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The Influence of Financial Technology (Fintech) on the Profitability of Banks Listed on the Indonesian Stock Exchange in the Period 2020 – 2023

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ABSTRACT

The author's objective in conducting this research is to analyze the influence of financial technology (FINTECH) on the profitability of banks listed on the Indonesia Stock Exchange for the 2020-2023 period. The author employed a quantitative method in conducting this research, utilizing secondary data from financial reports published by the Indonesia Stock Exchange. The sample for this study comprised eight banking companies over 4 years, selected purposively. The results of this study indicate that financial technology (FINTECH), as measured by e-banking, affects return on assets (ROA). This is because e-banking can reduce average operating and physical overhead costs for banks. Therefore, the availability of electronic banking services positively impacts bank profitability (return on assets). Financial technology (FINTECH), as indicated by e-banking, also affects the net interest margin (NIM) by reducing reliance on physical services (such as tellers and branches), thereby lowering bank operating costs. With lower operating costs, banks can maintain or increase profit margins from interest differentials. The ease of access and convenience of e-banking services encourage customers to hold their funds longer, thereby increasing third-party funds (TPF). This provides banks with a low-cost source of funds, reducing interest costs and positively impacting net interest income (NIM). However, this does not affect return on Equity (ROE) because e-banking cannot yet deliver the operational efficiencies of digital services and does not directly increase net income in proportion to Equity. This study contributes to the literature by identifying differences in the effects of e-banking across various dimensions of bank profitability and by revealing its limitations in increasing ROE, thereby highlighting an important gap for further research on more comprehensive fintech integration.

Keywords: Financial Technology (FINTECH), Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM).

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INTRODUCTION

The rapid development of information technology has had a significant impact on various sectors, including the financial industry. One of the most significant innovations in this sector is the emergence of financial technology (fintech). Fintech combines digital technology with financial services, creating a variety of products and services that are faster, more efficient, and more accessible to the broader public. The development of fintech in Indonesia is a noteworthy phenomenon, given the increasing level of internet penetration and smartphone usage. The rapid development of Fintech is evident in its widespread application across sectors such as payments startups, loans, financial planning, retail investment, crowdfunding, financial research, digital banking, and digital payments, among others. The concept of Fintech integrates technological advances with the financial sector within banking institutions, thereby simplifying and streamlining financial transactions.

According to Yuliani (2018), disruptive technological advances have impacted nearly every aspect of life. This is increasingly evident in the era of Industrial Revolution 4.0, where various technology-based innovations continue to emerge at an unstoppable pace, including in the financial sector, now known as Fintech. The implementation of Financial Technology aims to improve operational efficiency and the quality of banking services provided to customers. This aligns with the increasing public demand for online-based financial services and the use of the internet to access digital data. In accordance with Bank Indonesia Regulation No. 19/12/PBI/2017, technological and information system developments continue to yield various innovations, particularly in meeting the public's need for financial services and transaction processing.

Financial Technology is supported by a formal legal framework through the Financial Services Authority Regulation (POJK) No. 13/POJK.02/2018, which governs digital financial innovation in the financial services industry. This regulation was established to respond to the fast growth of fintech and to ensure that digital financial innovations develop in a secure, accountable, consumer-centered, and risk-controlled manner. However, the ease provided by fintech also brings challenges to the banking sector. Unlike fintech platforms, banks apply stricter requirements and more complex administrative procedures in their lending processes, leading many people to prefer fintech services. In addition, the ongoing digital transformation in banking may compress profit margins and, in the long run, affect overall bank profitability.

Previous research conducted by Batubara (2023) entitled "The Influence of Financial Technology (Fintech) on Bank Profitability: A Comparative Study of Bank Mandiri, Bank BNI, and Bank BCA for the 2018–2022 Period" showed that at Bank Mandiri, ROA, ROE, and BOPO variables had a negative and insignificant effect, while NIM had a negative and significant effect after collaborating with fintech startups. At Bank Negara Indonesia (BNI), the ROA, ROE, and NIM variables had adverse and significant effects, while BOPO had a positive but insignificant effect. Meanwhile, at Bank BCA, ROA and NIM variables had a negative and significant effect, while ROE and BOPO had a negative but insignificant effect. These findings indicate that collaboration between banks and fintech companies has not yet had a significant positive impact on bank profitability in the short term. The adverse and insignificant effects on most profitability variables indicate that the process of adapting to financial technology still faces challenges, such as high technology implementation costs, operational system adjustments, and changes in customer behaviour. However, in the long term, fintech integration has the potential to increase efficiency and expand access to banking services if collaboration strategies and digital innovation are optimized sustainably.

Digitalization in the banking sector can reduce profit margins, ultimately impacting bank profitability. The mechanism by which fintech impacts profitability can be explained through several theoretical perspectives. First, the substitution hypothesis suggests that fintech functions as a direct competitor, reducing banks' interest income through profit-margin compression, particularly in consumer and small- and medium-sized-enterprise lending segments. Fintechs possess competitive

advantages in the form of lower operating costs, minimal capital requirements, and regulatory flexibility, enabling them to offer more competitive interest rates. Second, from the perspective of Disruptive Innovation Theory, fintech represents a disruptive innovation that enters the market at the lower end with simpler and cheaper offerings, leaving traditional banks facing an innovator's dilemma. These competitive dynamics put pressure on banks' profit margins as they must compete with competitors with more efficient business models. Third, adopting fintech technology requires significant capital investments in digital infrastructure and human resource development. In the short term, these investment costs outweigh the efficiency gains, resulting in lower profitability. The Resource-Based View perspective suggests that fintechs possess unique resources in the form of technological expertise and organizational agility that create sustainable competitive advantages. Traditional banks that cannot effectively integrate fintech capabilities will experience declining profitability due to their inability to compete on innovation and cost efficiency.

LITERATURE REVIEW

Financial Technology

Bank Indonesia defines fintech as the integration of technology into financial services that transforms the way business activities are conducted. Suppose transactions such as lending and payments once required direct, in-person contact. In that case, fintech has removed this limitation by enabling users to perform them remotely, at any time and from any location. Fintech is a modern digital technology platform that serves as a secure, practical financial link (Aaron, M., Rivadeneyra, F., and Sohal, 2017). Meanwhile, according to Rahardjo (2021), Fintech, or Financial Technology, is a technological advancement that enables new business models that facilitate and secure consumers' access to Financial services. Based on the differences in understanding explained, fintech is a financial innovation, platform, or application that provides simple, secure, and convenient financial services that can help the community and improve the economy. Fintech also plays a role in rapidly expanding the reach of financial services. Its role is similar to that of the financial industry, but fintech prioritises technology in every transaction, leading to more modern, secure, and practical financial transactions (Mawarni, 2021).

E-banking, or electronic banking, is part of fintech because it uses technology to conduct financial transactions digitally. It includes services (e.g., internet and mobile banking), which facilitate customer transactions. E-banking is a banking service conducted electronically, allowing customers to access their accounts and conduct transactions without visiting a physical bank. These services include internet, mobile, and SMS banking, all of which use technology to facilitate financial transactions. E-banking contributes to the efficiency and ease of access to financial services, which is the core of fintech. Through e-banking platforms, customers can conduct instant financial transactions, including transferring money, paying bills, and managing their accounts remotely. To ensure safety, these systems are equipped with multiple layers of protection, such as verification codes and encrypted data transmission. In addition, recent developments in e-banking have begun to incorporate modern technologies such as blockchain to improve the transparency and security of transactions.

Banking

A bank is an institution that plays a central role in facilitating the flow of money within an economy. Its primary responsibilities include receiving funds from the public, extending financing, and providing various payment methods. Historically, the word "bank" originated from the Italian term banca, meaning a bench or counter used for money transactions. Under Indonesian Law No. 7 of 1992 on Banking, a bank is a business entity with two primary functions: gathering public funds through deposits and redistributing those funds to society through credit or other financial services. All these activities aim to improve the community's economic welfare. Although economists and legal provisions have provided definitions of banks with varying approaches and language, these definitions ultimately reflect the same understanding of banks' functions and roles in the economy.

The definition or understanding of a bank, according to the book "Banks and Other Financial Institutions" (S. E. Kasmir, 2018), is as follows: "Banks are known as financial institutions whose primary activities include accepting checking, savings, and time deposits. They are also known as a place to borrow money (credit) for people who need it. Furthermore, banks are known as a place to exchange money, transfer money, or accept all kinds of payments and deposits, such as electricity, telephone, water, taxes, tuition, and other payments. Based on Law No. 10 of 1998, which revised Law No. 7 of 1992 on banking, the primary objective of the banking sector is to play an active role in national development. Through its activities, banking is expected to promote a more equitable distribution of income, accelerate economic progress, strengthen national stability, and ultimately enhance society's overall Well-being.

In essence, a bank serves as an intermediary that collects funds from the public and reallocates them as financing or credit for various needs. Beyond this fundamental role, a bank also performs a range of more specific and detailed functions within the financial system as stated by Y. Sri Susilo, Sigit Triandaru, and A. Totok Budi Santoso (2006), as follows: a) Agent of Trust: The primary basis of banking activities is trust, both in terms of collecting and distributing funds, b) Agent of Development: The smooth running of investment, distribution, and consumption activities are all part of the community's economic development and c) Agent of Service: In addition to collecting and distributing funds, banks also offer other banking services to the public, such as money transfers, safekeeping of valuables, etc. Bank funding sources are one of the ways banks raise funds to cover operating and management costs. Funds can be collected from within the company, external institutions, or the public. The choice of funding source will determine the amount of costs incurred. Therefore, the selection of funding sources must be done appropriately. According to Law No. 10 of 1998, these Funding sources are funds sourced from the bank itself (first-party funds), b. Funds sourced from other institutions (second-party funds), and c. Funds from the public (third-party funds).

Profitability

Profitability reflects the effectiveness of management decisions in running a company's operations, which can be measured through various profit ratios. High levels of profit demonstrate management's success in managing company resources. From a modern perspective, profitability is an organisation's ability to generate profits and encompasses three main components: gross profit, operating profit, and net profit. To exceed established profit targets, management needs to strategically increase revenue streams while simultaneously reducing all expenses associated with those revenue-generating activities. Profitability ratios serve as indicators of a company's ability to optimize its potential and assets to generate profits. These potential and assets encompass various operational aspects such as sales efficiency, cash management, capital structure, workforce availability, and geographic reach through its branch network. Profitability ratios are measured by comparing components of the financial statements, specifically the Income Statement and the Balance Sheet. They can be tracked over a long period of time to identify development trends.

The primary purpose of profitability analysis is to monitor and assess how a company's profitability evolves. By consistently and regularly implementing financial ratio analysis, management can more precisely identify strategies to improve performance and achieve a more optimal level of operational efficiency:

ROA (Return on Assets)

Return on Assets is a financial metric that measures a bank's ability to manage investment funds across all assets to generate profits. According to financial literature, ROA is considered the most significant profitability ratio. ROA is measured by dividing net profit after tax by total assets, then multiplying by 100 percent. This ratio indicates the proportion of assets contributing to net profit. Thus, ROA provides an overview of how effectively each rupiah of funds invested in total assets

generates net profit. It is measured simply by dividing net profit by total assets. ROA offers several strategic advantages for companies. First, when a company has implemented appropriate accounting standards, ROA analysis can comprehensively evaluate capital utilisation and is sensitive to various factors that affect the company's financial health. Second, ROA allows comparison with industry averages to identify a company's competitive position within the sector, which is a crucial component in developing a business strategy. Third, in addition to being useful as a control and performance-monitoring tool, ROA can also serve as a long-term financial planning instrument.

ROE (Return on Equity)

ROE is a ratio that measures a company's ability to generate profit after tax based on its total Equity. This ratio illustrates the level of return earned by shareholders on the capital they invest in the company (Kasmir, 2014). Return on Equity is calculated by dividing net profit after tax by total Equity. This ratio assesses a company's effectiveness in generating profits from investments recorded in shareholders' Equity and is often used to compare companies within the same industry. Typically, a high ROE indicates a company's ability to capitalize on investment opportunities effectively and manage costs efficiently. ROE is calculated by dividing net profit after tax by total Equity, then multiplying the result by 100%.

NIM (Net Interest Margin)

Net Interest Margin (NIM) is a financial ratio used to assess the net interest income earned by a financial institution, particularly a bank, relative to its earning assets. NIM serves as an indicator of bank profitability by showing how efficiently the bank generates interest income from its earning assets (Kasmir, 2018). It is calculated by dividing net interest income by total earning assets, then multiplying the result by 100%.

Previous Research

1. Putri Naiya Andayani Abdul Azis (2024) conducted a study titled "The Influence of Financial Technology (Fintech) on the Profitability of Islamic Commercial Banks in 2020-2023." The results of this study indicate that financial technology, as measured by electronic banking, has a positive effect on profitability (ROA), whereas financial technology, as measured by electronic money, does not.
2. Maya Alfira (2024) conducted a study titled "The Influence of e-Banking on the Financial Performance of State-Owned Banks Listed on the Indonesia Stock Exchange (IDX) in 2019-2023." Based on partial SPSS 26 output, the study found that e-Banking has a significant positive effect on the financial performance of state-owned banking companies in 2019-2023.
3. Azzahra Febi Nitya Usman (2024) conducted a study titled "The Influence of Financial Technology on the Profitability of Sharia Commercial Banks Registered with the Financial Services Authority for the 2018-2020 Period." The results showed that financial technology had a positive impact on company profitability. The perspective on profitability in Sharia Accounting considers that business profits are not only material gains but also non-material benefits, namely blessings.
4. M. Sayuti (2021) conducted a study titled "The Influence of Mobile Banking Use on the Profitability of Bank Aceh Syariah, Banda Aceh Operational Head Office." Based on several proposed hypotheses, the study concluded that mobile banking has an impact on financial profitability at Bank Aceh Syariah's operational head office in Banda Aceh. Further research recommendations include using variables such as lifestyle, hedonism, and prestige, or expanding the time period and number of respondents to obtain stronger results.
5. Batubara (2023) entitled "The Influence of Financial Technology (Fintech) on Bank Profitability: A Comparative Study of Bank Mandiri, Bank BNI, and Bank BCA for the 2018–2022 Period" showed that at Bank Mandiri, ROA, ROE, and BOPO variables had a negative and insignificant effect, while NIM had a negative and significant effect after collaborating with fintech startups. At Bank Negara Indonesia (BNI), the ROA, ROE, and NIM variables

have adverse and significant effects, while BOPO has a positive but insignificant effect. Meanwhile, at Bank BCA, ROA and NIM variables have a negative and significant effect, while ROE and BOPO have a negative but insignificant effect.

THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESIS

The author developed a conceptual framework to analyze the impact of Fintech on the profitability of banks listed on the Indonesia Stock Exchange during the 2020-2023 period. In this study, Fintech (eBanking) serves as the independent variable, while Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) serve as the dependent variables. Based on this description, the conceptual framework model applied in this study can be described as follows:

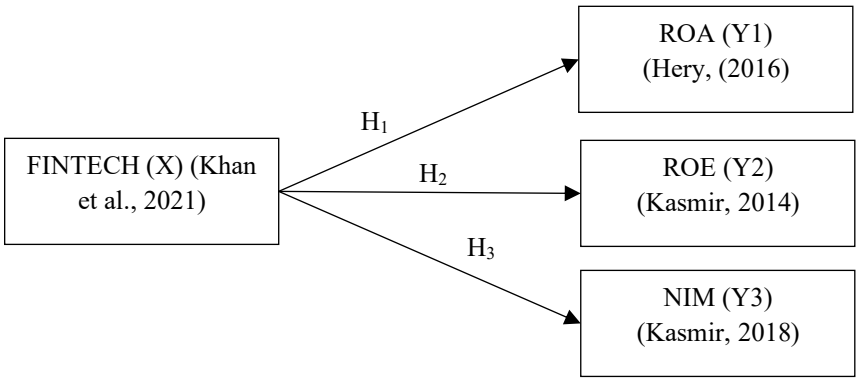

Figure 1 Theoretical Framework

Information :
FINTECH: Financial Technology using Electronic Banking indicators
ROA: Return On Assets
ROE: Return On Equity
NIM: Net Interest Margin

A hypothesis is a tentative conclusion regarding the relationship between two or more variables. This answer is tentative because it is based solely on theoretical foundations. Therefore, a hypothesis is a tentative assumption about a research problem that is tested for validity, allowing it to be accepted or rejected. It is tentative because the answer is based solely on relevant theory, not yet on empirical data collected (Sugiyono, 2017).

In this study, the hypothesis is formulated based on the problem statement, namely, to test whether FinTech has a significant influence on bank profitability during the 2020-2023 period. Therefore, the hypothesis in this study is:

H_1: Financial Technology (FINTECH) is suspected to influence Return on Assets (ROA) in Banking Companies listed on the Indonesia Stock Exchange for the 2020-2023 period.
H_2: Financial Technology (FINTECH) is suspected to influence Return on Equity (ROE) in Banking Companies listed on the Indonesia Stock Exchange for the 2020-2023 period.
H_3: Financial Technology (FINTECH) is suspected to influence Net Interest Margin (NIM) in Banking Companies listed on the Indonesia Stock Exchange for the 2020-2023 period.

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METHOD

This research uses a quantitative approach, a method that employs statistical methods and software to answer research questions about numerical data. According to Ibn Hajar, a quantitative approach is one in which research results are presented in descriptive form using statistical figures. The scope of the problem discussed in this study concerns the influence of Fintech on profitability in banks listed on the Indonesia Stock Exchange for the period 2020-2023. The data analyzed in this study are the annual financial reports published by each company on the official website of the Indonesia Stock Exchange for the period 2020 to 2023. These reports include the number of e-Banking (Fintech) transactions, Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM).

Variable Classification: A research variable is an attribute, characteristic, or value of an object, activity, or process that has variations determined by the researcher to be studied, and then conclusions are drawn (Sugiyono, 2017). A variable is one of the research objects or focal points for researchers in seeking information and drawing conclusions from the data and information obtained. This study has two variables: Fintech (eBanking) as the independent variable and Return on Assets (ROA), Return on Equity (ROE), and Net Interest. Margin (NIM) is the dependent variable. In this study, the population used is data collected annually. Therefore, the research population is the banking sector financial reports published by the Indonesia Stock Exchange for the 2020-2023 period, representing 47 companies.

The sample in this study used time series data. Time series data consists of a time series object spanning multiple time periods, such as daily, monthly, weekly, and yearly. The sampling technique used in this study was purposive sampling, which selects samples based on specific criteria. Therefore, the bank sample was selected using purposive sampling using the following criteria:

1. The bank was continuously listed on the Indonesia Stock Exchange (IDX) during 2020–2023.
2. The bank published its complete annual financial report during the 2020–2023 period on the IDX's official website.
3. The bank owned or used Financial Technology (Fintech)-based services, such as internet banking, mobile banking, digital payments, or other digital platforms.
4. Data on the research variables (e.g., digital transaction volume, assets, profits, and profitability ratios) were fully available for the 2020–2023 period.
5. The bank did not experience any delisting or changes in company status (e.g., mergers or acquisitions) during the research period.

This technique aims to obtain a sample that meets the research needs. Therefore, the sample in this study consists of eight banking companies studied over four years, resulting in a total residual value of 32.

Table 1. Sample of Research

CODE	NAME OF BANK	YEARS	FINTECH		PROFITABILITY		
			E-BANKING	E-BANKING (LN)	ROA	ROE	**NIM**
BBRI	Bank Rakyat Indonesia (Persero) Tbk.	2020	30.091.601.000	31,04	7,37	16,50	6,00
		2021	36.515.833.000	31,23	7,07	18,30	6,89
		2022	38.093.888.000	31,27	7,34	21,70	6,80
		2023	39.900.338.000	31,32	6,80	23,50	6,84
BMRI	Bank Mandiri (Persero) Tbk.	2020	32.195.350.000	31,10	6,64	2,60	4,48
		2021	30.194.910.000	31,04	6,73	9,40	4,73
		2022	31.729.510.000	31,09	7,57	14,90	5,16
		2023	32.916.150.000	31,12	7,72	15,20	5,25
BBNI	Bank Negara	2020	5.657.327.000	29,36	5,84	11,05	4,50

CODE	NAME OF BANK	YEARS	FINTECH		PROFITABILITY		
			E-BANKING	E-BANKING (LN)	ROA	ROE	**NIM**
	Indonesia (Persero) Tbk.	2021	6.805.037.000	29,55	5,72	16,87	4,70
		2022	7.562.822.000	29,65	5,86	20,93	4,80
		2023	7.234.857.000	29,61	5,62	22,94	4,60
BBTN	Bank Tabungan Negara (Persero) Tbk.	2020	6.256.000.000	29,46	5,76	10,02	3,06
		2021	7.760.900.000	29,68	5,48	13,64	3,99
		2022	6.767.200.000	29,54	5,57	16,42	4,40
		2023	7.029.600.000	29,58	5,16	13,86	3,75
BBCA	Bank Central Asia Tbk.	2020	24.172.933.000	30,82	8,37	9,36	5,70
		2021	26.098.052.000	30,89	7,89	16,24	5,10
		2022	24.056.755.000	30,81	7,94	22,62	5,30
		2023	36.123.703.000	31,22	7,90	27,31	5,50
BNGA	Bank CIMB Niaga Tbk.	2020	5.538.080.000	29,34	7,47	5,01	4,88
		2021	5.571.270.000	29,35	6,09	10,21	4,86
		2022	5.737.176.000	29,38	6,97	11,71	4,69
		2023	5.817.746.000	29,39	6,43	14,03	4,40
BNII	Bank Maybank Indonesia Tbk.	2020	82.419.000.000	32,04	8,36	5,13	4,55
		2021	99.680.000.000	32,23	8,55	6,36	4,69
		2022	104.087.000.000	32,28	8,44	5,44	4,89
		2023	101.243.000.000	32,25	8,27	6,20	4,96
MEGA	Bank Mega Tbk.	2020	15.622.688.000	30,38	4,76	19,42	4,42
		2021	17.908.132.000	30,52	4,22	23,49	4,75
		2022	18.496.821.000	30,55	4,54	23,15	5,42
		2023	21.086.427.000	30,68	4,06	17,62	5,21

Source: Data processed by researchers (2025)

Data Analysis Techniques

1. Descriptive statistical analysis is used to analyse data by describing them using minimum, maximum, mean, and standard deviation values (Ghozali, 2016).
2. Classical Assumption Test:
   a. The normality test is performed to check whether the dependent and independent variables in a regression model are normally distributed, as good regression models are typically based on normally distributed data. Evidence that data follows a normal distribution can be seen through graphs such as histograms or standard probability plots. In a histogram, data is considered normal if its shape resembles a bell curve. In a standard probability plot, data is considered normal if the points are spread around a diagonal line and follow its direction. According to Ghozali (2016), if the data shows this pattern, the assumption of normality in the regression model has been met.
   b. The multicollinearity test assesses whether there is a strong correlation among independent variables. If the correlation between independent variables is too high, the relationship between the independent variables and the dependent variable can be disrupted. Therefore, a good regression model must be free of multicollinearity. According to Ghozali (2016), multicollinearity is absent when all variables have VIF (Variance Inflation Factor) values less than 10 and tolerance values greater than 0.1 (10%).
   c. The heteroscedasticity test is used to check whether the residual variance across observations in a regression model remains constant. If the residual variance is consistent across observations, this condition is called homoscedasticity. Conversely, if the residual variance varies between observations, heteroscedasticity occurs. A good model should be

free from heteroscedasticity. If the significance value is ≥ 0.05, heteroscedasticity is not present. However, if the significance value is ≤ 0.05, heteroscedasticity is considered present.

3. Simple Linear Regression Analysis
   This study used simple linear regression analysis. To test the hypothesis, SPSS (Statistical Package for the Social Sciences) version 25 was used. Simple linear regression was used for only one independent variable and one dependent variable. The purpose of this method is to predict the dependent variable, which is influenced by the independent variable (Siregar, 2013). The simple linear regression model formulation technique is as follows:
   a. $Y1 = \alpha + \beta . X$
   b. $Y2 = \alpha + \beta . X$
   c. $Y3 = \alpha + \beta . X$
   Description:
   Y1 : Return on Assets (ROA)
   Y2 : Return on Equity (ROE)
   Y3 : Net Interest Margin (NIM)
   X : Financial Technology (Fintech)
   α dan β : Constant
4. Hypothesis Testing
   a. Partial Significance Test (t-Test)
      Uses a t-test to test whether two unrelated samples have different means (Ghozali, 2018). This test is conducted by considering probability values. If the significance value is <0.05, the proposed hypothesis is considered significant and supported. Conversely, if the value is >0.05, it is considered insignificant, or the proposed hypothesis is not supported (Ghozali, 2013).
   b. Coefficient of Determination (R2)
      The Adjusted R-Squared indicates how much of the dependent variable's variation is accounted for by the independent variable and also reflects the overall goodness of fit of the regression model. A value closer to 1 shows that the model has a stronger ability to explain variations in the dependent variable. Conversely, if the value approaches zero (0) or is far from one, the independent variable is less able to explain the dependent variable effectively (Imam, 2013).

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Descriptive statistical analysis was conducted to provide and describe the distribution of the processed data and to make the presented data easier to understand. The descriptive analysis used in this study consisted of mean, median, maximum, minimum, and standard deviation. The data used in this study were secondary data, including eBanking (X), ROA (Y1), ROE (Y2), and NIM (Y3). The data were obtained from the Indonesia Stock Exchange (IDX). The objects used in this study were banks listed on the Indonesia Stock Exchange for the period 2020-2023. The results of the descriptive statistical analysis are as follows:

Table 2. Results of Descriptive Statistical Tests Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
E-BANKING	32	29.34	32.28	30.5553	.95518
ROA	32	4.06	8.55	6.6409	1.31739
ROE	32	2.60	27.31	14.7228	6.58328
NIM	32	3.06	6.89	4.9772	.82541
Valid N (listwise)	32				

Source: Data processed by researchers 2025

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The Table above shows the descriptive statistics output for all research variables with a sample size of 32. Based on this Table, the descriptive statistical analysis of each variable can be explained as follows:

a. The Fintech (eBanking) variable ranges from 29.34 to 32.28 with an average of 30.5553 and a standard deviation of 0.95518, showing relatively low variability around the mean.
b. ROA, which measures how effectively a bank uses its assets to generate profit, ranges from 4.06% to 8.55%, averaging 6.6409% with a standard deviation of 1.31739. This indicates moderate profitability based on asset utilization.
c. ROE, indicating profitability from shareholders' Equity, varies widely between 2.60% and 27.31%, with an average of 14.7228% and high variability (standard deviation 6.58328), reflecting diverse Equity returns across banks.
d. NIM, representing the difference between interest income and expenses relative to assets, ranges from 3.06% to 6.89%, averaging 4.9772% with moderate variability.

Classical Assumption Test

1. Normality Test

The normality test is used to determine whether the data underlying the regression model in the research are typically distributed. If the data used in the research are generally not distributed, it will affect the results of each test.

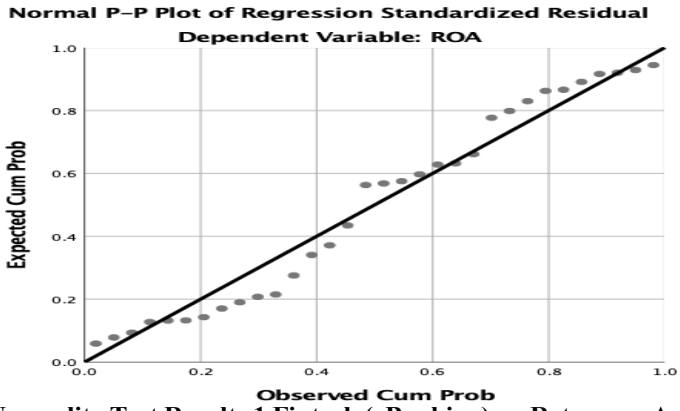

Figure 1. Normality Test Results 1 Fintech (eBanking) on Return on Assets (ROA)
Source: Data processed by researchers 2025

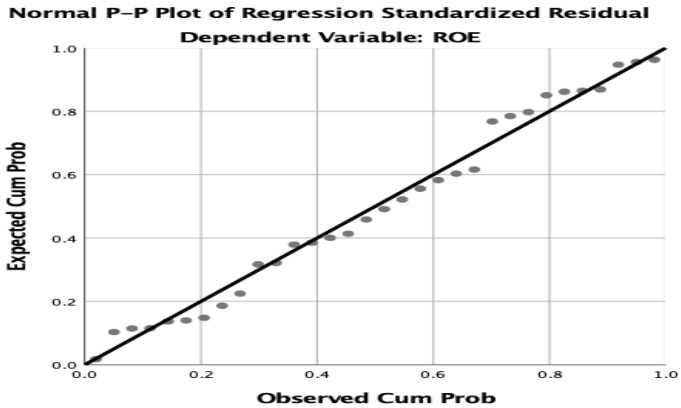

Figure 2. Normality Test Results 1 Fintech (eBanking) on Return on Equity (ROE)
Source: Data processed by researchers 2025

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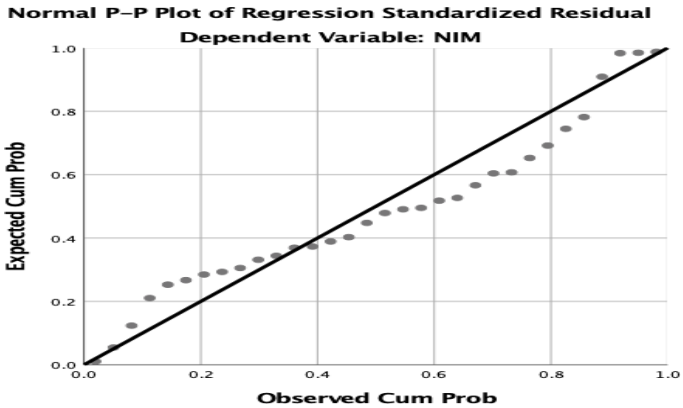

Figure 3. Normality Test Results 1 Fintech (eBanking) on Net Interest Margin (NIM)
Source: Data processed by researchers 2025

Based on the normality test, images 1, 2, and 3 show that the data is distributed around the diagonal line and follow its direction. Then the regression model meets the normality assumption, so the data used in the equation in this study are suitable.

2. Multicollinearity Test

The multicollinearity test assesses the presence of multicollinearity by examining the intercorrelation among the independent variables. Multicollinearity can be identified from Tolerance and Variance Inflation Factor (VIF) values. If the Tolerance value is greater than or equal to 0.10, then the VIF value is less than or equal to 10. The results of the multicollinearity test can be seen in the following Table:

Table 3. Multicollinearity Test Results 1 Fintech (eBanking) on Return on Assets (ROA)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	-19.025	6.105		-3.116	.004		
	eBanking	.840	.200	.609	4.206	.000	1.000	1.000

a. Dependent Variable: ROA

Source: Data processed by researchers 2025

Table 4. Multicollinearity Test Results 2 Fintech (eBanking) on Return on Equity (ROE)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	45.235	38.061		1.188	.244		
	eBanking	-.999	1.245	-.145	-.802	.429	1.000	1.000

a. Dependent Variable: ROE

Source: Data processed by researchers 2025

Table 5. Multicollinearity Test Results 3 Fintech (eBanking) on Net Interest Margin (NIM)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistic Tolerance	Collinearity Statistic VIF
1	(Constant)	-7.184	4.281		-1.678	.104		
	eBanking	.398	.140	.461	2.842	.008	1.000	1.000

Source: Data processed by researchers 2025

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a. Dependent Variable: NIM

From the Table above, in the multicollinearity tests 1, 2, and 3, it can be concluded that the Tolerance value for eBanking is 1,000, indicating it is greater than 0.1. The VIF value in eBanking is 1,000, indicating that it is less than 10, so it is assumed that there are no multicollinearity issues in Return On Assets (ROA), Return On Equity (ROE), and Net Interest Margin (NIM).

3. Heteroscedasticity Test

The heteroscedasticity test assesses whether the residual variance differs across observations in the regression model. In this study, heteroscedasticity was tested using a plot. A plot graph is used to test heteroscedasticity in this study. If there is no clear pattern and the points are spread above and below the Y-axis at 0, then there is no evidence of heteroscedasticity.

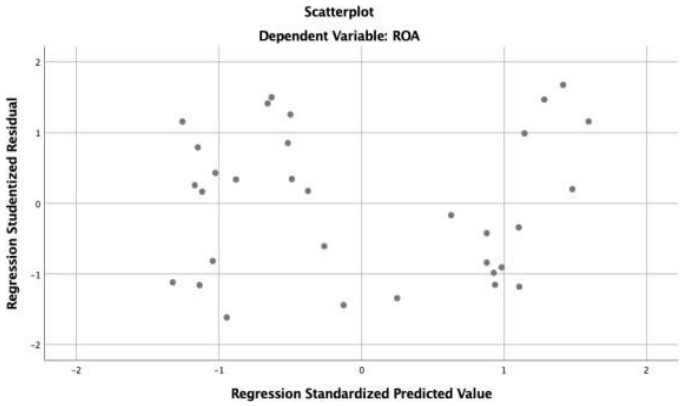

Figure 4. Hasil Uji Heteroskedastisitas 1 Fintech (eBanking) terhadap Return On Assets
Source: Data processed by researchers 2025

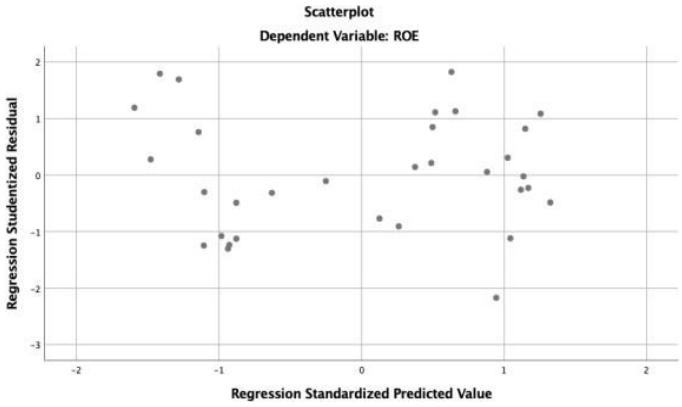

Figure 5. Hasil Uji Heteroskedastisitas 2 Fintech (eBanking) terhadap Return On Equity
Source: Data processed by researchers 2025

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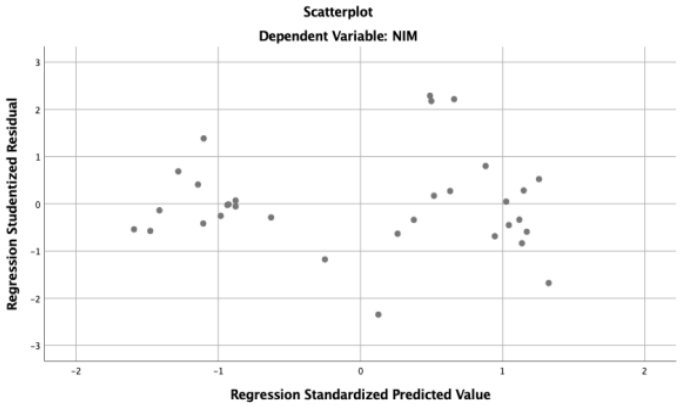

Figure 6. Hasil Uji Heteroskedastisitas 3 Fintech (eBanking) terhadap Net Interest Margin
Source: Data processed by researchers 2025

Based on the results of tests 1, 2, and 3, there is no particular pattern above or below 0. So, the regression model does not exhibit heteroscedasticity.

Simple Regression Statistical Analysis

1. T-Test

Partial t-test to test the hypothesis to determine the comparison between the two variables. The t-test is conducted to compare $thitung$ with $ttabel$ at the 5% significance level. If $thitung > ttabel$, then the independent variable can be said to be significant. For more details, see the following Table.

Table 6. Partial t-Test Results 1 Fintech (eBanking) on Return On Assets (ROA)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	-19.025	6.105		-3.116	.004		
	eBanking	.840	.200	.609	4.206	.000	1.000	1.000

a. Dependent Variable: ROA

Source: Data processed by researchers 2025

Table 7. Partial t-Test Results 2 Fintech (eBanking) on Return On Equity (ROE)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	45.235	38.061		1.188	.244		
	eBanking	-.999	1.245	-.145	-.802	.429	1.000	1.000

a. Dependent Variable: ROE

Source: Data processed by researchers 2025

Table 8. Partial t-Test Results 3 Fintech (eBanking) on Net Interest Margin (NIM)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistic Tolerance	Collinearity Statistic VIF
1	(Constant)	-7.184	4.281		-1.678	.104		
	eBanking	.398	.140	.461	2.842	.008	1.000	1.000

Source: Data processed by researchers 2025

a. Dependent Variable: NIM

The Table above, based on the results of t-tests 1, 2, and 3, concludes that:

a) The Effect of eBanking on ROA.
The eBanking variable has a significant value (p = 0.000 < 0.05) and a calculated t-value of 4.206 > t-table 2.0422, indicating that H1 is accepted and that eBanking has a significant effect on ROA. eBanking can significantly increase Return on Assets (ROA) by enabling higher operational efficiency. Automated banking processes reduce the need for manual labour and speed up transactions, thereby saving operational costs and increasing revenue. With better cash flow management and faster service access, companies can improve asset utilisation to generate greater profits. Empirical research supports a positive and significant relationship between internet banking and increased ROA in banking companies, making the hypothesis of a positive effect of eBanking on ROA statistically acceptable.

b) The Effect of eBanking on ROE.
The eBanking variable has a significant value (0.429 > 0.05) and a calculated t-value of -0.802 < the t-table value of 2.0422, indicating that H2 is rejected and that eBanking does not significantly impact ROE. eBanking does not significantly impact Return on Equity (ROE) in the short term due to high costs associated with developing and maintaining IT infrastructure, training, and customer education, which can depress net income. While digitalisation can increase revenue, system investment and operational costs can offset these gains, so ROE, as a measure of shareholder returns, does not increase significantly in a short period. This is consistent with the observation that some costs remain high, so the positive impact of eBanking on ROE is not yet significant.

c) The Effect of eBanking on NIM.
The eBanking variable has a significant value (p = 0.008 < 0.05) and a calculated t-value of 2.842, which exceeds the t-table value of 2.0422, indicating that H3 is accepted and that eBanking has a significant impact on NIM. eBanking has a significant impact on Net Interest Margin (NIM) because the efficiencies it enables can reduce operational costs and increase access to low-cost funds. Furthermore, eBanking supports a broader, more effective distribution strategy for financial products and services, thereby increasing net interest margin. These efficiency improvements directly contribute to an increase in NIM, indicating better performance of the bank's interest income.

2. Determination Test (R^2)

The coefficient of determination (R2) was used to asses s the model's ability to explain the dependent variable. This can be seen in the Table below:

Table 9. Results of Determination Test (R2) 1 Fintech (eBanking) on Return on Assets (ROA)
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.609[a]	.371	.350	1.06216	.481

Source: Data processed by researchers 2025

a. Predictors: (Constant), E-BANKING
b. Dependent Variable: ROA

Table 10. Results of Determination Test (R2) 2 Fintech (eBanking) on Return on Equity
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.145[a]	.021	-.012	6.62148	1.365

Source: Data processed by researchers 2025

a. Predictors: (Constant), E-BANKING
b. Dependent Variable: ROE

Table 11. Results of Determination Test (R2) 3 Fintech (eBanking) on Net Interest Margin
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.461[a]	.212	.186	.74476	.835

Source: Data processed by researchers 2025

a. Predictors: (Constant), E-BANKING
b. Dependent Variable: NIM

a. The results of the first determination test yielded a coefficient of determination (Adjusted R2) of 0.350, meaning that 35 per cent of the independent variable (eBanking) can explain the dependent variable, ROA.
b. The results of the second determination test yielded a coefficient of determination (Adjusted R2) of 0.012, meaning that 1.2 per cent of the independent variable (eBanking) can explain the dependent variable, ROE.
c. The results of the third determination test yielded a coefficient of determination (Adjusted R2) of 0.186, meaning that 18.2 per cent of the independent variable (eBanking) can explain the dependent variable, NIM.

Therefore, ROA has the dominant influence. 100 - (35 + 1.2 + 18.2) = 45.6, while the remaining 45.6% is explained by other variables not described in this study.

Based on the results of the tests that have been carried out on the research hypothesis, it can be concluded that direct testing between the independent variables Fintech/eBanking (X) on Return on Assets/ROA (Y1), Return on Equity/ROE (Y2), and Net Interest Margin/NIM (Y3) can be explained as follows:

1. The Effect of Fintech/eBanking (X) on Return on Assets/ROA (Y1)
   Based on the partial test results, the hypothesis of eBanking on ROA is accepted. Therefore, eBanking qualitatively influences ROA in a banking company listed on the Indonesia Stock Exchange. EBanking enables companies to provide better service to their customers. EBanking impacts the broader community by providing access to financial products, making transactions more practical, effective, and efficient. Based on this perspective, banks collaborate to increase profits. For example, customers can easily make payments, transfer funds, or check their balances anytime and anywhere. With mobile banking, banks can more easily develop and offer new technology-based financial products and services. Empirical studies and academic research also support this positive impact. For example, research conducted on banking companies listed on the Indonesia Stock Exchange shows that eBanking adoption contributes to increased profitability and operational efficiency. This can be seen in financial indicators such as increased ROA, increased transaction volume, and reduced operational costs. Overall, the adoption of eBanking by banking companies listed on the Indonesia Stock Exchange provides

various benefits that encourage improved financial performance, particularly in terms of efficiency, security, and service innovation. This is in line with research conducted by (Putri Naiya Andayani Abdul Azis, 2024) and (Maya Alfira, 2024) which states that electronic Banking has a significant influence on return on assets, this is because eBanking services can reduce average operational costs and physical overhead costs suffered by banks so that the existence of electronic banking services will have a positive impact on banking profitability (return on assets).

2. The Effect of Fintech/eBanking (X) on Return on Equity/ROE (Y2)
   Based on the partial test results, the hypothesis that eBanking affects ROE is accepted. Therefore, eBanking does not qualitatively affect ROE in a banking company listed on the Indonesia Stock Exchange. E-banking does not significantly affect ROE because the operational efficiencies generated by digital services have not increased net profit proportionally to Equity. Although e-banking increases the convenience and accessibility of banking services, its effect on net profit (a key component of ROE) may be delayed due to:
   a. High initial investment costs for developing and maintaining e-banking systems (IT infrastructure, cybersecurity, training, etc.).
   b. Changes in customer behaviour require time to fully transition to digital services.
   c. High competition among digital banks can suppress profit margins and reduce the positive impact of e-banking on profitability.
   d. The contribution of e-banking revenue is still small compared to the bank's primary revenue sources, such as loans and investments.
   e. ROE is influenced by many other factors, such as risk management, borrowing costs, capital efficiency, and investment strategy—not just electronic services.

   This is inconsistent with research conducted by Supriyadi, Jaka Darmawan, and Bandarsyah (2023), which stated that electronic banking has a significant impact on ROE.

3. The Effect of Fintech/eBanking (X) on Net Interest Margin (NIM) (Y3)
   Based on the partial test results, the hypothesis for eBanking on NIM is accepted. Therefore, eBanking qualitatively influences NIM in a banking company listed on the Indonesia Stock Exchange. E-Banking services reduce reliance on physical services (such as tellers and branches), thereby lowering bank operating costs. With lower operating expenses, banks can maintain or increase profit margins from interest differentials. The ease of access and convenience of eBanking services encourage customers to hold their funds with the bank longer, increasing third-party funds (DPK). This provides banks with a low-cost source of funds, reducing interest costs and positively impacting NIM. Customer data and transactions collected through eBanking can be used to enable more accurate, rapid credit analysis. This helps banks increase lending to profitable segments, increasing income. Through eBanking, banks can offer various digital-based products, including interest-bearing loans. This increases interest sources of income and strengthens NIM. E-Banking drives efficiency, increases low-cost funds, expands potential interest income, and reduces operating costs. These factors directly strengthen Net Interest Margin (NIM), which explains why e-Banking has a significant impact on bank profitability. This aligns with research conducted by Azzahra Febi Nitya Usman (2024), which states that electronic banking has a significant impact on NIM.

CONCLUSION

This study analysed and determined the influence of Fintech on the profitability of banks listed on the Indonesia Stock Exchange during the 2020-2023 period. The results of the research and discussion using a simple regression analysis model can be concluded as follows:

1. Financial Technology (FINTECH) influences Return on Assets (ROA) in banks listed on the Indonesia Stock Exchange for the 2020-2023 period. Using e-banking as an indicator, Financial Technology (FINTECH) can reduce average operational and physical overhead costs for banks; thus, the availability of electronic banking services will positively impact bank profitability (return on assets).

2. Financial Technology (FINTECH) does not affect Return on Equity (ROE) in banks listed on the Indonesia Stock Exchange for the 2020-2023 period. Using e-banking as an indicator, Financial Technology (FINTECH) cannot yet provide operational efficiencies, and the results of digital services have not directly increased net profit proportionally to Equity.
3. Financial Technology (FINTECH) affects Net Interest Margin (NIM) for banks listed on the Indonesia Stock Exchange from 2020 to 2023. Financial Technology (FINTECH) using e-Banking indicators reduces dependence on physical services (such as tellers and branches), thereby lowering bank operational costs. With lower operational costs, banks can maintain or increase profit margins from interest differentials. Ease of access and convenience of e-Banking services encourage customers to keep their funds in the bank longer, increasing third-party funds (DPK). This provides banks with a low-cost source of funds, reducing interest costs and positively impacting NIM.

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