, and firm size into a single empirical model to gain a more comprehensive understanding of the factors that affect the profitability of conventional commercial banks in Indonesia.

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Agency Theory

Agency theory is an important theory in modern finance and management that explains the contractual relationship between the party who grants authority (principal) and the party who receives authority to carry out certain activities (agent). Jensen & Meckling (1976) as the main originators of this theory stated that an agency relationship occurs when one or more individuals called principals give authority to another individual called an agent to make decisions or carry out tasks on behalf of the principal. Agency theory is used to understand how managers' behaviour in

managing a company can be influenced by the contract structure and incentives provided by the owner (Godfrey et al., 2010).

According to Brigham & Houston (2019), agency theory is based on the assumption that managers, as agents, have personal goals such as job security, compensation, and reputational interests, which sometimes align with the owner's goal of maximizing company value. These differing goals give rise to agency problems, where managers do not always act in the best interests of the owners. To mitigate these conflicts and information imbalances, control mechanisms such as oversight, incentives, and the use of financial performance indicators that can monitor managers' actions are necessary (Godfrey et al., 2010).

In the banking context, agency theory can be used to explain how bank management (agents) manages various sources of income, including fee-based income, and how this can affect performance or profitability, which ultimately becomes the concern of the owners (principals). Agency theory explains that every manager's decision in banking, such as credit management, risk management, revenue diversification, or capital structure, can reflect the extent to which the manager's interests align with the owner's goals.

Profitability

Profitability is a company's ability to generate profit from its operational activities over a specific period. According to Kieso et al. (2014),profitability is a ratio that measures the success of a company's operations over a specific period. Mardiyanto (2009) states that profitability measures a company's ability to generate profit, while Sutrisno (2009) defines profitability as a company's ability to generate profit with all the capital used.

Return on Assets (ROA) is used as a profitability indicator in this study because it shows the effectiveness of management in using assets to generate income (Saputra & Angriani, 2023). In the banking industry, the largest assets generally come from loans disbursed to the public, which are also the main source of income through interest. Therefore, the effectiveness of managing productive assets, particularly loans, greatly determines a bank's profit level. In Indonesia, the Otoritas Jasa Keuangan (OJK) uses ROA as a key indicator because it reflects the efficiency of bank asset management. The higher the ROA value, the higher the profit earned by the bank and the better the bank's position in utilizing its assets (Dendawijaya, 2001).

Fee-Based Income

According to Kasmir (2004), FBI is the profit earned by banks from service activities other than core banking activities, such as provisions, commissions, and other banking services. Currently, many banks are beginning to rely on fee-based income as an alternative source of profit because income from loan interest is increasingly challenging to increase due to various external factors. Fee-based income comes from banking services and services other than core banking activities such as lending, thereby reducing banks' dependence on interest income while strengthening the stability and diversification of bank income (Kasmir, 2004).

For principals, an increase in fee-based income indicates that managers are able to diversify revenue and reduce dependence on credit activities. This means that agents are acting in the interests of owners, namely maintaining profit stability and reducing potential losses. If managers improve digital services and modern transactions, banks can achieve more efficient revenues and lower operating costs. Several previous studies also support this idea. For example, studies by Arianti et al. (2022) and Hidayat & Anabel (2025) found that digital banking services increase non-interest income and have a direct impact on ROA.

H_1: Fee-based income has a positive effect on profitability.

Capital Adequacy Ratio (CAR)

The Capital Adequacy Ratio (CAR) is an important indicator used to assess the adequacy of a bank's capital in covering risks arising from its operational activities, such as credit risk and other risks. According to Dendawijaya (2001), CAR is a ratio that measures the extent to which a bank's capital can support risk-bearing assets, such as loans. In Indonesia, in accordance with Bank Indonesia Regulation Number 15/12/PBI/2013, the minimum CAR standard that must be met is 8% (Otoritas Jasa Keuangan, 2016). In practice, large banks generally maintain their CAR above this limit to provide a sense of security to investors and customers, as well as to maintain the overall financial stability of the bank.

From an agency theory perspective, strong capital acts as a control mechanism over managers' actions. If a bank has a high CAR, managers have greater flexibility in expanding credit or making investments without excessively increasing risk. Strong capital also indicates that managers are exercising prudential principles as expected by the principal. Banks with high CAR tend to gain greater trust from stakeholders, have easier access to funding sources, and have a better ability to bear operational losses. These conditions help banks increase their profitability. Similarly, Pratama et al. (2025) found that CAR has a positive effect on ROA in banks, indicating that banks with strong capital are able to carry out intermediation more optimally.

H_2: Capital Adequacy Ratio (CAR) has a positive effect on profitability.

Non-Performing Loan (NPL)

According to Kasmir (2004), the non-performing loan ratio is a ratio used to measure credit risk against total loans disbursed by comparing the amount of bad debts with total loans granted. Liyana & Indrayani (2020) state that NPL reflects the credit risk faced by companies, namely the possibility of losses due to difficulties in loan repayment. Meanwhile, Rizal & Taufiq (2020) mention that NPL is the main indicator used to assess credit quality by looking at the ratio between non-performing loan and total existing loans. The Otoritas Jasa Keuangan (OJK) has set a maximum gross NPL limit of 5% as a safe standard for bank health to maintain stability and public confidence in the banking system.

Non-performing loan indicate that agents did not adequately select and monitor loans. In theory, the higher the NPL, the greater the credit risk borne by the bank, thereby reducing profitability. Research by Permatasari & Andriani (2020) confirms that NPL has a negative effect on ROA in state-owned banks. Chandrawati et al. (2021) also found that credit risk is a major factor that suppresses bank profitability. These empirical results show that when managers are unable to control NPL, it can create agency problems because their actions threaten the interests of owners by reducing the bank's financial performance.

H_3: Non-performing loan (NPL) have a negative effect on profitability.

Firm Size

Firm size is defined as the size of a company, which is usually measured based on total assets, total sales, market capitalization, and number of employees (Effendi & Ulhaq, 2023). In the context of banking, the size of a bank is often measured by its total assets under management, as this reflects the bank's capacity for intermediation and its strength in carrying out operations. Brigham & Houston (2018) explain that larger companies tend to have broader access to capital markets and financial institutions. Larger banks generally have higher total assets, a wider network, better technological capabilities, and stronger public trust.

In agency theory, firm size is often considered a factor that strengthens monitoring of managers. The larger the bank, the greater the external and internal pressure for managers to act cautiously and professionally, thereby reducing agency problems. Economically, large banks usually benefit from economies of scale, namely increased efficiency in operating costs due to their extensive business coverage. This condition enables banks to generate greater profits. Research by

Pratama et al. (2025) shows that firm size has a positive effect on ROA in conventional banks. This indicates that large banks have a better ability to optimize assets and generate income.

H_4: Firm size has a positive effect on profitability.

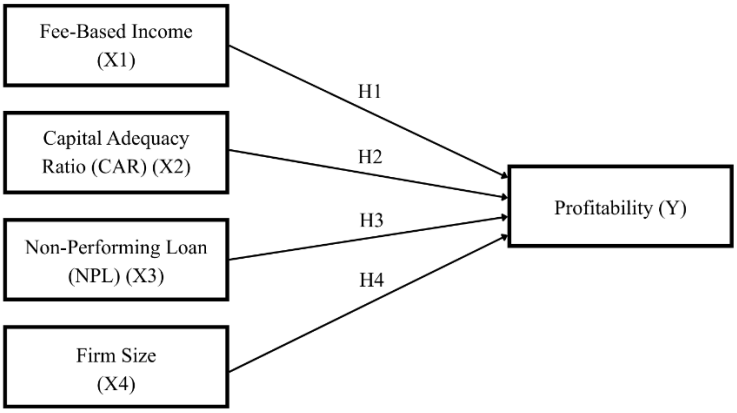


Figure 2 Conceptual Framework

RESEARCH METHODOLOGY

This study uses a quantitative method with a causal approach. The data analysis technique used is multiple linear regression with the help of SPSS version 26. The population in this study is all conventional commercial banks listed on the Indonesia Stock Exchange (IDX) during the period 2020 to 2024. Sampling in this study was conducted using purposive sampling. According to Sugiyono (2013), purposive sampling is a sampling technique based on specific considerations by the researcher. The following are the sampling criteria in this study.

Table 2
Sampling Criteria

No.	Sample Criteria	2020	2021	2022	2023	2024
1.	Population: Conventional commercial banks listed on the IDX for the period 2020-2024	42	43	43	43	43
2.	Conventional commercial banks that did not publish complete annual financial reports during the 2020-2024 period	0	0	0	0	0
Number of banks meeting the criteria (per year)		42	43	43	43	43
Outliers		(1)	(4)	(3)	(3)	(2)
Number of research samples (per year)		41	39	40	40	41
Number of samples in the 5-year study		201				

Source: data processed by researchers, 2026

Based on Table 2 regarding sampling criteria, it can be seen that the final number of observations used in this study is 201 observations. The data used in this study is secondary data from the annual financial reports of banks listed on the Indonesia Stock Exchange (IDX) for 2020-2024. The annual financial report data was obtained through the official website of the Indonesia Stock Exchange (www.idx.co.id) and the official websites of each bank. The variable measurements used in this study are as follows.

Table 3
Variable Measurement

No.	Variable Name	Measurement	References
1.	Profitability	ROA = $\frac{Net\ Profit}{Total\ Assets} \times 100\%$	(Dendawijaya, 2001)
2.	Fee-based income	FBI Ratio = $\frac{Fee-Based\ Income}{Operating\ Income} \times 100\%$	(Hidayat & Anabel, 2025)
3.	Capital Adequacy Ratio	CAR = $\frac{Capital}{ATMR} \times 100\%$	(Dendawijaya, 2001)
4.	Non-Performing Loan	NPL = $\frac{Non-Performing\ Loan}{Total\ Credit} \times 100\%$	(Kasmir, 2004)
5.	Firm Size	SIZE = Ln(Total Assets)	(Brigham & Houston, 2018)

Source: data processed by researchers, 2026

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

According to Sugiyono (2013), descriptive statistics are statistics used to analyze data by describing or depicting the collected data as it is, without intending to make conclusions that apply to the general public or generalizations.

Table 4
Descriptive Statistical Test Results

Descriptive Statistics

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Y_ROA	201	-.06	.04	.0079	.01378
X1_FBI	201	.00	.98	.1117	.10749
X2_CAR	201	.09	2.84	.3716	.31634
X3_NPL	201	.00	.22	.0308	.02641
X4_SIZE	201	14.18	21.61	17.7690	1.71575
Valid N (*listwise*)	201				

Source: data processed by researchers, 2026

Based on 201 observations of conventional commercial banks on the IDX, descriptive statistics in table 4 show that ROA and FBI have relatively high data variation, CAR reflects a generally good level of capital with reasonable variation, NPL shows low dispersion and tends to be homogeneous, while firm size is relatively diverse but remains within controlled limits. The minimum ROA value of -0.06 indicates that some banks in the sample incurred losses during the observation period. This situation reflects the lingering effects of the pandemic, such as rising operating costs and credit risk, and suggests significant performance variation among banks. Overall, the descriptive statistics reveal substantial variation across all variables, indicating heterogeneous financial conditions among the sampled banks throughout the observation period.

Classical Assumption Test

Normality Test

A normality test is conducted to test whether the residuals in the regression model are normally distributed.

Table 5
Normality Test Results

One-Sample Kolmogorov-Smirnov Test			
			Unstandardized Residual
N			201
Normal Parameters[a,b]	*Mean*		.0000000
	Std. Deviation		.00916871
Most Extreme Differences	*Absolute*		.066
	Positive		.066
	Negative		-.059
Test Statistic			.066
Asymp. Sig. (2-tailed)			.032[c]
Monte Carlo Sig. (2-tailed)	*Sig.*		.328[d]
	99% Confidence Interval	*Lower Bound*	.316
		Upper Bound	.340

Source: data processed by researchers, 2026

Based on the table 5, the normality test results after outliers show a Monte Carlo Sig. (2-tailed) value of 0.328, which is greater than the significance value of 0.05. Thus, it can be concluded that the residuals are normally distributed.

Multicollinearity Test

The multicollinearity test aims to determine whether or not there is a linear relationship between the independent variables in the regression model.

Table 6
Multicollinearity Test Results

Coefficients[a]								
		Unstandardized Coefficients		*Standardized Coefficients*			*Collinearity Statistics*	
Model		*B*	*Std. Error*	*Beta*	t	*Sig.*	*Tolerance*	*VIF*
1	(Constant)	-.061	.009		-7.062	.000		
	X1_FBI	-.014	.006	-.105	-2.151	.033	.941	1.062
	X2_CAR	.015	.002	.345	6.265	.000	.746	1.340
	X3_NPL	-.254	.026	-.488	-9.951	.000	.941	1.063
	X4_SIZE	.004	.000	.510	9.082	.000	.716	1.397

a. *Dependent Variable*: Y_ROA

Source: data processed by researchers, 2026

Table 6 show that all independent variables in this study have a tolerance value > 0.10 and a VIF value < 10, so it can be concluded that in this regression model there are no symptoms of multicollinearity between independent variables.

Heteroscedasticity Test

The heteroscedasticity test aims to detect whether there are differences in the residual variance from one observation to another in the regression model.

Table 7
Heteroscedasticity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-8.416	2.543		-3.309	.001
	X1_FBI	.335	1.844	.013	.182	.856
	X2_CAR	.813	.704	.094	1.156	.249
	X3_NPL	.361	7.507	.003	.048	.962
	X4_SIZE	-.164	.132	-.103	-1.235	.218

a. Dependent Variable: LN_RES

Source: data processed by researchers, 2026

Based on the results of the heteroscedasticity test using Park method in table 7, the significance value of all independent variables is greater than 0.05. Thus, it can be concluded that there is no heteroscedasticity in this regression model.

Autocorrelation Test

The autocorrelation test aims to detect the existence of a relationship or correlation between residuals in the current time period and residuals in the previous time period.

Table 8
Autocorrelation Test Results

Model Summary[b]

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Durbin-Watson
1	.747[a]	.557	.548	.00926	1.926

a. Predictors: (Constant), X4_SIZE, X1_FBI, X3_NPL, X2_CAR

b. Dependent Variable: Y_ROA

Source: data processed by researchers, 2026

Based on the table 8, the DW value is 1.926. When compared to the table value, we obtain 1.79901 < 1.926 < 2.20099 (dU < DW < 4-dU). This means that the autocorrelation test results show that the DW value meets the criteria, indicating the absence of positive or negative autocorrelation.

Multiple Linear Regression Analysis

Multiple linear regression testing was conducted using multiple linear regression equations.

Table 9
Multiple Linear Regression Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.061	.009		-7.062	.000
	X1_FBI	-.014	.006	-.105	-2.151	.033
	X2_CAR	.015	.002	.345	6.265	.000
	X3_NPL	-.254	.026	-.488	-9.951	.000
	X4_SIZE	.004	.000	.510	9.082	.000

a. Dependent Variable: Y_ROA

Source: data processed by researchers, 2026

Based on the table 9 of multiple linear regression test results above, it can be seen that the model equation in this study is as follows.

ROA = -0,061 – 0,014FBI + 0,015CAR – 0,254NPL+ 0,004SIZE

Hypothesis Test

F-test

According to Ghozali (2021), the F-test is used to test whether the regression model fits or not.

Table 10
F-test Results

ANOVA[a]

Model		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	*Regression*	.021	4	.005	61.689	.000[b]
	Residual	.017	196	.000		
	Total	.038	200			

a. *Dependent Variable*: Y_ROA

b. *Predictors*: (*Constant*), X4_SIZE, X1_FBI, X3_NPL, X2_CAR

Source: data processed by researchers, 2026

Based on the F-test results in the table 10, a significance value of 0.000 was obtained, which is smaller than the significance level of 0.05. This indicates that the regression model used in this study fits and is suitable for use.

Determination Coefficient Test

The determination coefficient test is used to measure the extent to which independent variables can explain the variation in dependent variables.

Table 11
Determination Coefficient Test Results

Model Summary

Model	*R*	*R Square*	*Adjusted Square*	*RStd. Error of the Estimate*
1	.747[a]	.557	.548	.00926

a. *Predictors*: (*Constant*), X4_SIZE, X1_FBI, X3_NPL, X2_CAR

Source: data processed by researchers, 2026

The results of the coefficient of determination test presented in Table 11 show that the number of adjusted R Square (R^2) value is 0.548. This indicates that 54.8% of the variation in Return on Assets can be explained by the variables FBI, CAR, NPL, and size together. Meanwhile, the remaining 45.2% is explained by other variables outside this research model.

t-test

The t-test is used to measure the extent to which each independent variable affects the dependent variable individually. Based on the results of the partial tests (t-tests) presented in Table 9, fee-based income has a negative and significant effect on profitability, with a significance value of 0.033. Meanwhile, the Capital Adequacy Ratio (CAR) has a positive and significant effect on profitability, with a significance value of 0.000. Non-Performing Loan (NPL) were found to have a negative and significant effect on profitability, with a significance value of 0.000. Additionally, firm size also showed a positive and significant effect on profitability, with a significance value of 0.000.

Discussion

The Effect of Fee-Based Income on Profitability

Based on the results of the research conducted, the hypothesis stating that fee-based income has a positive effect on bank profitability is not supported. This indicates a negative impact, meaning

that the increase in fee-based revenue has not yet been able to optimally improve the bank's profitability. From an agency theory perspective, an increase in fee-based income may reflect management's efforts to expand banking services as a revenue diversification strategy. However, in practice, this strategy is often accompanied by increased operating costs, service product marketing, and human resource costs. Banks incur significant costs to promote or provide fee-based services, but these costs are not offset by significant fee income. If management is not optimal in controlling these costs, then the increase in FBI is not fully translated into an increase in profits, causing ROA to decline.

In addition, descriptive statistics show that several banks have negative minimum ROA values. This indicates that these banks suffered losses during the research period because the profits generated were unable to cover the total assets managed. In these circumstances, even though the banks had fee-based income, their contribution to profits was not sufficient to cover the operational costs and business risks faced. As a result, the increase in FBI has not been able to significantly improve profitability as measured by ROA, so that the research hypothesis related to FBI is not supported. However, the results of this study are in line with the research by Ridwan et al. (2021) and Galang et al. (2023), which found that fee based income does not always increase profitability if it is not balanced with cost efficiency.

The Effect of Capital Adequacy Ratio on Profitability

The results show that the Capital Adequacy Ratio (CAR) has a positive and significant effect on a bank's Return on Assets (ROA). In agency theory, capital acts as a control mechanism for management behaviour. A high level of capital adequacy reflects management's commitment to maintaining the stability and sustainability of the company, thereby reducing the risk of decision-making for personal gain.

Management that is able to maintain a CAR at an adequate level indicates that agents are performing their company management functions in accordance with the interests of the owners. These findings support the agency theory and research hypothesis which states that capital adequacy has a positive effect on the profitability of conventional commercial banks. These findings are in line with previous studies conducted by Pratama et al. (2025) and Hananto & Amijaya (2021). These studies also found that CAR has a significant positive effect on bank profitability.

The Effect of Non-Performing Loan on Profitability

The results of the study show that non-performing loan (NPL) have a negative effect on the return on assets (ROA) of conventional commercial banks. From an agency theory perspective, high NPL levels may reflect weak supervision of management decisions in lending. As a result, an increase in non-performing loan lowers the quality of the bank's assets and profits, which is reflected in a decline in ROA. The results of this study are in line with agency theory and support the research hypothesis that NPL have a negative effect on the profitability of conventional commercial banks. This finding is consistent with several previous studies, such as those conducted by Permatasari & Andriani (2020) and Chandrawati et al. (2021).

The Effect of Firm Size on Profitability

Based on research that has been conducted, it can be seen that firm size has a positive and significant effect on Return on Assets (ROA). In agency theory, larger companies generally have stronger monitoring mechanisms, such as more formal organizational structures, internal control systems, and supervision from regulators and other stakeholders. With tighter supervision, management is encouraged to manage company assets more efficiently in accordance with the interests of the owners. This has an impact on improving financial performance as reflected in ROA. Therefore, firm size can serve as a mechanism to reduce agency conflicts. The results of this study are in line with agency theory and support the research hypothesis which states that firm size has

a positive effect on the profitability of conventional commercial banks. These findings are consistent with previous research conducted by Pratama et al. (2025).

CONCLUSION AND RECOMMENDATIONS

This study examines the effects of fee-based income (FBI), the Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), and firm size on bank profitability, as measured by Return on Assets (ROA). The results indicate that FBI does not have a positive effect on ROA, suggesting that an increase in non-interest income does not automatically improve profitability. Meanwhile, CAR and firm size have a positive effect on ROA, meaning that strong capitalization and a large asset base can enhance a bank's ability to generate profits. Conversely, NPL has a negative effect on ROA, suggesting that rising credit risk can suppress profitability. These findings suggest that banking profitability is determined more by fundamental strength than by revenue diversification alone. Therefore, strategies to improve bank performance must be balanced with cost management, capital strengthening, and credit risk control to ensure an optimal impact on profitability.

This study has several limitations that should be noted. First, this study uses only the FBI, CAR, NPL, and firm size variables to explain bank profitability; thus, there are other factors that could potentially influence ROA. Second, this study employs a quantitative approach and therefore cannot provide an in-depth analysis of managerial aspects and agency behaviour that may affect banking financial performance.

Given these limitations, future research is advised to include additional variables such as Good Corporate Governance, operational efficiency, or liquidity risk, and to employ a longer observation period to yield more comprehensive results. Additionally, a qualitative approach could be considered to explore managerial aspects and potential agency conflicts within the banking industry in greater depth. From a practical perspective, bank management needs to ensure that growth in fee-based income (FBI) is balanced by efficient management of operating costs, particularly in the context of digital transformation. This can be achieved by optimizing the use of digital services to increase the volume of fee-based transactions, as well as by continuously controlling technology development and maintenance costs. Thus, the increase in FBI is expected to contribute optimally to profitability without causing excessive cost pressure. In addition, bank management needs to improve operational efficiency and strengthen credit risk management and capital adequacy to support sustainable profitability growth.

DECLARATION OF ARTIFICIAL INTELLIGENCE USAGE

During the preparation of this manuscript, the authors used DeepL Translator for text translation. All AI-generated outputs have been independently reviewed, edited, and verified by the authors, and the authors hold full responsibility for the content of the final manuscript.

CONFLICT OF INTEREST

We declare that there are no conflicts of interest regarding the research, authorship, or publication of this article.

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