







# The Effect of Fintech on Conventional Bank Performance and Bank Risk

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**Abstract.** Fintech in Indonesia is growing very rapidly, this is also very interesting for researchers. This study looks at the effect of Fintech on the performance and risk of conventional banks in Indonesia. The proxy for fintech in this study is P2P lending and the adoption of fintech technology by banks. The number of conventional banks in Indonesia is 107 banks, and this study took a sample of 81 conventional banks. This research period is for 5 years from 2017 to 2021. The results show that P2P lending and fintech adoption do not affect the performance or risk of conventional banks. However, what is interesting about the results of this study is that the interaction between each independent variable with the moderating variable of bank ownership structure shows the results of the influence of the independent variable on the dependent variable which is significant. We find that bank ownership structure is proven to strengthen the effect of P2P lending and fintech adoption on bank risk, while the effect on performance is not significant. We found that the presence of P2P lending will increase the risk of conventional banks. While the effect of fintech adoption shows a lowering effect on bank risk, especially those owned by cooperatives. Our findings support previous research results that the presence of P2P lending will increase bank risk, and the adoption of fintech will decrease risk.

**Keywords:** Fintech · Bank Performance · Bank Risk · dan Bank Ownership Structure

## 1 Introduction

The rapid development of technology affects the development of the global economic and financial world. According to the Financial Services Authority (OJK) fintech is an innovation in the financial services industry that utilizes the use of technology. According to The World Bank, financial technology (Fintech) can create new opportunities and challenges in the financial sector, both in terms of consumers, financial institutions and regulators. Fintech services allow business transactions anytime, anywhere and can provide flexibility for all users [1]. Although recently many banks have begun to develop financial technology by adopting fintech, on the other hand, there are also many fintech companies in Indonesia that are independent companies and not part of banks.



**Fig. 1.** P2P Lending growth in Indonesia from 2017 until 2021

Quoted from CNBC Indonesia following the Financial Stability Board (FSB), in Indonesia there are four categories of fintech innovation types. Namely payment, clearing and settlement. E-aggregator, risk management and investment then the last is peer to peer lending. The rapid development of fintech makes this research interested in following previous research [2] which looks at the impact of the growth of fintech companies on the performance of conventional banks in Indonesia. However, this study wants to look further into the impact of fintech in Indonesia. This study wants to look at the impact of fintech more broadly by looking at its impact on bank risk. In addition, the adoption of fintech technology is also highlighted in this study.

Figure 1 shows the rapid growth of fintech from 2017 to 2021. The presence of fintech, in this case P2PL, will directly lead to competition in the banking business, especially in lending to borrowers. This competition will have an impact on bank operations, which in turn will affect the performance and risk of the bank. Previous research says that fintech is a serious threat to traditional banking. The growth of fintech companies has a negative influence on banking performance [3] both conventional banks and Islamic banks [4]. Fintech is considered to have the opportunity to take over the main functions of traditional banks [5]. Fintech is becoming more preferred by consumers who emphasize the importance of transparency [6] and data security [7, 8].

## 2 Hypothesis Development

### 2.1 P2P Lending Loans

*Peer to peer lending* (P2P) is a fintech that is the main competitor of banks in becoming a loan service provider in this day and age. This is because P2P is considered to have emerged as an alternative or new option related to lending services around the world [9]. P2P is considered to reduce bank performance [10–13]. The development of fintech increases bank risk when the banking platform is affected by market risk [14]. There is strong evidence that fintech worsens risk taking and increases bank risk [15–17]. Although there have been many studies related to fintech and bank risk, the debate is still on whether fintech increases bank risk or fintech can reduce bank risk. Other research

suggests that fintech can reduce information costs, increase transparency and reduce economic capital [18]. The description above can generate the following hypothesis:

H1a: Total P2P Lending loans have an effect decreasing on Bank Performance

H1b: Total P2P Lending loans have an effect on increasing Bank Risk.

## 2.2 Technology Adoption

The development of financial technology makes banks inevitably have to adapt and adopt technology. As long as banking companies can adapt technology, it is not impossible that fintech developments can improve bank performance. Overall, fintech involves various applications of advanced technology that can support the development of the financial industry [19]. There is a significant positive relationship from fintech technology innovation to performance [20] and bank profitability [21]. Fintech technology can be used in reducing credit risk by making more reasonable credit assessments on credit default risk [22]. Personal credit evaluation is the most important thing in minimizing credit risk [23]. Other research reveals that fintech technology can be utilized in saving transaction costs, allocating credit resources, and better credit supervision [24]. The description above can generate the following hypothesis:

H2a: Fintech Adoption by banks can increase Bank Performance

H2b: Fintech Adoption by banks can decrease Bank Risk.

## 2.3 Agency Theory

Agency theory states that agency conflicts can occur between the principal (owner) and the agent (owner) [25]. (Agency Theory) explains the relationship between parties who own the company's Agency Theory or who delegate certain decision making (principal/owner/share-holder) to company managers (Agent). Agency theory focuses on the relationship in order to obtain the most efficient contract from the principal and agent relationship. The owner of the company expects management to be able to maximize the re-sources in the company so that the company's goals can be achieved.

A bank is also not free from agency conflicts. The results show that large public, private, and foreign banks are more efficient than small and medium-sized banks. Ownership structure is a significant determinant of efficiency [26]. Our results show that foreign banks outperform their domestic competitors, with bank size and profitability being the main drivers [27]. Findings reveal that bank ownership affects bank liquidity [28]. We found that ownership concentration has a significant and positive impact on liquidity creation [29]. The aforementioned description can generate the following hypothesis:

H3a: Bank Ownership Structure will strengthen the influence of fintech on Bank Performance

H3b: Bank Ownership Structure will strengthen the influence of fintech on Bank Risk.

The addition of bank ownership structure is another novelty of this study, but it is also expected to clarify the impact of fintech companies in Indonesia on conventional banks in Indonesia. The results of this study are expected to be useful for all sectors concerned with fintech and banks in Indonesia. For example, this research is expected to be useful for OJK as a state agency that functions as a financial accelerator. The results of the research can be an input for OJK in making policies that will regulate both fintech and banks in the current technological era. Furthermore, this research is expected to be a reference for bank stakeholders. They can certainly utilize the results of this research as a foundation in facing the era of financial technology. The facts from this research are expected to help banks in formulating strategies and policies in the future.

### 3 Methodology

#### 3.1 Data

This study uses a random effect panel data regression model to test the effect of each variable tested in this study. The random effect model is the selected model in this study, after the researchers carried out the model selection process for this study. The samples selected in this study were conventional banks that published annual reports or financial reports during the 2017–2021 research period on the OJK website. The final sample obtained was 81 conventional banks. The following are the variables used in this study.

#### 3.2 Estimation Formula

This study uses five dependent variables, three for bank performance and two for bank risk. So this research will have five research models. The following is the estimation formula used in this study:

$$\begin{aligned} NIM_{i,t} = & \beta_0 + \beta_1 LOG\_LEND_{i,t} + \beta_2 ADOPT_{i,t} + \beta_3 LOG\_LEND * GOV_{i,t} \\ & + \beta_4 LOG\_LEND * PRIV_{i,t} + \beta_5 LOG\_LEND * COP_{i,t} \\ & + \beta_6 LOG\_LEND * FOR_{i,t} \\ & + \beta_7 LOG\_LEND * ECT_{i,t} + \beta_8 ADOPT * GOV_{i,t} + \beta_9 ADOPT * PRIV_{i,t} \\ & + \beta_{10} ADOPT * COP_{i,t} + \beta_{11} ADOPT * FOR_{i,t} + \beta_{12} ADOPT * ECT_{i,t} \\ & + \beta_{13} LN\_SIZE + \beta_{14} CAP + \beta_{15} IF\alpha_i + \mu_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} ROA_{i,t} = & \beta_0 + \beta_1 LOG\_LEND_{i,t} + \beta_2 ADOPT_{i,t} + \beta_3 LOG\_LEND * GOV_{i,t} \\ & + \beta_4 LOG\_LEND * PRIV_{i,t} + \beta_5 LOG\_LEND * COP_{i,t} \\ & + \beta_6 LOG\_LEND * FOR_{i,t} + \beta_7 LOG\_LEND * ECT_{i,t} \\ & + \beta_8 ADOPT * GOV_{i,t} + \beta_9 ADOPT * PRIV_{i,t} + \beta_{10} ADOPT * COP_{i,t} \\ & + \beta_{11} ADOPT * FOR_{i,t} + \beta_{12} ADOPT * ECT_{i,t} + \beta_{13} LN\_SIZE \\ & + \beta_{14} CAP + \beta_{15} IF\alpha_i + \mu_{it} \end{aligned} \quad (2)$$

$$ROE_{i,t} = \beta_0 + \beta_1 LOG\_LEND_{i,t} + \beta_2 ADOPT_{i,t} + \beta_3 LOG\_LEND * GOV_{i,t}$$

$$\begin{aligned}
& + \beta_4 \text{LOG\_LEND} * \text{PRIV}_{i,t} + \beta_5 \text{LOG\_LEND} * \text{COP}_{i,t} \\
& + \beta_6 \text{LOG\_LEND} * \text{FOR}_{i,t} + \beta_7 \text{LOG\_LEND} * \text{ECT}_{i,t} \\
& + \beta_8 \text{ADOPT} * \text{GOV}_{i,t} + \beta_9 \text{ADOPT} * \text{PRIV}_{i,t} + \beta_{10} \text{ADOPT} * \text{COP}_{i,t} \\
& + \beta_{11} \text{ADOPT} * \text{FOR}_{i,t} + \beta_{12} \text{ADOPT} * \text{ECT}_{i,t} \\
& + \beta_{13} \text{LN\_SIZE} + \beta_{14} \text{CAP} + \beta_{15} \text{IF}\alpha_i + \mu_{it}
\end{aligned} \tag{3}$$

$$\begin{aligned}
\text{NPL}_{i,t} = & \beta_0 + \beta_1 \text{LOG\_LEND}_{i,t} + \beta_2 \text{ADOPT}_{i,t} + \beta_3 \text{LOG\_LEND} * \text{GOV}_{i,t} \\
& + \beta_4 \text{LOG\_LEND} * \text{PRIV}_{i,t} + \beta_5 \text{LOG\_LEND} * \text{COP}_{i,t} \\
& + \beta_6 \text{LOG\_LEND} * \text{FOR}_{i,t} + \beta_7 \text{LOG\_LEND} * \text{ECT}_{i,t} \\
& + \beta_8 \text{ADOPT} * \text{GOV}_{i,t} + \beta_9 \text{ADOPT} * \text{PRIV}_{i,t} + \beta_{10} \text{ADOPT} * \text{COP}_{i,t} \\
& + \beta_{11} \text{ADOPT} * \text{FOR}_{i,t} + \beta_{12} \text{ADOPT} * \text{ECT}_{i,t} + \beta_{13} \text{LN\_SIZE} \\
& + \beta_{14} \text{CAP} + \beta_{15} \text{IF}\alpha_i + \mu_{it}
\end{aligned} \tag{4}$$

$$\begin{aligned}
\text{SD ROE}_{i,t} = & \beta_0 + \beta_1 \text{LOG\_LEND}_{i,t} + \beta_2 \text{ADOPT}_{i,t} + \beta_3 \text{LOG\_LEND} * \text{GOV}_{i,t} \\
& + \beta_4 \text{LOG\_LEND} * \text{PRIV}_{i,t} + \beta_5 \text{LOG\_LEND} * \text{COP}_{i,t} \\
& + \beta_6 \text{LOG\_LEND} * \text{FOR}_{i,t} + \beta_7 \text{LOG\_LEND} * \text{ECT}_{i,t} \\
& + \beta_8 \text{ADOPT} * \text{GOV}_{i,t} + \beta_9 \text{ADOPT} * \text{PRIV}_{i,t} + \beta_{10} \text{ADOPT} * \text{COP}_{i,t} \\
& + \beta_{11} \text{ADOPT} * \text{FOR}_{i,t} + \beta_{12} \text{ADOPT} * \text{ECT}_{i,t} \\
& + \beta_{13} \text{LN\_SIZE} + \beta_{14} \text{CAP} + \beta_{15} \text{IF}\alpha_i + \mu_{it}
\end{aligned} \tag{5}$$

### 3.3 Variable Description

#### Variable Dependent

Bank performance is measured using Net Interest Margin (NIM), Return On Asset (ROA), and Return On Equity (ROE), while for Bank Risk will be measured using Non Performance Loan (NPL), and Standard Deviation\_ROE (SD\_ROE). The following is the operational definition of each dependent variable:

- NIM: Net interest income/Average Earning Assets  $\times$  100%  
ROA: Net Profit After Tax/Total Assets  $\times$  100%  
ROE: Net Profit After Tax/Equity  $\times$  100%  
NPL: (Substandard + Doubtful + Bad Debt)/Credit Disbursed]  $\times$  100%  
SD\_ROE: Standard Deviation of ROE.

#### Variable Independent

The independent variables in this study are Total P2P Loans (LEND) and Fintech Technology Adoption (ADOPT). The following is an operational definition of each independent variable:

LEND: Logarithm of P2P loan amount each year

ADOPT: Percentage of five adoption criteria.

This study uses five criteria to measure the level of technology adoption by banks such as the use of ATMs, Internet Banking, SMS Banking, E-commerce, and cooperation with fintech lending companies.

### Variable Moderating

This study uses the variable Bank ownership structure as a moderating variable. Bank ownership structure consists of government ownership (GOV), national private (PRI), cooperative (COP), foreign (FOR), and other ownership (ETC). The following is the measurement of these variables:

GOV:  $(\text{Total Government Ownership} / \text{Total Ownership}) \times 100\%$

PRIV:  $(\text{Total Private Ownership} / \text{Total Ownership}) \times 100\%$

COP:  $(\text{Total Cooperative Ownership} / \text{Total Ownership}) \times 100\%$

FOR:  $(\text{Total Foreign Ownership} / \text{Total Ownership}) \times 100\%$

ETC:  $(\text{Total Other Ownership} / \text{Total Ownership}) \times 100\%$ .

### Variable Control

There are 3 control variables in this study, namely Bank size (SIZE), Total Bank capitalization (CAP) and inflation (INF). The following is the measurement of each variable:

SIZE: Logarithm of Total Assets

CAP: Total Equity/Total Assets

INF: Inflation Rate in Indonesia.

## 4 Result

Table 1 shows the descriptive statistics of this study. It can be seen that the mean value of NIM is 5.004963, mean value of ROA 1.385197, mean value of ROE 7.564404, mean value of NPL 1.443281, mean value of SD\_ROE 3.723318, mean value of LENDING  $1.09e+14$ , mean value of ADOPT 65.13854, average GOV value 33.34179, average PRIV value 33.77603, average COP value 0.6292443, average FOR value 30.80569, average ETC value 1.523134, average SIZE value 6.77218, average CAP value 0.19166, average INF value 2.616599. In addition to the average value data, there are also maximum, minimum and standard deviation values of each variable that will be used in this study.

Table 2 shows the correlation matrix of the tested variables. NIM is positively correlated with ROA with a value of 0.4379. NIM is positively correlated with ROE with a value of 0.4288. NIM is negatively correlated with NPL with a value of  $-0.1525$ . NIM is negatively correlated with SD ROE with a value of  $-0.2352$ . NIM is negatively correlated with LENDING with a value of  $-0.1426$ . NIM is negatively correlated with ADOPT with a value of  $-0.0499$ . NIM is positively correlated with GOV with a value

**Table 1.** Statistic Descriptive

Variable	Observation	Mean	Std. Dev	Min	Max
NIM	397	5.004963	2.295226	-2.58	19.3
ROA	397	1.385197	1.641708	-11.27	4.97
ROE	397	7.564404	9.409588	-34.1	25.64
NPL	397	1.443218	1.302153	0	9.92
SD_ROE	397	3.723318	5.72434	0	32.67
LENDING	397	1.09e+14	1.06e+14	1.60e+12	2.96e+14
ADOPT	397	65.13854	29.09048	0	100
GOV	397	33.34179	44.05526	0	100
PRIV	397	33.77603	40.56993	0	100
COP	397	0.6292443	3.983359	0	47.16
FOR	397	30.80569	41.9476	0	100
ETC	397	1.523134	6.648555	0	49.35
SIZE	397	6.77218	1.426163	2.896526	9.196663
CAP	397	0.19166	0.1436646	0.0015874	1.075036
INF	397	2.66599	0.7352182	1.68	3.61

of 0.4138. NIM is negatively correlated with PRIV with a value of  $-0.0935$ . NIM is positively correlated with COP with a value of  $0.0350$ . NIM is negatively correlated with FOR with a value of  $-0.3416$ . NIM is negatively correlated with ETC with a value of  $-0.0345$ . NIM is negatively correlated with SIZE with a value of  $-0.1534$ . NIM is positively correlated with CAP  $0.1083$ . NIM is positively correlated with INF with a value of  $0.1617$ . There is a high correlation between ROA and ROE with a value of  $0.8415$ . This is natural because the calculation of ROA and ROE both use Return as their divisor.

Tables 3 and 4 are the results of regression tests conducted using the fixed effect model. The results of Table 3 show the results where P2P loans (LOG\_LEND) have a significant negative effect on NPL worth  $-11.94$ . It can be concluded that P2P loans make conventional bank credit risk decrease. Furthermore, none of the other 4 dependent variables are affected by the existence of P2P loans. The adoption variable is also not found to have an effect on either bank performance or bank risk. Then the next step is to include the ownership structure variable as moderation on the P2P loan variable. The result is that all types of ownership have a significant positive effect on NPL. This suggests that bank ownership increases credit risk. It was also found that cooperative ownership decreases risk through SD ROE measurement. Furthermore, there is no other effect of P2P lending moderated by ownership structure on bank performance or risk.

Table 4 is a continuation of Table 3. Table 4 shows the results of technology adoption moderated by ownership structure on bank performance and risk. The results show that only cooperative ownership has a significant negative effect on NPL and a significant

Table 2. Correlation Matrix

	NIM	ROA	ROE	NPL	SD_ROE	LENDING	ADOPT	GOV	PRIV	COP	FOR	ETC	SIZE	CAP	INF
NIM	1.000														
ROA	0.438	1.000													
ROE	0.429	0.842	1.000												
NPL	-0.153	-0.374	-0.456	1.000											
SD_ROE	-0.235	-0.349	-0.374	0.232	1.000										
LENDING	-0.143	-0.043	-0.020	-0.125	-0.073	1.000									
ADOPT	-0.050	0.040	0.180	-0.178	-0.055	0.233	1.000								
GOV	0.414	0.406	0.557	-0.258	-0.119	-0.003	0.098	1.000							
PRIV	-0.094	-0.171	-0.245	0.225	0.112	-0.003	-0.016	-0.508	1.000						
COP	0.035	-0.076	-0.051	0.176	0.348	-0.067	0.036	-0.007	0.012	1.000					
FOR	-0.342	-0.264	-0.358	0.038	-0.020	0.023	-0.118	-0.555	-0.415	-0.111	1.000				
ETC	-0.035	0.056	0.089	-0.012	0.014	-0.050	0.175	-0.012	-0.136	0.093	-0.026	1.000			
SIZE	-0.153	0.035	0.077	-0.115	-0.116	0.480	0.414	0.013	-0.129	-0.088	0.099	0.128	1.000		
CAP	0.108	0.044	-0.077	-0.013	-0.061	0.055	-0.101	-0.131	0.100	-0.090	0.038	0.072	-0.031	1.000	
INF	0.162	0.073	0.064	0.116	0.053	-0.863	-0.246	0.007	0.007	0.083	-0.033	0.059	-0.624	-0.051	1.000



**Table 3.** Fixed Effect Regression Result

Fixed Effect Regression					
	NIM	ROA	ROE	NPL	SD_ROE
LOG_LEND	1.504	1.656	5.042	-11.94*	38.09
	(0.57)	(0.32)	(0.11)	(-1.82)	(1.42)
ADOPT	-0.460	0.198	0.731	1.504	-5.426
	(-1.08)	(0.25)	(0.11)	(1.60)	(-1.40)
LOG_LENDxGOV	-0.0255	-0.0129	0.00223	0.131**	-0.413
	(-0.89)	(-0.23)	(0.00)	(1.98)	(-1.53)
LOG_LENDxPRIV	-0.0299	-0.00646	0.0242	0.131**	-0.404
	(-1.03)	(-0.12)	(0.05)	(1.97)	(-1.48)
LOG_LENDxCOP	-0.0214	-0.0150	-0.0317	0.160**	-0.449
	(-0.72)	(-0.28)	(-0.07)	(2.47)	(-1.70)
LOG_LENDxFOR	-0.0236	-0.00517	0.0339	0.25*	-0.383
	(-0.84)	(-0.10)	(0.08)	(1.93)	(-1.48)
LOG_LENDxETC	-0.0258	-0.000692	0.0579	0.121*	-0.363
	(-0.94)	(-0.00)	(0.12)	(1.81)	(-1.30)
N	397	397	397	397	397

Note(s): t statistics in parentheses \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

positive effect on SD ROE. The rest of the moderation of government, private, foreign and other ownership has no effect on either bank performance or risk. For the results of the control variables, it is found that total assets have a significant positive effect on NIM and Inflation has a positive effect on NPL.

## 5 Discussion

This is different from previous research which found that P2P lending reduces bank performance [2]. The results of this study showed different results. So it is concluded that the increase in P2P lending is no longer a factor that reduces bank performance. Interesting results were found when P2P loans reduce credit risk (NPL). This happens because P2P loans are substitutes for loans from banks, as can be seen from the fact that bank consumers switch to P2P borrowing [30]. The ease of borrowing is a factor in why consumers prefer P2P as a new alternative to loan services [9]. Furthermore, the results reveal that all types of ownership have a significant positive effect on NPL. This is in line with previous research when government ownership increases bank risk [31], private ownership also increases credit risk [32], and foreign ownership is considered to often charge high-interest rates, especially in developing countries, thereby increasing defaults [33] and for cooperative ownership it is different. With previous research which says that the ownership of cooperatives with large assets has a low systematic and business risk

**Table 4.** Fixed Effect Regression Result (Continue)

Fixed Effect Regression					
	NIM	ROA	ROE	NPL	SD_ROE
ADOPTxGOV	0.00451	-0.00150	-0.00458	-0.0153	0.0557
	(1.03)	(-0.19)	(-0.07)	(-1.62)	(1.45)
ADOPTxPRIV	0.00483	-0.00198	-0.00300	-0.0154	0.0549
	(1.13)	(-0.24)	(-0.09)	(-1.64)	(1.42)
ADOPTxCOP	0.00255	0.000848	0.00891	-0.0195**	0.0682*
	(0.59)	(0.11)	(0.14)	(-2.13)	(1.83)
ADOPTxFOR	0.00393	-0.00227	-0.00774	-0.0148	0.0520
	(0.95)	(-0.29)	(-0.12)	(-1.62)	(1.41)
ADOPTxETC	0.00477	-0.00342	-0.0132	-0.0436	0.0474
	(1.15)	(-0.41)	(-0.19)	(-1.43)	(1.19)
SIZE	0.627*	-0.286	-2.947	-0.134	0.786
	(2.13)	(-0.83)	(-1.64)	(-0.67)	(0.99)
CAP	0.398	0.821	5.022	-0.525	-1.126
	(0.46)	(0.85)	(1.17)	(-0.86)	(-0.62)
INF	0.278	0.786	6.345	0.882**	-1.575
	(0.79)	(1.12)	(1.53)	(1.99)	(-0.93)
_cons	16.40	-10.76	-91.64	-12.20	29.00
	(2.31)	(-0.86)	(-1.62)	(-1.43)	(1.03)
N	397	397	397	397	397

Note(s): t statistics in parentheses \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

[34]. This is not the case in Indonesia because the average ownership of cooperatives in Indonesia (Table 1) is less than 1% which shows that they are less dominant in making decisions regarding bank policies. Banks with cooperative ownership are considered to have large assets so it will reduce their risk [34], this study supports the results where in Indonesia risk measurement using SD ROE is proven to decrease when there is cooperative ownership in banks.

Bank adoption does not have a significant impact on banks. This is because the development of financial technology in Indonesia has existed since 2010 [35] and the majority of conventional banks have adopted it (Table 1). It can be seen that the average adoption rate of conventional banks in Indonesia is more than 65%. So there is no significant effect of technology adoption on bank performance and performance directly. Interesting results occur when the ownership structure moderating variable is included. The results show that cooperative ownership has a significant negative effect on NPL and a significant positive effect on SD ROE. This happens because of the large asset factor of cooperatives [34] which can accelerate adoption so that it can be used in reducing

credit risk by making a more reasonable credit rating on credit default risk [22] and the intensity of technology adoption has been shown to reduce credit risk [36]. Of course, this large cost poses a big profitability risk as well. One of the main risks of technology development is profitability risk [37] because technology investment makes banks lose revenue due to adoption costs.

## 6 Conclusion

The conclusion of this study is that out of three hypotheses only one hypothesis is accepted. The first hypothesis is rejected because in this study P2P lending does not reduce bank performance and also does not increase bank risk. The second hypothesis is also rejected because in this study technology adoption has no impact on improving bank performance and there is also no impact of technology adoption on reducing bank risk. Only the third hypothesis was partially accepted and had half the expected results. It is found that the impact of ownership structure strengthens the effect of P2P lending and technology adoption on bank risk. On the other hand, the impact of ownership structure is not proven to strengthen the effect of P2P lending and technology adoption on the performance of conventional banks in Indonesia.

This research is expected to be the basis for policy making for shareholders in the ownership structure of banks in the current fintech era. This research is also expected to be the basis for the government through OJK to always supervise fintech and banks so that these two sectors can always run side by side without harming each other.

The limitation of this study is that it only looks at the impact of fintech lending and technology adoption on one bank sector, namely conventional banks. In Indonesia there are still other banks such as Islamic banks that can be the sample of further research. Then the measurement of bank risk only uses two measurements, namely credit risk (NPL) and profitability risk (SD ROE). There are still other risk measures that can be included in future research.

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