The Influence of Mobile Banking Innovation and Fee-Based Income on the Value of Banking Firms

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Abstract: In today's world, banks are all about making life easier for their customers through technology. But shifting from traditional systems to these modern, innovative solutions isn't always a walk in the park. For banks to thrive in this competitive environment, they need to dive into digital transformation, like developing mobile banking apps and boosting fee-based income. This study looks at how these mobile banking innovations and fee-based income affect the value of banking firms on the Indonesia Stock Exchange (IDX) between 2021 and 2023. With 57 banks on the IDX as our study group, we used purposive sampling to pick our samples and multiple linear regression analysis with SPSS as our tool. The results show that mobile banking doesn't significantly impact the value of banking firms, but fee-based income does have a positive impact.
Keywords: Mobile Banking, Fee Based Income, Value of Banking Firms

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1. INTRODUCTION

Investors often see a firm's value as a success marker at the end of the financial year, reflected in its stock price. When stock prices rise, the firm's value goes up; when they fall, it implies underperformance (Japhar et al., 2020). Firm value can be measured with ratios like Price to Book Value (PBV), Tobin's Q, and Price to Earnings Ratio (PER). Among investors, PBV is often used to gauge stock attractiveness, especially in the financial sector (Frensidy, 2021). Banks play a crucial role in the economy by supporting grassroots businesses, boosting the economic capacity of entrepreneurs and small-to-medium enterprises (SMEs), and providing essential funding sources alongside stocks and bonds (ekon.go.id, 2016).

According to Wingard (2024), the banking sector faces major challenges today: competition from fintech, changing business models, stricter regulations, and disruptive technologies. The rise of fintech/non-bank institutions has reshaped the competitive landscape in financial services, forcing traditional banks to adapt. Unlike previous tech advancements that focused on internal operations, today's innovations aim to enhance customer services. Despite these changes, transitioning from old to new systems isn't always smooth, so banks need to embrace digital transformation to stay afloat.

In this digital age, manual processes are out. Banks must turn to technology-based solutions to tackle industry challenges. It's vital for financial institutions to foster a culture of innovation, leveraging technology to optimize processes and procedures for maximum efficiency. This shift toward a tech-first mindset reflects a broader acceptance of digital transformation across industries (Wingard, 2024). For banking customers, digital transformation means the convenience of electronic and mobile banking services.

Mobile banking lets customers handle transactions via their smartphones, offering ease and convenience (shinhan.co.id, 2024). Susilawaty and Nicola (2020) argue that banks must adapt to the digital banking era by expanding their internet-based services and applications to tap into a vast potential market.

Another way to boost a bank's value is through non-interest or fee-based income, which includes revenues from commissions, fees, or other charges outside of interest income. These often come from marketing financial products and providing banking services (Christianty and Wenno, 2022). Fee-based income sources include various services like bank transfers, clearing, safe deposit boxes, bank cards, bank notes, guarantees, letters of credit, and foreign exchange transactions (Taruna and Sukarmanto, 2023).

Previously, several research was carried out regarding the relationship between fee-based income and banking company profits. Among them is research by Suardana and Kustina (2017) which obtained the results that fee based income had a significant positive effect on changes in profits at PT. Bank Pembangunan Daerah Bali. Whereas, the research by Monika, et al (2022) found that fee based income had a significant negative effect on return on assets at Bank Jabar-Banten Syariah. However, the relationship between fee-based income and company value has not been widely studied. Taruna and Sukarmanto (2023) first examined the effect of fee-based income on company value, and found the results that fee-based income had a significant positive effect on company value.

The importance of mobile banking for the banking entity today is to survive in the era of a cashless society. Cashless society is a concept where transactions are carried out digitally without using cash as a means of payment (Bank Muamalat, 2023). Today's society is increasingly technology savvy so it requires ease and speed of transactions. For this reason, it is necessary to conduct research on the influence of mobile banking on the value of banking companies.

In this study, we measured firm value using the Tobin's Q ratio. Willim's 2015 research showed that Tobin's Q provides better statistical results than PBV when measuring firm value. Tobin's Q is superior because it focuses on a firm's market value relative to replacing its assets, while PBV emphasizes acquisition costs. A high Tobin's Q ratio is an attractive indicator for investors. Conversely, PBV may only reflect a specific time period and doesn't account for changes in the business environment, competition, or other variables. And while PER is another method of measuring firm value, it has flaws, as Earnings Per Share (EPS) can be zero, negative, or small compared to the price, making the PER ratio less relevant (Nugraha, 2022).

So, this study aims to provide empirical evidence of how mobile banking innovations and fee-based income influence the value of banking firms.

2. LITERATURE REVIEW

Diffusion of Innovation Theory

Back in 1964, Everett Rogers introduced the Diffusion of Innovation Theory in his book Diffusion of Innovations. He described diffusion as a social process where info about new ideas spreads. At first, people might see these ideas through their own subjective lens, but over time, they become more accepted and objectively viewed through social construction. This theory shows how innovations spread, typically following an S-curve pattern. Early adopters try out new services, products, or tech first, then the majority catch on until it becomes mainstream (Nugraha, 2022). In banking, digitalization is an innovation aimed at improving customer service and convenience.

Mobile Banking

Per Indonesia's Financial Services Authority (OJK), mobile banking means doing banking transactions via smartphones, through either m-banking apps or mobile carrier apps. The major benefit of mobile banking is the convenience—it lets customers do their banking anytime, anywhere, fitting perfectly with the current cashless trend. Many merchants now offer cashless payments through the Quick Response Code Indonesia Standard (QRIS). Other features include cardless cash withdrawals and deposits at ATMs, bill payments, account balance checks, and transaction histories.

Fee-Based Income

Fee-based income, or other operating income, is what banks earn from providing services to the public. To figure out the proportion of fee-based income to a bank's total operating income, use this formula (Taruna & Sukarmanto, 2023):
FBI = Non-Interest Operating Income / Total Operating Income

The Effect of Mobile Banking on Firm Value

Mobile banking came about to meet the growing demand for digital banking, aiming at high-mobility customers. The speed and convenience of transactions are crucial for customer satisfaction. Banks with mobile banking are generally more appealing to customers compared to those without it since otherwise, customers need to visit a branch or ATM. Customers are vital as they are a primary source of funds for banks. The main role of banking is to collect and redistribute these funds in society. Nuraini et al. (2022) found that electronic banking significantly positively impacts firm value. So, our first hypothesis is: H1: Mobile banking positively affects the firm value of banks.

The Effect of Fee-Based Income on Firm Value

Similar to mobile banking, the range of services a bank offers is critical. Things like utility payments (electricity, water), tuition fees, and e-commerce transactions are sources of fee-based income. The more comprehensive a bank's services, the higher its fee-based income potential. Higher income attracts investors and raises the firm's value. Taruna and Sukarmanto (2023) found that fee-based income significantly positively affects firm value. So, our second hypothesis is: H2: Fee-based income positively affects the firm value of banks.

3. RESEARCH METHOD

This study uses secondary data, which includes financial statements from banking firms on the Indonesia Stock Exchange (IDX). We looked at all banking firms listed on the IDX from 2019 to 2023. For our sample, we used purposive sampling based on these criteria:
1. Banks listed on the IDX from 2021 to 2023
2. Banks that have published financial reports for the 2021-2023 period and provided the necessary data for our research.

Our goal is to analyze how mobile banking innovation and fee-based income affect the value of banks listed on the IDX, with a total population of 57 banking firms. Firm value is measured using Tobin's Q, calculated as the market value of equity divided by the firm's net assets. Mobile banking is measured using a dummy variable: 0 for banks without a mobile banking app on the Play Store or App Store, and 1 for banks with such an app. Fee-based income is measured by the ratio of non-interest operating income to total operating income. We used multiple linear regression analysis to assess the relationships between variables.

4. RESULTS AND DISCUSSION

Result

This study aims to analyze the factors influencing firm value across all banking companies listed on the Indonesia Stock Exchange (IDX) during the 2021-2023 period. The factors examined are mobile banking innovation and fee-based income. The data for this research was collected using purposive sampling, resulting in a sample of banking companies, as presented:

Table 1. Sampling Results

No.	Sampling Criteria	Total
1.	Banks listed on the IDX from 2021 to 2023	57
2.	Banks that have published financial reports for the 2021-2023 period and provided the necessary data for our research	11
	Number of samples that meet the criteria	46

Source: Processed data, 2024

Multiple Linear Regression Analysis

The multiple linear regression analysis is used to determine the influence of independent variables on the dependent variable.

Table 2. Result of Multiple Linear Regression Analysis Coefficients[a]

Model	Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	2,579	,671		3,842	,000
MBanking	-1,476	,737	-,318	-2,002	,052
FBI	1,034	2,251	,073	,459	,649

a. Dependent Variable: Value
Source: Output SPSS, 2024

Based on Table 2, the regression equation obtained is as follows:
Y = 2,579 – 1,476 X1 + 1,034 X2 + e

Coefficient of Determination (R²)

The coefficient of determination (R^2) is used to measure how well the model explains the independent variables. The results of the determination coefficient test are presented in Table 3.

Table 3. Results of the Determination Coefficient Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,403[a]	,392	,246	1,471658	2,183

a. Predictors: (Constant), FBI, MBanking
b. Dependent Variable: Value
Source: Output SPSS, 2024

The Adjusted R^2 value is 0.246, meaning that mobile banking and fee-based income explain 24.6% of the variation in firm value, while the remaining 75.4% is explained by other variables not included in this study.

F-Test (Simultaneous Significance Test)

The F-test aims to analyze whether all independent variables included in the regression model simultaneously affect the dependent variable.

Table 4. F-Test Result

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	8,750	2	4,375	2,020	,146[b]
1	Residual	86,631	40	2,166		
	Total	95,381	42			

a. Dependent Variable: Value
b. Predictors: (Constant), FBI, MBanking
Source: Output SPSS, 2024

Based on Table 4, the significance value is 0.146, which is greater than 0.05. According to the decision rule, it is concluded that mobile banking and fee-based income do not have a significant simultaneous effect on firm value.

t-Test (Hypothesis Testing)
The t-test is used to determine the partial effect of each independent variable on the dependent variable.

Table 5. t-Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2,579	,671		3,842	,000
1 MBanking	-1,476	,737	-,318	-2,002	,052
FBI	1,034	,251	,003	2,459	,040

a. Dependent Variable: Value
Source: Output SPSS, 2024

Based on Table 5 and the t-test criteria with a significance level of α 0.05, the conclusions are as follows:
a. The degrees of freedom (df) are calculated as n-k = (46x3) – 2 = 136. The t-table value with df 136 and a significance level of 0,05 is 1,9776.
b. The partial test shows a beta value of -1.476, indicating that the direction of the effect of mobile banking on firm value is negative. The t-value is -2.002, which is smaller than the t-table value of 1.9776, and the significance value is 0.052, which is greater than 0.05. Thus, it is concluded that mobile banking does not significantly affect firm value.
c. The partial test shows a beta value of 1.034, indicating that the direction of the effect of fee-based income on firm value is positive. The t-value is 2.459, which is greater than the t-table value of 1.9776, and the significance value is 0.040, which is less than 0.05. Therefore, it is concluded that fee-based income has a significant positive effect on firm value.

Discussion
The Effect of M-Banking on Firm Value

The first hypothesis in this study is that mobile banking (m-banking) positively affects firm value. But the regression analysis shows a beta value of -1.476, indicating m-banking has a negative impact. The t-statistic is -2.002, smaller than the critical t-value of 1.9776, and the significance level is 0.052, which is above the 0.05 threshold. So, m-banking doesn't significantly influence firm value. This result might be due to poor data variability, as only 5 out of 46 banking companies in the sample don't offer m-banking services, including PT. Bank Ina Perdana, Tbk., PT. Bank Maspion Indonesia, Tbk., PT. Bank Oke Indonesia, Tbk., PT. Bank Mayapada Internasional, Tbk., and PT. Bank Pan Indonesia, Tbk.

Beyond data variability, these findings suggest that simply offering m-banking services doesn't guarantee an increase in firm value. Many banks providing m-banking services get low customer satisfaction ratings due to frequent technical issues like problems checking balances, making transfers, or logging in. Just having a mobile banking app isn't enough; it needs continuous development to meet customer needs to significantly impact the firm's value.

The Effect of Fee-Based Income (FBI) on Firm Value

The second hypothesis is that fee-based income (FBI) positively affects firm value. The regression analysis shows a beta value of 1.034, indicating a positive impact. The t-statistic is 2.459, greater than the critical t-value of 1.9776, and the significance level is 0.040, below the 0.05 threshold. These results suggest FBI has a significant positive effect on firm value.

Currently, banks are expanding services to increase non-interest income, known as fee-based income. Higher FBI levels show a company isn't relying solely on interest income, making its shares more attractive to investors and increasing the company's value. These findings align with Taruna and Sukarmanto's (2023) research, which also found that fee-based income significantly positively impacts firm value.

5. CONCLUSION

From the results and discussions on the influence of m-banking and FBI on the firm value of banking companies listed on the Indonesia Stock Exchange (IDX) during 2021-2023, we can conclude:
1. Simultaneously, m-banking and FBI do not affect the firm value of banking companies.
2. M-banking does not have a partial effect on the firm value of banking companies.
3. FBI has a significant positive partial effect on the firm value of banking companies.

The weakness of this research is the imbalance of banking entities that offer mobile banking and those that do not have mobile banking. There are only 5 out of 46 banks that do not have mobile banking. This imbalance causes data variability to be unevenly distributed. Suggestions for further research are to add other variables by exploring potentials that can increase the value of banking companies in accordance with technological developments.

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