Application of Financial Technology on the Performance of Banks

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Abstract. This study investigates the influence of financial technology (FinTech) on the performance of banks, specifically examining Peer-to-Peer Lending (P2P) and Digital Payments (PAY) in relation to Return on Equity (ROE). FinTech innovations are rapidly transforming financial services. Although previous research has explored FinTech's impact on financial performance, comprehensive analyses focusing on Indonesian commercial banks are lacking. This paper examines how P2P Lending and Digital Payments influence the ROE of these banks. This study analyzes secondary data from Indonesian commercial banks' annual and financial reports (KBMI 3 and 4) from 2018 to 2022. Panel data regression models are employed for analysis. The results find that FinTech, along with control variables such as Concentration Ratio, Firm Size, Loan-to-Deposit Ratio, Capital Adequacy Ratio, Inflation, and Gross Domestic Product, impacts banking performance. Both P2P Lending and Digital Payments show a positive correlation with ROE. FinTech innovations are essential for enhancing the performance of commercial banks. These findings underscore the importance of integrating FinTech into banking strategies for sustainable growth and competitive advantage.

Keywords: Banking, Digital Payment, Financial Technology, Peer-to-Peer Lending, Performance.

1   INTRODUCTION

Revolutionary blend of "finance" and "technology" (Fintech) represents a cutting-edge digital innovation designed to automate and enhance the distribution and management of financial services (Kudal et al., 2022). It integrates data and technological advancements with financial business scenarios to create a wide range of technology enabled financial services such as mobile payments, digital banking, insurance, wealth management, cryptocurrencies, and cross-border payments (Zhao et al., 2023). Fintech also extends to sectors like education, retail banking, fundraising, bitcoin, and investment management (Anand et al., 2024). While Fintech's high adoption rate has fostered significant advancements and disruptive changes across business and financial services, it has also led to security concerns, creating an ecosystem susceptible to looters and hackers (Zhao et al., 2023). Fintech has emerged as a pivotal and rapidly advancing field worldwide, with Asia and North America at

the forefront of its development. The ascendancy of Asian economies in the Fintech sector has significantly influenced the global financial landscape, highlighting the increasing importance of Fintech in the global economic system (Pan & Liu, 2021).

The transformative impact of Fintech, which integrates finance and technology to revolutionize financial services, highlights its crucial role in modern economies. The absence of Fintech can significantly reduce bank profitability by impeding secure customer financing and limiting electronic services (Rashwan & Kassem, 2023; Traif et al., 2021; Xu et al., 2024). It also maintains barriers to new market products, diminishing competition and increasing business risks and debt pressures, particularly affecting non-manufacturing firms, state owned enterprises, and those in the eastern region (Rashwan & Kassem, 2023). Moreover, this situation discourages prospective entrepreneurs due to risk aversion, hindering Fintech adoption (Traif et al., 2021). Inadequate Fintech utilization further impedes the effective resolution of non-performing loan risks for small and medium-sized commercial banks, thus constraining financial development and economic growth in the absence of suitable regulatory frameworks (Hosen et al., 2023).

Recognizing these challenges, governments in developing and emerging markets are increasingly adopting Fintech to boost financial inclusion (Ediagbonya & Tioluwani, 2023; Joia & Cordeiro, 2021). However, efforts are hampered by obstacles such as illiteracy, poor infrastructure, and information asymmetry (Joia & Cordeiro, 2021). Fintech's influence extends globally, with countries such as Malaysia, UAE, and Indonesia adopting it to advance financial services (Billah et al., 2021).

In Indonesia, the early 2000s marked a significant period for the development and widespread adoption of FinTech. By 2014, e-banking usage surged to Rp 6.477 trillion, accompanied by the emergence of mobile banking (m-banking) to cater to the needs of mobile consumers (AFPI, 2023). According to the Bank Indonesia Financial Stability Review in 2023, Fintech plays a crucial role in expanding financial access, improving accessibility to financial products, and enhancing transaction convenience. Despite a 20.1% decrease in April 2023 compared to the previous year, digital banking transactions in Indonesia have shown significant growth, increasing by 158% over the past five years since April 2018 (Bank Indonesia, 2023).

After the COVID-19 pandemic in Indonesia, the economic recovery has been depicted by an improving Loan to Deposit Ratio (LDR) in banking, although banks need to actively increase credit distribution to further boost the LDR ratio (CNBC, 2023). However, the February 2022 Ukraine-Russia conflict caused inflation to rise, impacting banking performance as investors shifted towards safe haven assets.

Previous research found that Fintech can facilitate financial inclusion by leveraging financial products and services (Nugraha et al., 2022). Studies in India have

shown that Fintech significantly enhances financial inclusion, particularly among the middle-class population (Asif et al., 2023). Conversely, research by Yudaruddin (2023) indicates a negative relationship between Fintech and banking performance, with no significant correlation during crisis periods. These differing findings provide deeper insights into the complex relationship between Fintech and banking performance in Indonesia. Research by Purwanto et al., (2022) investigates the impact of Fintech on the performance of both Islamic and conventional banking in Indonesia, using Return on Equity (ROE) as a dependent variable to assess banking performance. The study employs Peer-to-Peer Lending (P2P) and Digital Payment (PAY) as independent variables to measure Fintech's influence through transaction volumes Based on the background, this study aims to analyze how Financial Technology influences banking performance in Indonesia. This research is urgent as it addresses the critical need for a deeper understanding of Fintech's role in enhancing banking performance amidst economic fluctuations and technological advancements.

2   LITERATURE REVIEW

Previous research has extensively explored the influence of Fintech on banking performance, resulting in several important findings. Many studies have demonstrated that Fintech positively affects bank performance, notably enhancing profitability as indicated by ROE. (Alqahtani et al., 2024; Dasilas and Karanović, 2023; Wanget al., 2024).

Research on banks in Saudi Arabia, the United Kingdom, and the United States consistently shows a positive impact of Fintech on bank performance, with significant enhancements in ROE. For instance, the introduction of new Fintech firms has been found to positively influence the net interest margin and yield on earning assets for United Kingdom banks (Dasilas and Karanović, 2023). Additionally, in the United States, Fintech activities have significantly promoted bank performance, demonstrating a 30% improvement for every unit increase in the level of Fintech adoption (Wang et al., 2024). These findings highlight the critical role of Fintech in enhancing banking efficiency and profitability across different regions and financial environments (Alqahtani et al., 2024). In conclusion, research highlights Fintech's potential to improve bank profitability and efficiency globally. With the rapid growth of Fintech in Indonesia, this study seeks to examine its impact on the performance of local banks. Fintech acts as a complement to traditional banks rather than a replacement, supporting our hypothesis that Fintech influences banking performance in Indonesia.

Peer-to-Peer Lending
Peer-to-Peer Lending (P2P), also known as lending-based crowdfunding, is a digital financial system that connects lenders and borrowers without traditional financial intermediaries like banks. P2P lending facilitates loans directly between individuals

through online platforms, allowing lending to occur on an individual to individual basis (Siemionek-Ruskań and Fanea-Ivanovici, 2021; Zhdanova et al., 2019).

Digital Payment

Digital Payment (PAY) also known as electronic payment, is a method where both the payer and payee use digital means for transactions, utilizing internet facilities such as mobile banking, mobile wallets, and electronic cash (Masamila et al., 2023). It plays a crucial role in financial inclusion by providing access to transaction accounts, credit, savings products, and insurance, particularly benefiting the poor and marginalized sections of society (Kumar & Shrestha, 2023).

Concentration Ratio

Concentration Ratio (CR) serve distinct purposes across different fields. In environmental radiation protection, CR's are utilized to calculate activity concentrations in wild plants and animals, ensuring safety standards are upheld. Conversely, in ma rket analysis, CR gauge market concentration by assessing the market shares held by various entities (Kvålseth, 2022).

Loan to Deposit Ratio

Loan to Deposit Ratio (LDR) ratio quantifies the relationship between loans and deposits within financial institutions. It is crucial in macroprudential policy as a tool to prevent excessive LDR ratios and mitigate destabilizing cyclical trends in the financial sector (Mabwe and Jaffar, 2022). Additionally, a proposed metric known as the Financial Intermediation Measure (FIM) expands upon the traditional LDR ratio, providing a more comprehensive assessment of financial intermediation effectiveness tailored for macroprudential regulation purposes (Boďa and Zimková, 2021).

Capital Adequacy Ratio

Capital Adequacy Ratio (CAR) is a critical metric that assesses a bank's safety and risk management practices by measuring its ability to absorb potential losses. It serves as an indicator of the bank's financial health and resilience against risks arising from insufficient capital (Quynh and Trung, 2024). Factors influencing CAR include bank size, profitability, the ratio of loans to deposits, equity levels, and broader economic indicators such as the Consumer Price Index (CPI). These elements collectively determine the level of capital cushion a bank maintains to safeguard against financial instability and ensure sustainable business operations (Huy et al., 2024).

Inflation

Inflation (INF) by a persistent increase in the prices of goods and services, a phenomenon measured through the Consumer Price Index (CPI) (Kamaruzzaman, 2019). It can stem from factors such as an excess supply of money relative to demand, which can devalue currency and escalate prices (Hansen and Newman, 2023). Moreover, inflation can be driven by rising costs within the supply chain, including increased expenses for wages, raw materials, utilities, and transportation (Varela

García, 2023). These factors collectively contribute to the broader economic impact of inflation, influencing consumer purchasing power and economic stability.

Gross Domestic Product (GDP)

GDP is a critical indicator of a country's economic health, representing the market value of all goods and services produced within a specified period (Pillai and Hu, 2024; MacFeely and Van De Ven, 2023; Hiregowda et al., 2020). It measures the economy using different methodologies, including production, expenditure, and income approaches (Pillai & Hu, 2024). Forecasting GDP trends is essential for understanding a country's transformation and future development, with various methods like the ARIMA-BPNN fusion prediction model employed for this purpose (Hua, 2022).

Based on the Fig.1 below theoretical foundation, the research framework and hypotheses were developed as follows:
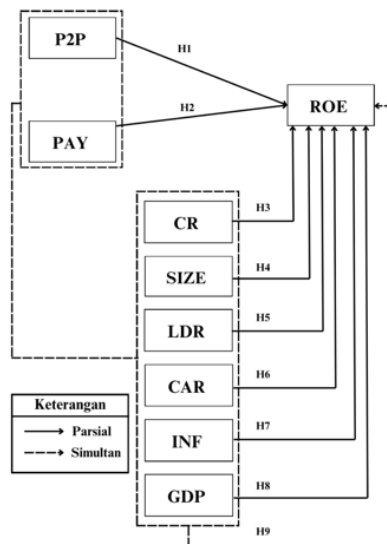

Fig .1 Resealrch Fralmework

H1. Peer-to-Peer Lending has a significant influence on ROE.

H2. Digital Payment has a significant influence on ROE

H3. Concentration Ratio has a significant influence on ROE

H4. Firm Size has a significant influence on ROE.

H5. Loan to Deposit Ratio has a significant effect on ROE

H6. Capital Adequacy Ratio has a significant effect on ROE.

H7. Inflation has a significant influence on ROE.

H8. Gross Domestic Product has a significant influence on ROE.

H9. P2P and PAY with control variables CR, SIZE, LDR, CAR, INF, GDP have a significant influence on ROE.

3   RESEARCH METHODOLOGY

This study collected data from nine Indonesian commercial banks classified under bank groups based on core capital (KBMI) 3 and 4, covering the period from 2018 to 2022. Utilizing a deductive approach, the research analyzes secondary data from annual reports and financial statements published by the banks and the Indonesian Financial Services Authority. [Otoritas Jasa Keuangan (OJK)].

Alqahtani et al., (2024); Dasilas and Karanović, (2023); Wang et al., (2024) used a single proxy for the dependent variable of bank performance, measured by the ROE, which is the net income to total equity ratio. This study adopts this measurement to evaluate bank performance. Additionally, the study incorporates P2P and PAY as explanatory variables to reflect Fintech advancements annually, following the methodology of Agarwal et al., (2024; Divya et al., (2023; Isa et al., (2023). Indonesia's financial system has been significantly impacted by global financial technology innovations, leading to the development of advanced payment systems. In line with the approaches of Alqahtani et al., (2024); Wang et al., (2024); Dasilas and Karanović, (2023); Yudaruddin, (2023) this study also includes several control variables that influence bank performance. These control variables are CR, SIZE, LDR, CAR, INF, and GDP.

Regression Model
The panel data regression research model used is the following equation:

$$ROE_{it} = \beta_0 + \beta_1 P2P_{it} + \beta_2 PAY_{it} + \beta_3 CR_{it} + \beta_4 SIZE_{it} + \beta_5 LDR_{it} + \beta_6 CAR_{it} + \beta_7 INF_{it} + \beta_8 GDP_{it} + \in$$

ROE   = Banking Performance
P2P = Peer-to-Peer Lending
PAY   = Digital Payment
CR   = Concentration Ratio
SIZE   = Firm Size
LDR   = Loan to Deposit Ratio
CAR   = Capital Adequacy Ratio
INF = Inflation
GDP   = Gross Domestic Product
$\in$ = Error Term

To apply the best model in panel data research, it is important to conduct tests that guide the data management process. The first step is to perform a Chow Test, which helps in choosing between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). Next, the Hausman test is used to decide between the Random Effect Model (REM) and the Fixed Effect Model (FEM). Finally, the Lagrange Multiplier test is conducted to choose between the Random Effect Model (REM) and the Common Effect Model (CEM). (Hsiao, 2022)

4 RESULT / FINDING

This study aims to explore the influence of various factors, including P2P and PAY using variabel control CR, SIZE, LDR, CAR, INF, and GDP on the performance of banks in Indonesia. By examining these variables, the research seeks to provide a comprehensive understanding of how Fintech and other economic factors contribute to enhancing banking performance in the Indonesian context.

Table 1. Descriptive Statistic

Variable	Obs.	Mean	Max	Min	Std. Dev
ROE	45	0.119	0.209	0.029	0.045
P2P	5	34.608	36.134	32.441	1.442
PAY	45	19.312	23.723	15.032	1.990
CR	5	0.582	0.594	0.561	0.014
SIZE	45	19.894	21.413	18.405	1.016
LDR	45	0.868	1.247	0.614	0.145
CAR	45	0.210	0.310	0.062	0.059
GDP	5	2.982	5.510	1.680	1.388
INF	5	7.748	15.380	-2.460	5.904

Source: data processed by authors (2024)

Table 1 presents the statistical descriptions of the research variables used in the analysis, including the number of observations, minimum, maximum, mean, and sta ndard deviation for each variable such as Return on Equity (ROE), Peer-to-Peer Lending (P2P), Digital Payment (PAY), Concentration Ratio, Firm Size, Loan to Deposit Ratio, Capital Adequacy Ratio, Inflation, and Gross Domestic Product (GDP).

Normality Test

Table 2. Normality Test

Jacque-Bera	Probability
0.764519	0.682318

Source: data processed by researchers (2024)

It can be concluded that the Jarque-Bera value = 0.764 with a probability value of $0.68 > 0.05$ means that the data used in this study are normally distributed.

Mulcolinearity Test

Table 3. Multicolinearity Test

	X1P2P	X2PAY	Z1CR	Z2SIZE	Z3LDR	Z4CAR	Z5INF	Z6GDP
X1P2P	1.000000							
X2PAY	0.198887	1.000000						
Z1CR	0.796395	0.162157	1.000000					
Z2SIZE	0.105572	0.372389	0.096931	1.000000				
Z3LDR	-0.435380	-0.334697	-0.535110	0.086563	1.000000			
Z4CAR	0.139717	0.181155	0.185636	-0.361999	-0.395766	1.000000		
Z5INF	0.626689	0.116781	0.100359	0.044211	0.007054	-0.017449	1.000000	
Z6GDP	0.567355	0.111433	-0.014800	0.048560	-0.031741	0.000609	0.765223	1.000000

Source: data processed by researchers (2024)

Table 3 can explain that there is no multicollinearity because there is no strong correlation between independent variables, seen with the value of R2 <0.09.

Heteroscedasticity Test

Table 4. Heteroscedasticity Test

F-Statistic	Prob. F
1.387397	0.217661

Source: data processed by researchers (2024)

Table 4 shows that the Prob. F> 0.05 which is 0.217> 0.05, so there is no heteroscedasticity in this study. So, it can be concluded that the model obtained will give the best results.

Autocorrelation Test

Table 5. Autocorrelation Test

Durbin-Watson stat	1.862864

Source: data processed by researchers (2024)

From Table 5 it can be seen that the Durbin Watson stat value is 1.862864. this value will be compared with the dL and dU table values. By using the decision-making requirements dU < dW < 4-dU, namely 1.5872 < 1.8628 < 2.4128 and the value

of dW < 4-dL, namely 1.8628 < 2.6463, it can be concluded that the regression equation in this study does not occur autocorrelation and passed the autocorrelation test.

Table 6. Fixed Effect Model Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.427546	1.034507	-4.279862	0.0002
X1P2P	-3.92E-17	1.65E-17	-2.367887	0.0250*
X2PAY	-2.42E-12	8.11E-13	-2.983523	0.0059*
Z1CR	0.944326	1.630441	0.579184	0.5671
Z2SIZE	0.199364	0.031016	6.427845	0.0058*
Z3LDR	-0.132887	0.050169	-2.648785	0.0131*
Z4CAR	0.603905	0.151293	3.991631	0.0004*
Z5INF	0.022118	0.006532	3.386104	0.0021*
Z6GDP	0.004238	0.001830	2.316463	0.0281*
R-squared	0.972124	Mean dependent var		0.178334
Adjusted R-squared	0.956194	S.D. dependent var		0.145766
S.E. of regression	0.018400	Sum squared resid		0.009480
F-statistic	61.02721	Durbin-Watson stat		1.923094
Prob(F-statistic)	0.001655			
Notes: *Sig.5%				

Source: data processed by researchers (2024)

Table 6, it can be seen that the panel data regression equation from the panel regression analysis estimation results which explains the Financial Technolgy measured through Peer-to-Peer Lending and Digital Payment using the control variables Concentration Ratio, Size, Loan to Deposit Ratio, Capital Adequancy Ratio, Inflation, Gross Domestic Product on Banking Performance (Return on Equity) included in KBMI 3 and 4 for the 2018-2022 period using the Fixed Effect Model (FEM) is as follows:
ROE = -4.427546 -3.92E-17P2P -2.42E-12PAY + 0.944326CR + 0.199364SIZE - 0.132887LDR + 0.603905CAR + 0.022118INF + 0.004238GDP + $\in$

The T-test results in Table 6 indicate that:
1. The P2P variable has a regression coefficient of -3.92E-17 and a probability value of 0.0250 < 0.05, indicating a significant negative effect on ROE.
2. The PAY variable has a regression coefficient of -2.42E-12 and a probability value of 0.0059 < 0.05, indicating a significant negative effect on ROE.
3. The CR variable has a regression coefficient of 0.944326 and a probability value of 0.5671 > 0.05, indicating no significant effect on ROE.
4. The SIZE variable has a regression coefficient of 0.199364 and a probability value of 0.0058 < 0.05, indicating a significant positive effect on ROE.

5. The LDR variable has a regression coefficient of -0.132887 and a probability value of $0.0131 < 0.05$, indicating a significant negative effect on ROE.
6. The CAR variable has a regression coefficient of 0.603905 and a probability value of $0.0004 < 0.05$, indicating a significant positive effect on ROE.
7. The INF variable has a regression coefficient of 0.022118 and a probability value of $0.0021 < 0.05$, indicating a significant positive effect on ROE.
8. The GDP variable has a regression coefficient of 0.004238 and a probability value of $0.0281 < 0.05$, indicating a significant positive effect on ROE.

The F-test results show that the Prob.(F-statistic) is $0.001655 < 0.05$ By compa ring the F_{stat} value of 61.02721 and the F_{table} value of 2.16252956, it can be concluded that the $F_{stat} > F_{table}$ value means that there is a significant simultaneous effect on P2P and PAY with the control variables CR, SIZE, LDR, CAR, INF, GDP on Banking Performance (ROE).

The Adjusted R-Square value of 0.956194 (95.6%) from the FEM indicates that the independent variables P2P and PAY and control variables CR, SIZE, LDR, CAR, INF, GDP contribute 95.6% of the variation in ROE, with the remaining 4.4% explained by other factors outside this study.

5   DISCUSSION

Based on the results in Table 6, H1 is accepted, indicating that Peer-to-Peer Lending (P2P) has a significant partial effect on banking performance as measured by Return on Equity (ROE), specifically in banks that are part of the Bank Group based on Tier Capital (KBMI) 3 and 4 from 2018 to 2022. P2P involves lending to individuals and business groups with easier credit profiles or lower loan quality than tra ditional lending, leading to higher credit risk for P2P platforms and resulting in increased defaults and loan losses. Since funds are channeled through loans, they are not included in the calculation of net income, ultimately affecting the company's profitability. This finding aligns with research conducted by (Chen et al., 2020), which states that there is a negative influence of P2P on bank profitability in China.

The results in Table 6 also support H2, indicating that the PAY variable has a partially significant effect on banking performance as measured by ROE, specifically in banks that are part of the Bank Group based on Tier Capital (KBMI) 3 and 4 from 2018 to 2022. Although digital payments offer convenience and security, their adoption has a significant negative impact on bank performance as measured by ROE. Fierce competition forces firms to offer services at lower prices, reducing digital transaction costs and affecting banking revenues. Additionally, technology infra structure is a large investment, and these technology costs can weigh on the profita bility of the firm. The vulnerability to cybercrime in digital payments, such as data

theft and fraud, can damage the company's reputation, trigger litigation costs, and disrupt business operations (Hapsari & Pambayun, 2023).

Based on the results in Table 6, H3 is rejected, namely the CR variable has no significant effect partially on banking performance as measured by ROE, specifically in banks that are part of the Bank Group based on Tier Capital (KBMI) 3 and 4 from 2018 to 2022. According Muñoz Mendoza et al., (2024) intuitively it can be assumed that the level of industry concentration (CR) has a significant influence on banking performance (ROE), but in this study it was found that the level of industry concentration measured using the assets of the five largest banks did not have a significant impact on the bank's ability to generate profits (equity) due to other factors such as operational inefficiencies, ineffective management or inappropriate business strategies.

The results in Table 6, explains that SIZE has a significant positive effect on ROE, which means that when there is an increase in SIZE, there is an increase in ROE. This is because companies that have reached the level of maturity (mature) of course the company has good infrastructure and resources, this results in stable and consistent operations that increase the company's chances of achieving high profitability and not easily experiencing bankruptcy. In accordance with research conducted by Rumaly (2023) which states that bank size plays a major role in generating profita bility, because the adequacy of assets is very important to ensure the possibility of loss and bank stability. Based on this, H4 is accepted, namely the PAY variable has a partially significant effect on banking performance as measured by ROE, specifically in banks that are part of the Bank Group based on Tier Capital (KBMI) 3 and 4 from 2018 to 2022.

Based on the results in Table 6, H5 is accepted, that LDR variable has a partially significant effect on banking performance as measured by ROE, specifically in banks that are part of the Bank Group based on Tier Capital (KBMI) 3 and 4 from 2018 to 2022. LDR is a ratio that measures credit to funds from the public with a negative effect on banking performance (ROE), which means that every increase in LDR decreases ROE. This happens because of several things, firstly banks are ineffective and not optimal in lending to the public, so that no matter how much funds are cha nneled, they are unable to improve banking performance. Second, with the uncontrolled expansion of credit and channeled to the community for free without looking at aspects of credit analysis with the 5C assessment, namely Character, Capacity, Capital, Collateral, and Condition, of course the greater the amount of credit provided, the higher the risk of default by the community. This results in banks not earning operating income through loan interest, high LDR conditions will reduce bank income so that it has a negative impact on company value (Wiadnyani dan Artini, 2023).

The results in Table 6, explains that CAR has a significant positive effect on ROE, which means that when there is an increase in CAR, there is an influence on ROE. Based on this, H6 is accepted, which states that the CAR variable has a partially significant effect on banking performance as measured by ROE, specifically in banks that are part of the Bank Group based on Tier Capital (KBMI) 3 and 4 from 2018 to 2022. CAR can see financial stability, with stable finances, banks can operate more efficiently and reduce the risk of bankruptcy. In addition, a high CAR value indicates that the bank has good risk management practices, the company is able to identify and manage risks so that it can anticipate unexpected losses. This gives a good influence to investors and shareholders, this trust also increases the bank's reputation so as to attract investors and increase customers so that it can positively affect banking performance (ROE). In accordance with research conducted by Setiawan & Muchtar, (2021) which states that high CAR proves a healthy bank and has the strength of internal funds in bearing risks.

The results in Table 6 also support H7 is accepted which is the INF variable has a partially significant effect on banking performance as measured by ROE, specifically in banks that are part of the Bank Group based on Tier Capital (KBMI) 3 and 4 from 2018 to 2022. Maria dan Hussain (2023) stated that inflation has a significant and positive impact on profitability. However, research conducted by Zuchrinata dan Yunita (2019) found that inflation has a positive but insignificant effect on profita bility in the coal mining sector. Although inflation is often considered a negative economic phenomenon, an increase in inflation can have a good effect on bank ROE, this happens for several reasons, firstly due to a decrease in transactions due to a decrease in individual purchasing power interest. Second, people prefer to keep their funds in the bank. High inflation decreases the value of cash, thus influencing people to prefer investing in low-risk assets, such as deposits. This behaviour is related to the time value of money theory. Although inflation is often considered a negative economic phenomenon, an increase in inflation can have a good effect on bank ROE, this happens for several reasons, firstly due to a decrease in transactions due to a decrease in individual purchasing power interest. Second, people prefer to keep their funds in the bank. High inflation decreases the value of cash, thus influencing people to prefer investing in low-risk assets, such as deposits. This behaviour is related to the time value of money theory.

Based on table 6, H8 is accepted, meaning that the GDP variable has a partially significant effect on banking performance as measured by ROE, especially in banks included in the Bank Group based on Tier 1 Capital (KBMI) 3 and 4 in 2018-2022. When there is an increase in GDP, it means that the level of national economic de velopment is in a good stage, which results in high bank efficiency. Banks included in KBMI 3 and 4 will certainly continue to be the main force in the banking sector in Indonesia, this is supported by a positive external economic environment marked by stable GDP growth. Economic growth as measured by the increase in GDP is

accompanied by demand for credit in the business sector, thus opening up opportunities for banks to increase their lending. Increased lending will certainly increase interest income, which is the main component in obtaining banking profitability (Shi et al., 2021).

The simultaneous test (F-test) results in Table 6 show a significant probability value for the F-statistic, indicating that the F-statistic > F-table value. This supports H9, proposed by the researcher, suggesting that P2P and PAY, along with the control variables CR, SIZE, LDR, CAR, INF, and GDP, significantly affect banking performance (ROE) from 2018 to 2022.

Furthermore, the study also considers the impact of control variables such as Concentration Ratio, Size, Loan to Deposit Ratio, Capital Adequacy Ratio, Inflation, and Gross Domestic Product on ROE. The results show most of these variables significantly contribute to the influence on ROE. For instance, a higher Concentration Ratio implies a more competitive market, driving banks to improve their efficiency and performance. Similarly, larger bank size and higher Capital Adequacy Ratio indicate better risk management and financial health, positively impacting ROE. These findings collectively highlight the multifaceted nature of banking performance, influenced not only by technological advancements but also by various economic and financial indicators.

6   CONCLUSION AND RECOMMENDATION

6.1   Conclusions

This study provides a comprehensive analysis of the impact of Fintech, particularly Peer-to-Peer Lending (P2P) and Digital Payments, on the performance of Indonesian banks measured by Return on Equity (ROE). The findings reveal that both P2P and PAY significantly affect banking performance in different ways. P2P negatively impacts profitability due to higher credit risks and defaults, while digital payments, despite offering convenience and security, also negatively affect ROE due to lower transaction costs and high technology investments. Additionally, control variables such as Concentration Ratio, Size, Loan to Deposit Ratio, Capital Adequacy Ratio, Inflation, and Gross Domestic Product significantly influence bank performance.

6.2   Recommendations

To improve the performance of Indonesian banks through FinTech integration, it is imperative to develop a specific, measurable and actionable strategy. Firstly, banks should invest in advanced digital infrastructure, with a focus on scalable technologies that can adapt to future innovations. Regulators should create a supportive

framework that encourages FinTech adoption while ensuring financial stability. For practical implementation, banks should launch joint initiatives to promote financial inclusion, specifically targeting underserved populations, which can expand their market reach and drive growth. These recommendations are critical to overcoming transition challenges and achieving long-term efficiency and profitability. Future research should explore the differential impact of Fintech integration across different banking segments and regulatory environments, and conduct comparative studies in other emerging markets to gain greater insight into the global dynamics of Fintech influence on banking performance.

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