Fintech Development and Banking Performance in Indonesia

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Abstract. A bank is a financial entity whose business activities consist of collecting monies from the public, redistributing them to the community, and offering additional services. The objective of this study is to determine how the development of Fintech in Indonesia may impact the performance of Indonesian banks. This study seeks to determine the number of lenders (JL), borrowers (JB), and loans (J) in the United States (JP). Secondary data from Bank Indonesia and the Financial Services Authority were used for this investigation. The sample used is the statistics report on Fintech Lending from July 2018 to September 2021. The employed method of analysis is the Vector Error Correction Model (VECM) method. The data indicate that there is no statistical correlation between fintech institutions and the short-term development of banks. On the other hand, the performance of banks is disturbed in the long run by the large number of loans disbursed by fintech organizations. Due to market segmentation based on customer level and background, banks' performance is not significantly impacted by the large number of lenders and borrowers inside fintech organizations.

Keywords: Error Correction Model (ECM), Banking Performance, Fintech, Indonesia

1 Introduction

Banking is an agent of state growth since its primary purpose is as a financial intermediary institution, i.e. an institution that gathers monies from the public in the form of savings and returns them to the public in the form of credit or financing [8]. Nonperforming loans in banking have a wide range of effects and can be detrimental to bank health. According to Saryani (2015)[21] and Pinasti (2018)[18], the health of a bank reflects the bank's ability to conduct operations effectively, as demonstrated by a number of metrics. Indicators of profitability such as Return on Assets (ROA). According to Eprima et al. (2015), Return on Assets (ROA) is the ratio of after-tax profit to total assets. However, modern borrowers are reluctant to borrow from banks due to the comparatively high monthly interest rates. One method of borrowing is via fintech (Financial Technology).

Chrismastianto Fintech is an invention in the financial sector that refers to current technologies (2017). According to Clayton and Chrismastianto (2017)[5], these innovations attempt to introduce practicability, simplicity of access, convenience, and cost-effectiveness (2017). When a problem arises in society that the financial industry cannot solve due to numerous impediments, Fintech emerges as a result. Among these are too rigorous banking laws and the inability of the banking system to serve the population in particular locations. Therefore, banks tend not to serve individuals who live in remote locations. This results in unequal economic growth. Fintech enables distant people to get technologically-based financial services without having to travel great distances.

This Fintech expansion is exemplified by the growth of the worldwide crowdfunding sector, which increased from $0.5 billion in 2011 to a staggering $290 billion in 2016 (Rau 2019). However, the growth rate differs substantially between nations. The peer to peer (P2P) lending markets in the People's Republic of China (PRC), the United States (US), and the United Kingdom (UK) have expanded dramatically [14]. Therefore, peer-to-peer lending is currently the section of the financial industry with the highest Compound Annual Growth Rate (CAGR), at 51.5%. The market expects it to reach $460,313 million by 2022, with a bank loan of $15.98 billion (as of December 31, 2015). Borrowers Club is the largest peer-to-peer loan firm in the world and the first company to be publicly traded. Some of the category leaders are Beginner Forms, Funding Circle, Prosperous Market, CircleBack Loans, and Peers [7].

The volume of peer-to-peer lending fluctuates on different continents throughout the world. In Asia, however, the highest volume was recorded in 2015 at 93 billion USD, then increased significantly to 242.7 billion USD in 2016, and then declined to 111.7 billion USD in 2017. Almost 95 percent of ADB (Asian Development Bank) peer to peer transactions are regulated by the People's Republic of China annually. The lowest volume was recorded in Europe in 2015 at 5 billion USD, then climbed to 7 billion USD in 2016 and declined to 6 billion USD in 2017. According to the ADB (Asian Development Bank), the United Kingdom is the region that pioneered peer-to-peer in the globe, controlling nearly 95 percent of peer-to-peer transactions each year. There are 88 peer-to-peer lending platforms in Indonesia, both conventional and Sharia-based. The Institute for the Development of Economics and Finance (INDEF) and the Association of Fintech Indonesia (AFTECH) reached the conclusion that peer-to-peer lending has a favorable impact, contributing Rp. The services sector is the largest contributor to Indonesia's GDP of $25.97 trillion. equivalent to Rp. 4,7 trillion, while disbursing loans totaling Rp. 7.64 trillion to 1.47 million people and the creation of almost 350,000 jobs in

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diverse areas [28]. As a result, many individuals have moved their preference for borrowing cash from the banking industry to peer-to-peer fintech due to the simplicity of borrowing, better access, and lower interest rates.

This study's restriction is to the investigation of the influence of the development of fintech lending on Indonesian banking performance in 2018-2020. In this study, the researcher was only interested in peer-to-peer (fintech) lending as an alternative to community loans and the impact it had on Indonesian banking performance between 2018 and 2021. This study's data came from the Financial Services Authority (OJK) and other sources, such as journals in the same field. Therefore, this study seeks to analyze the impact of the number of fintech lending lenders, the number of fintech lending borrowers, the quantity of fintech lending loans on banking performance in Indonesia.

2 Literature Review

Theoretical basis

1. Financial Technology.

Fintech is "disruptive," "revolutionary," and armed with "digital weaponry," which will "tear down" walls and traditional financial institutions, according to the World Economic Forum in 2017. Fintech can also be defined as the use of technology inside the financial system to create new goods, services, technologies, and/or business models, which can have an effect on monetary stability, financial system stability, and/or efficiency. , efficiency, safety, and dependability of the payment method (Bank Indonesia). Fintech is also a cross-discipline that integrates finance, technology management, and innovation management (Chuen & Sung, 2018).

The word "Fintech" is used to characterize the digitization of the financial industry. Fintech is a tool used in the financial sector for innovative technology that is primarily Internet-based. This word refers to the modern technology that enables or provides financial services, such as internet-based technology in the sphere of e-commerce, mobile payments, or early stage crowd-based finance, which can also be referred to as crowdfunding and crowdinvesting [6]. Fintech is, in another sense, the financial industry that employs technology to improve Schueffel's (2016)[23] financial activities. Fintech is not restricted to certain industries or business models, such as peer-to-peer lending, but encompasses all financial products and services historically provided by the Mello banking industry (2018). Therefore, according to specialists, fintech encompasses a variety of meanings.

2. Banking.

A bank is a type of business that provides services in the financial sector and plays an essential role in the economy and national development. The primary function of Indonesian banking, as mandated by Bank Indonesia, is to collect and distribute public funds and to support the implementation of national development in the context of increasing equitable distribution of development and its results, economic growth, and national stability, with the goal of enhancing the standard of living of the people (Bank Indonesia, Banking Booklet, 2012).

3. Financial Performance.

Financial performance is indicative of the attainment of the company's success and can be understood as the outcomes of the many actions that have been conducted. In the banking literature, bank performance is quantified using CAMEL (Capital, Asset, Management, Earnings, Equity, and Liquidity) and developed by incorporating risk. The return on assets (ROA) is not an independent indicator of bank profitability, but is influenced by a number of factors. Capital Adequacy Ratio (CAR), Non Performing Financing (NPL), Loan to Deposit Ratio (LDR), Return on Asset (ROE), Net Interest Margin (NIM) and Cost ot Income ratio (BOPO) are some of the elements that affect bank performance. Some of these elements will ultimately influence and contribute to the profitability of financial institutions.

Table 1. Previous Research

No	Author and Method	Variables	Results
1	Wijaya (2020) – Multiple Regression	Variable (Y): ROA, ROE, BOPO, CAR, FDR, Variable (X): Mobile banking, Internet banking, Message banking, Phone banking,	The findings of the study demonstrate that fintech affects financial success (ROA, ROE, BOPO, FDR). The more fintech services are produced in Islamic finance, the greater their impact on the financial performance of Islamic banks.
2	Ardiansyah (2020) - Panel Data	Variable (Y): Lending Variable (X):	Before the implementation of the Central Bank of Indonesia (BI) regulation, the Lending variable had a positive effect, the

		Funding CAR	funding variable had no effect, and the capital raising variable had a negative effect on LDR. After the implementation of the BI regulation, the Lending variable had no effect, the funding variable had a positive effect, and the capital raising variable had a negative effect on LDR.
3	Kurniansyah (2019) – Descriptive Qualitative Analysis	Variable (Y): Perbankan Variable (X): Peer to peer lending	The presence of fintech has reduced the banking industry's market share Condition. This is unquestionably a challenge to banks, which afterwards boosts the NFL.
4	Puspa (2020) – Comparative Test	Variable:	One of the four banks exhibits a substantial variation in the ROA variable after the introduction of Financial Technology, according to the study's findings.
		ROA, ROE, NIM, BOPO	The Net Interest Margin (NIM) is significantly different before and after the advent of FinTech. In conclusion, Financial Technology may have a favorable impact on the profitability and efficiency of banking operations, including those of National Business Entities (BUMN) banks such as Bank Mandiri, Bank Negara Indonesia (BNI), Bank Tabungan Negara (BTN), and Bank Rakyat Indonesia (BRI), due to the fact that FinTech is an alternative means of gaining access to financial sector services.
5	Chen, You dan Chang (2021) – Structural Equation Modelling	Variable (Y): Commercial Banks Performance Variable (X): Fintech Product intermediated by *perceived usefullness* and *perceived difficulty of use*	This study demonstrates that the perceived usefulness (PU) of Future Time Perspective Scale (FTPs) has a positive and statistically significant effect on customer happiness, low expectations for bank employee assistance, bank service quality, and employee job efficiency. In addition, the perceived difficulty (PD), FTPS has a substantial and negative effect on customer satisfaction and low expectations for assistance. Intriguingly, there is a positive and statistically significant correlation between PD and service quality and bank work efficiency, indicating that service quality and work efficiency can mitigate some of the drawbacks of FTP. This study acknowledges the need for a deeper comprehension of the impact of FTPs on the performance of non-financial enterprises.
6	Frederica, Augustine, Murwaningsari, Mayangsari - (2021) Structural Equation Modelling	Variable (Y): Bank Performance Variable (X): Bank and Fintech Collaboration	The findings of this study were unable to demonstrate the effect of bank and fintech collaboration on banking performance, and the application of rules did not strengthen the relationship between these two factors.
7	Kachumbo, (2012) - Panel data	Variable (Y): ROA Variable (X): Advance loan amount, Total customers, Capital Adequacy	The considerable influence of capital adequacy and customer count suggests that these two variables are crucial markers of the financial health of commercial banks following the introduction of general banking technology. In addition, it is concluded that the insignificant link between loan size and financial performance of commercial banks

			Fintech might be interpreted as nonperforming loans or loan defaults. In essence, commercial banks' financial performance may suffer as a result.
8	Sedera (2020) - Regression Analysis	Variable (Y): Market share Variable (X): Growth of Borrowing, Growth of Lending	The data reveals a strong correlation between Fintech lending and Rural Bank (BPR), but only a small correlation with commercial banks. It can be concluded that Fintech lending penetration is connected with bank performance.
9	Suharti and Ardiansyah (2002) – Comparative Analysis	Variable (Y): Quality of Productive Asset Ratio Variable (X): Lending, Funding, Capital Raising	For the year preceding the implementation of BI rule no. 19/12/PBI/2017, the loan and capital raising variables have a considerable negative impact on the quality of productive assets, while the Funding variable has no effect.
10	Phan, Narayan, and Hutabarat (2018) - Regression Analysis	Variable (Y): NIM, ROA, ROE, and YEA Variable (X): Number of *fintech Companies* Control Variable: SIZE, CAP, CTI, LLP, DG, IIS and FC, GDP, INF.	The expansion of FinTech companies has a negative impact on the performance of banks.

The majority of the aforementioned references examine the impact of fintech advancements on banking performance. In terms of both funding and lending, the majority of these studies demonstrate that the introduction of fintech has resulted in a relative decrease in bank profitability. However, few studies have examined the short-term and long-term relationship between fintech advancements and banking performance, particularly in Indonesia. Thus, this study seeks to add references regarding the short- and long-term banking and fintech relationships in Indonesia.

4. Hypothesis

The hypothesis is a provisional solution to the challenges provided by the research on the existence of a particular link between the variables employed.

1 The number of fintech lending lenders has a negative impact on the short- and long-term financial performance of banks.
2 The amount of fintech lending borrowers has a detrimental impact on the short- and long-term financial performance of banks.
3 The amount of fintech lending loans has a negative impact on the short- and long-term financial performance of bank

3 Research Methodology

A. Research Objects and Research Subjects

This study examines the elements that influence the performance of banks. This research focuses on Indonesia. The dependent variable in this study is banking performance, while the independent variable is composed of three variables: the number of lenders, the number of borrowers, and the number of loans.

B. Data Types and Sources

This study employs a quantitative methodology in which all data are presented numerically; all data used are secondary. This secondary data source is a supplemental data source whose purpose is to supplement the primary data's required power. In a nutshell, secondary data are data that have been obtained by third parties [9] In this study, secondary data were gathered from the websites of the Financial Services Authority (OJK), Bank Indonesia, and the Central Statistics Agency (BPS). The information utilized is monthly data from July 2018 to September 2021. The data collection method used is documentation such as collecting, from the website of the Financial Services Authority (OJK) and Bank Indonesia.

C. Operational Definition

1. Variable Operational Definition.

The dependent variable and the independent variable are utilized in this investigation. The dependent variable can be regarded as a variable that is affected by the independent variable. This study's dependent variable is banking performance, while its independent variables are the number of lenders, the number of borrowers, and the quantity of loans. In this study, each variable is operationally defined as follows

Table 2. Research Variable

No	Variable	Label	Unit	Data Source
1	Banking performance	ROA	Percent	OJK
2	Number of lenders	JL	Unit	OJK
3	Number of borrowers	JB	Person	OJK
4	Loan amount	JP	Rupiah	OJK

a. Banking Performance Variables.

ROA is an indicator of a company's financial performance; the greater the ROA number, the better the company's performance. ROA relates to a company's net income and the levy of income tax on Maria and Tommy as corporate taxpayers (2013). The information utilized is monthly data from July 2018 to September 2021. The information is collected from OJK (Financial Services Authority).

b. Number of Lenders

The number of lenders corresponds to the number of Fintech Lending firms (peer to peer). The information utilized is monthly data from July 2018 to September 2021. The information is collected from OJK (Financial Services Authority).

c. Number of Borrowers.

In Fintech Lending, the number of borrowers corresponds to the number of loan beneficiaries (peer to peer). The information utilized is monthly data from July 2018 to September 2021. The information is collected from OJK (Financial Services Authority).

d. Loan Amount

The loan amount is the total loan amount from all Fintech Lending borrowers (peer to peer). The information utilized is monthly data from July 2018 to September 2021. The information is collected from OJK (Financial Services Authority).

D. Measuring Instruments.

The authors utilize statistical analysis tools such as Microsoft Excel 2016 and E-Views 7 in order to process secondary data acquired for this study. E-Views 7 is utilized to process regression data, while Microsoft Excel 2016 is utilized to process the construction of dynamic tables.

E. Data Analysis Method

This study employs the Error Correction Model (ECM) analysis approach as a means of calculating econometrics utilizing descriptive analysis methods that seek to uncover long-term and short-term associations that result from cointegration of research variables. Error Correction Model (ECM) model formulation (Basuki and Yuliadi, 2014):

$$\Delta ROA_t = {}_{a0} + {}_{a1}\Delta JL_t + {}_{a2}\Delta JB_t + {}_{a3}\Delta JP_t$$

Information :

1. ROAt : ROA banking performance in period t
2. JLt : Number of lenders in period t
3. JBt : Number of borrowers in period t
4. JPt : Loan amount in period t
5. α 0 1 2 3 4 : Short run coefficient

In this study, the author employs the Error Correction Model (ECM) analysis method to examine the data. Determine the influence of the independent variable on the dependent variable in Indonesian banking performance research.

F. Unit root test (unit root test).

According to Basuki and Yuliadi (2017), the data stationarity test or unit root test is a Dickey Fuller (DF) method test predicated on the following hypothesis:

H0 : hypothesis H0 is assumed that the time series data is not stationary (there is a unit root).

H1 : Hypothesis H1 assumes that the time series data is stationary (there is no unit root).

After obtaining the test results with the DF technique, the t-statistics findings are compared using the McKinnon critical value of 1%, 5%, and 10%. If the s-statistical data is less than the McKinnon critical value, then the null hypothesis H0 is accepted, indicating that the time series data is not stationary (there is a unit root) [3].

G. Integration Degree Test

If, as determined by the unit root test, the observed time series data is not stationary, the next step is to determine at what level of integration the data will become stationary. The degree of integration is assessed using the following model [3]:

$$\Delta ROA_t = \beta_1 + \delta \Delta ROA_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta ROA_t + e_t$$

$$\Delta ROA_t = \beta_1 + \beta_2 T + \delta \Delta ROA_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta ROA_t + e_t$$

If in both equations equals one, then the variable ROAt is said to be stationary at degree one and is denoted by the sign ROAt I. (1). Nevertheless, if the value of is equal to zero, the variable ROAt is not stationary with the first degree of integration. Therefore, the test is repeated until stationary ROAt variable data is acquired at the second, third, etc. degree of integration.

H. Cointegration Test

Basuki and Yuliada's cointegration test seeks evidence that the data have a long-term link (cointegration model) (2017). Ordinary Least Square regression can be used to gather data deemed to have a long-term relationship by evaluating the effect of independent variables on the dependent variable (OLS). If a regression has been performed, the findings must be at the level level. If the findings of the residual regression are significant at the level level, the hypothesis is regarded as having a long-term relationship or cointegration.

1. Error Correction Model (ECM).

This strategy relies on the capacity to examine the short- and long-term relationships between variables. Several phases are performed in the Error Correction Model (ECM) method, including the stationarity of the data to calculate the lag duration and the cointegration degree test. Basuki and Yuliadi's Error Correction Model (ECM) can be utilized for the estimating phase once everything has been completed (2017). In this study, the Error Correction Model is as follows:

$$ROA_t = \beta_0 + \beta_1 \log(JL)t + \beta_2 \log(JB)t + \beta_3 \log(JP)t + ECT$$

To make it easier to assess the elements that impact banking performance in Indonesia, the researchers refined the model presented above.

Minimizing the cost function of the equation with respect to Rt, we get:

$$ROA = \varepsilon ROA + (1- e)\ ROA\text{-}1 - (1 - e)\ ft\ (1\text{-}B)\ Zt)$$

Substituting ROAt – ROAt -1 to get:

$$ROA_t = \beta 0 + \beta 1 JL_t + \beta 2 JB_t + \beta 3 JP_t$$

Information :

ROAt : Banking performance in period t
JLt : Number of Lenders in period t
JBt : Number of Borrowers in period t
JPt : Loan amount for period t
0 1 2 3 : Long-run coefficient

While the short-term relationship is expressed by the following equation:

$DROA_t = \alpha_1\ DlogJL_t + \alpha_2\ DlogJB_t + \alpha_3\ DlogJP_t$

From the results of the parameterization of the short-term equation, a new form of equation may be derived; this equation was derived from the previous equation in order to measure the long-term parameter using econometric regression and the ECM model.

$DROA_t = \beta 0 + \beta 1\ DlogJL_t + \beta 2\ DlogJB_t + \beta 3\ DlogJP_t + DlogJL_{t-1} + DlogJB_{t-1} + DlogJP_{t-1} + ECT + \mu t$

$ECT = DlogJL_{t-1} + DlogJB_{t-1} + DlogJP_{t-1}$

Information :

DROAt : Banking performance in period t
DlogJLt : Number of Lenders in period t
DlogJBt : Number of Borrowers in period t
DlogJPt : Loan amount for period t
DlogJLt-1 : Number of lenders slack period t
DlogJBt-1 : Borrower Number Slack in period t
DlogJPt-1 : Loan Amount slack for period t
t : Residual
D : Change
Q : Time period
ECT : Error Correction Term

If the absolute value of the Error Correction Term coefficient is between 0 and 1 and the p-value is less than a = 1%, 5%, or 10%, then the ECT is deemed significant. If the Error Correction Model's ECT is substantial, the model can be used to estimate the long-term connection between a dependent variable and its independent variable. If the ECT is not statistically significant, there may be a specification mistake in the selection of key variables, such that the equilibrium relationship cannot be predicted by the initial theory (Sunyoto, 2016).

I. Classical Assumption Test

1. Normality test

This test is used to determine whether or not the residuals are normally distributed by comparing them to the Jarque Bera (JB) value with the X2 table, specifically:

The K-S test was carried out by comparing the significance value of residual normality, with the following criteria:

- If Sig.(p) > α = 0,05 then the data is normally distributed.
- If Sig.(p) < α = 0,05 then the data is not normally distributed.

2. Heteroscedasticity Test

Heteroscedasticity is a test to determine if the disturbance variable is changing or not constant. The objective of the heteroscedasticity test is to determine whether there is an inequality in variance between the residuals of one observation and another. If the variation from one observation to the next remains constant, it is referred to as homoscedasticity, however if it varies, it is referred to as heteroscedasticity. If the likelihood of OBS*R-square is more than 0.05, heteroscedasticity is not present in the model; conversely, if OBS*R-square is less than 0.05, heteroscedasticity is present.

3. Multicollinearity Test

The relationship between independent variables in a regression model is multicollinearity. Multicollinearity is a phenomenon that can make it difficult to observe the effect of the independent variable on the dependent variable. A decent regression model is one that is free of multicollinearity issues. Multicollinearity is presumed to exist when the R2 value is high, the t-values of all independent variables are not statistically insignificant, and the F value is high. Multicollinearity has the effect of invalidating the significance or size of the variable coefficients and constants. Multicollinearity is believed to exist if the estimate yields a R squared more than 0.8, the F value is high, and the t-statistic value of almost all or all of the independent variables is not statistically significant (Basuki & Prawoto, 2017).

4. Autocorrelation Test

Autocorrelation is the correlation between this year's residual and the error rate from the prior year. In order to determine whether a model has autocorrelation illness, we can use the Durbin-Watson statistical value or the Breush-Godfrey Test.

Then it is possible to determine the existence or absence of autocorrelation illness. Additionally, the Langrane Multiplier Test (LM Test) is utilized. Breush-Godfrey test, which compares the R-square probability value with = 5 percent (0.05).

The steps in testing are as follows:

Hypothesis:

a. If the probability of Obs*R2 > 0.05, it means no. Significant
b. If the probability of Obs*R2 < 0.05, it means that it is significant

Then if the probability of Obs*R2 > 0.05 then the model has no autocorrelation, and if the probability of Obs*R2 < 0.05 then the model has autocorrelation. Statistical Test

***5.* Coeficient Determinant Test (R^2)**

The R-Square Coefficient of Determination test was performed to examine the model's capacity to explain the fluctuation of the independent variables in order to measure the model's goodness or Goodness of Fit. The value of the coefficient of determination is between 0 and 1 (0R2=1); if R2 is little or equal to 0, the overall variance of the dependent variable cannot be explained by the independent variable. In contrast, if R2 is large or equal to 1, it indicates that the independent variable can adequately explain the total variation of the dependent variable. In this method, the R-Sequre value, which ranges from 0 to 1, determines the quality of the regression model.

6. F test

According to Kuncoro (2009)[9], the F test is used to test whether or not the effect of the independent variables simultaneously on the dependent variable is significant.

Hypothesis:

• H0 : All independent variables have no significant effect simultaneously on the dependent variable.
• H1: All variables have a slmuttan significant effect on the dependent variable.

In determining the magnitude of the significant value that is equal to 0.05. Then in making decisions (with significant values), namely:

• If the significant value is > than 0.05, then H0 is accepted and H1 is rejected

• If the significant value is < 0.05, then H0 is rejected and H1 is accepted

7. T - Test

The t-statistic test was used to determine the significance of the influence of the independent variables individually on the dependent variable and consider other variables to be constant. Here are the steps to perform the t-test:

1) Formulate a hypothesis

H0: 1 = 2 = 0 then individually there is no effect of each independent variable on the dependent variable.

H0: 1 2 0 then individually there is the influence of each independent variable on the dependent variable.

2) Decision making

In the t-test, decisions are made by comparing the probability value of the independent variable to the probability value of the dependent variable, which is 0.05 or 5 percent. If the probability value of the independent variable is more than 0.05, then the null hypothesis H0 is accepted, indicating that the independent variable partially has no effect on the dependent variable. In contrast, if the probability value of the independent variable is 0.05, then H0 is partially rejected and H1 is partially accepted, indicating that the independent variable partially affects the dependent variable.

4 Results and Discussion

A. Research Results

1. Unit Root Test

The unit root test is used to evaluate stationary time series data. If a time series is not stationary, it is said to have a unit root problem. Basuki and Prawoto (2017) state that the unit root problem can be identified by comparing the f-statistic value of the regression results to the Augmented Dickey Fuller test value with the following results:

Table 3. Unit Root Test Results

Variable	Level	1^{st} *Difference*
Prob. ROA	0,0904	0,0000
Prob. JL	0,9995	0,0000
Prob. JB	0,8522	0,0389
Prob. JP	1,0000	0,0316

Source: Eviews 7

On the basis of the data processing findings in table 3, it can be observed that there are non-stationary variables at the level level test, where data are considered stationary if the probability value of all variables is less than the significance level (0.5). In contrast, at the first level of testing, all variables had probabilities smaller than the significance level (0.5). Thus, it is possible to conclude that all variables are stationary at the initial level.

2. Estimation of Long-Term Equation

The results of data processing with the Eviews 7 program may explain the coefficient values of all variables, the f-test, the t-test, and the coefficient of determination test (R2) as indicated in the table below.

Table 4. Long-Term Estimate

Variable	*Coefficient*	*t-Statistic*	*Probability*
LOG(JL)	0,858246	6,896062	0,0000
LOG(JB)	0,485957	1,695647	0,0988
LOG(JP)	-0,974243	-2,834268	0,0076
C	2.022629	3,318042	0.0021
R-*squared*	0,799156		
Adjusted R-squared	0,781941		
F-*statistic*	4,642167		
Prob.*(F-statistic*	0,000000		

Source: Eviews 7

From table 4, the following equation can be arranged:

$$ROA = \beta_0\ 2{,}022629\ C + 0{,}858246\ \beta_1 logJL_t + 0{,}485957\ \beta_2 logJB_t - 0{,}974243\ \beta_3 logJP_t + e_t$$

a. Considering the independent variable constant, the total ROA is 20.2629

b. With a coefficient of 0.858246 and a probability of 0.0000, Variable Number of Lenders (JL) has a positive impact. Where the variable Number of Lenders (JL) has a large positive effect on ROA over the long term. This suggests that a 1 percent rise in the Number of Lenders (JL) will result in a 0.858246 percent improvement in ROA

c. With a coefficient of 0.485957 and a probability of 0.0988, Variable Number of Borrowers (JB) has a positive effect. This indicates that the variable Number of Borrowers (JB) has a positive but insignificant effect on ROA over the long term.

d. With a value of -0.974243 and a probability of 0.0076, Variable Amount of Loans (JP) has a positive impact. Where the variable Amount of Loans (JP) has a negative but insignificant effect on ROA over the long term. This indicates that a 1 percent increase in Loan Amount (JP) will reduce ROA by 0.974425 percent.

3. F – Test

The purpose of the F test was to determine whether all independent variables (JL, JB, and JP) in the model have a combined effect on the dependent variable (ROA). The F-statistic is 46,42167 with a Prob value (F-statistic) of 0.000000, which is less than 0.05 based on table 4. Based on these findings, it can be stated that JL, JB, and JP have a considerable influence on ROA.

4. T - Test

1) T test was utilized to examine the impact of each independent variable (JL, JB, and JP) on the dependent variable (ROA). If the probability value is less than 0.05, the independent variable impacts the dependent variable somewhat (individually).
2) The influence of JL's t-statistics on ROA If, according to the preceding table, JL has a significant value of 0.0000 less than 0.05 and the coefficient is 0.858246, then JL has a partially significant positive effect on ROA.
3) The impact on ROA of JB's t-statistics. According to the preceding table, JB has a significant value of 0.0988, which is larger than 0.05, and its coefficient is 0.485957; therefore, JB has a negligible positive effect on ROA.
   Effect of JP's t-statistics on ROA Given that JP has a significant value of 0.0076, which is less than 0.05, and the coefficient is -0.974243, JP has a substantial negative effect on ROA.

5. Coefficient of Determination Test (R^2)

The value of the coefficient of determination indicates the extent to which the independent variable may explain the fluctuation of the dependent variable. According to table 4, the adjusted R-squared value of 0.781941 indicates that the independent variables JL, JB, and JP account for 78.19 percent of the variance, while the remaining 21.81 percent is explained by factors other than those investigated.

6. Cointegration Test

The results of a cointegration test are produced by regressing the independent variable onto the dependent variable using ordinary least squares. In order to conclude that the test results exhibit cointegration, the residuals must be stationary at the level level. Typical cointegration techniques include the Engel-Granger test and the Durbin-Watson cointegrating regression test. In this study's cointegration test, residual data were subjected to the Augmented Dickey Fulley Unit Root Test in order to obtain a significant t-statistic with a probability of less than 0.05, and the following results were obtained:

Table Error! No text of specified style in document.**. Residual Data Unit Root Test Results**

Variable	*Probability*	Remark
ECT	0,0001	There is Cointegration

Source: Eviews 7

The probability value of the Error Correction Term (ECT) variable 0.0001 is less than 0.05, as shown in Table 5. This indicates that the Error Correction Term (ECT) variable is stationary at the level and that the ROA, JL, JB, and JP variables are cointegrated, allowing the test to proceed to the short-term equation estimation stage.

7. Model Error Correction Model (ECM)

A good and valid Error Correction Model (ECM) model must have a considerable Error Correction Term (ECT) that can quantify the regress and response of each out-of-balance period.

Table 6. ECM Model

Variable	*Coefficient*	*Probability*
D(LOG(JL))	0,214752	0,6288
D(LOG(JB))	0,562269	0,2093
D(LOG(JP))	-0,458719	0,4593
ECT(-1)	-0,793807	0,0000
R^2		0,413424
Adjusted R^2		0,342324
Prob(*F-statistic*)		0,001177

Source: Eviews 7

From table 6, the following equation can be arranged:

$$ROA_t = 0{,}214752\ \beta_1 \log JL_t + 0{,}562269\ \beta_2 \log JB_t - 0{,}458719\ \beta_3 \log JP_t - 0{,}793807\ ECT(-1) + e_t$$

a. With a coefficient of 0.214752 and a probability of 0.6288, Variable Number of Lenders (JL) has a positive effect. Where the variable Number of Lenders (JL) has no substantial beneficial influence on ROA over the short run.

b. With a coefficient of 0.562269 and a probability of 0.2093, Variable Number of Borrowers (JB) has a positive effect. This indicates that the variable Number of Borrowers (JB) has a positive but insignificant effect on ROA in the short term.

c. With a value of -0.458719 and a likelihood of 0.4593, Variable Amount of Loans (JP) has a favorable impact. Where the variable Amount of Loans (JP) has a negative but insignificant effect on ROA in the short term.

d. A good and valid ECM model is recognized to require a large ECT that can assess the regressand response of each period that deviates from equilibrium. If the coefficient value is -0.793807 and the chance of ECT is 0.0000 0.05, then ECT is unlikely. The model then illustrates a short-term and long-term relationship, meaning that if an error occurs, the short-term model will adjust to the long-term model.

8. Classical assumption test

a. Heteroscedasticity Test

Heteroscedasticity might lead to a biased evaluation. There are multiple approaches to detect heteroscedasticity's presence or absence. This includes the Breusch-Pagan-Godfrey test.

Table 7. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0,310313	Prob. F(2,31)	0,8690
*Obs*R-squared*	1,377509	*Prob. Chi-Square*(2)	0,8481

Source: Eviews 7

It is evident from table 7 that the Prob. The Chi-Square score of 0.8481 is greater than 0.05, indicating that this data lacks heteroscedasticity.

b. Autocorrelation Test

To evaluate whether a method exhibits autocorrelation, the Lagrange Multiplier (LM) test is applied. The model lacks autocorrelation if the value of Obs*R-squared is less than the value in the table.

Table 8. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	2,546725	Prob. F(2,31)	0,0946
*Obs*R-squared*	5,362499	*Prob. Chi-Square*(2)	0,0685

Sumber: Hasil Olahan *Eviews 7*

The Prob.Chi-Square score of 0.0685 in Table 8 is greater than 0.05, indicating that there is no autocorrelation in this data.

c. Multicollinearity Test

To determine the presence or lack of multicollinearity in the model, partial correlation was used between independent variables. If the correlation coefficient is greater than 0.85, then multicollinearity is present; if the correlation coefficient is less than the matrix value (0.85), then multicollinearity is not present.

Table 9. Multicollinearity Test

Variable	*Coefficient Variance*	*Uncentered* VIF	*Centered* VIF
D(LOG(JL))	0,193652	1,530123	1,456191
D(LOG(JB))	0,192845	7,683972	2,249655
D(LOG(JP))	0,375291	10,50995	2,679858
ECT(-1)	0,028588	1,035732	1,034526
C	0,001811	4,859372	NA

Source: Eviews 7

Multicollinearity can be detected by examining the Variance Inflation Factors (VIF). The test criterion states that if the Centered VIF value is less than 10, there is no multilinearity between the independent variables, and vice versa. Table 5.8 demonstrates that the total Centered VIF value is less than 10, hence the model's assumption does not have multicollinearity issues.

B. Discussion

1. Short Term.

a. Variable Number of Lenders (JL).

With a coefficient of 0.214752 and a probability of 0.6288, Variable Number of Lenders (JL) has a positive effect. This indicates that the variable Number of Lenders (JL) has a positive but insignificant effect on ROA in the short run. This is consistent with the findings of Sari et al. (2020)[21], who notice a distinct pattern in the finech effect that varies on the company's qualities. Finech has a detrimental impact on both large and small banks, although the impact is greater for large banks. Smaller enterprises can respond to technology developments more swiftly than their larger counterparts. Due to the delayed reaction of the substantial modification system, large Indonesian banks have not been able to adjust to finech changes in the near term, according to a study of short-term bank performance. Because large corporations must bear more costs. In contrast, finech predicts success only for mature institutions and not for banks that are relatively new.

b. Variabel Number of *Borrower* (JB).

With a coefficient of 0.562269 and a probability of 0.2093, Variable Number of Borrowers (JB) has a positive effect. This indicates that the variable Number of Borrowers (JB) has a positive but insignificant effect on ROA in the short term. Lenz (2017)[10] found that the potential of peer-to-peer lending to provide cheaper credit than banks was a factor in the borrower's decision to utilize peer-to-peer lending, but was not the primary motivator. Customers of the peer-to-peer lending platform are primarily those who need money quickly but are unable to obtain a bank loan. As a result, the peer-to-peer lending platform is limited and operates as a supplement to the bank, not as a competitor. Several banks are also beginning to learn from peer-to-peer lending platforms that utilize the Internet and big data technology. Some banks, for instance, establish massive data centers and use applications to expand their operations.

c. Variable Loan Amount (JP).

With a value of -0.458719 and a likelihood of 0.4593, Variable Amount of Loans (JP) has a negative impact. This indicates that the variable Amount of Loans (JP) has a negative but insignificant effect on ROA in the short term. This study parallels the research undertaken by Zhang et al (2019)[29]. With the rapid expansion of the scale of peer-to-peer lending loan balances, many people are aware of the importance and convenience of peer-to-peer lending without approval or collateral, which has been acknowledged by many. However, banks are still stricter and more careful with each loan, which makes it difficult for small and medium-sized enterprises (SMEs) and individuals to obtain loans from banks.

2. Long Term.

a. Variable Number of Lenders (JL).

With a coefficient of 0.858246 and a probability of 0.0000, Variable Number of Lenders (JL) has a positive impact. Where the variable Number of Lenders (JL) has a large positive effect on ROA over the long term. This suggests that a 1 percent rise in the Number of Lenders (JL) will result in a 0.858246 percent improvement in ROA. This research is consistent with Ridwan Muchils and Prastika's (2019) findings that it will be easier to boost profitability through regular partnership with Fintech. This is consistent with Opler et al(2001).'s[15] finding that firm size may be determined by a number of factors, such as total sales, total assets, and market capacity, and that company size has a positive and significant effect on ROA [19].

b. Variable Number of Borrowers (JB).

With a coefficient of 0.485957 and a probability of 0.0988, Variable Number of Borrowers (JB) has a positive effect. This indicates that the variable Number of Borrowers (JB) has a positive but insignificant effect on ROA over the long term. This suggests that a 1 percent rise in the Number of Borrowers (JB) will result in a 0.485957 percent improvement in ROA. This result is consistent with the short-term behavior of the phenomena. Although Lenz (2017)[10] found that borrowers are more interested in peer-to-peer lending since it is less expensive than bank loans, this is not the primary reason. The additional flexibility that peer-to-peer lending provides to institutions is a favorable aspect. However, neither the comparison of the level of non-performing loans between the platform and the bank nor the distribution of borrowers across the platform's risk categories can prove that the platform and the bank segment credit risk differently. However, because the platform's credit score process is significantly different from the bank's method, it is possible that the evaluation findings will vary. Perhaps some bank-rejected applicants are eventually accepted by the peer-to-peer lending network. Due to disparities in credit risk evaluation. Peer-to-peer lending services may have superior algorithms because they specialize in information processing. Another argument is that the distinction between screening and funding in peer-to-peer lending gives a positive incentive to appropriately screen borrowers.

c. Variable Loan Amount (JP).

With a value of -0.974243 and a probability of 0.0076, Variable Amount of Loans (JP) has a negative impact. Where the variable Amount of Loans (JP) has a negative but insignificant effect on ROA over the long term. This indicates that a 1 percent increase in Loan Amount (JP) will reduce ROA by 0.974425 percent. This study parallels the research undertaken by Zhang et al (2019)[29]. This indicates that bank performance will suffer if fintech companies continue to expand and lend. The impact can imperil the bank's very viability. Because if the bank is unable to profitably manage its assets, it will hinder banking performance. If bank clients diminish and transfer to fintech, as a result of the increase in fintech, banks assets and profits will fall, resulting in a decline in banking performance. The ratio of net income to total equity measures a company's ability to generate profits for its shareholders. Mardiyato (2009). If the bank's income exceeds its expenses, profits will be realized, and the greatest bank's income comes from credit or credit interest.

5 Conclusions and Recommendations

A. Conclusion

On the basis of the study's findings, it can be inferred that:

1. According to the results of the Error correction model, there is a long-term association between the number of lenders, borrowers, and P2P fintech loans in Indonesia and banking performance. Short-term imbalances are subject to change on the long term. Consequently, there is a tendency for short-term and long-term interaction conditions to alter, meaning that the relationship that occurs in the short term may differ in the long run.
3. The amount of lenders, borrowers, and P2P fintech loans have no effect on the performance of banks over the near term. This is due to the peculiarities of retail loans, which are often short-term.

4. However, a substantial association exists between the number of lenders, borrowers, and P2P fintech loans over the long run. Long-term banking success is favorably and strongly related to the quantity of lenders and borrowers. This is due to the altering behavior of banking transactions as well as the simplicity and speed of service — supply led demand – yet the amount of consumer loans is very small when segmented.
5. While the results of the variable number of loans on banking performance indicate a negative correlation, this confirms prior findings that when the demand for credit through P2P lending rises, the number of loans increases and the behavior of lenders shifts away from banks.

B. Suggestion

As a result of the significant development of digital financial technology that operates as a bank, the aforementioned research indicates that the behavior of borrowers and lenders has shifted. As evidenced by the performance of banks, although it does not cause disruption in the near term, there is a tendency for it to do so in the long run. Thus, market segmentation is required so that they can complement one another, but within a complete regulatory framework so as not to harm retail consumers and banking institutions.

C. Research Limitations

This research has not determined the point of equilibrium between optimal P2P fintech development and optimal banking performance. This point is expected to provide resilience for both fintech institutions and bank financial institutions, particularly when the financial system is under pressure from both within and beyond.

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