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The Indonesia's Financial Landscape: P2P Loan Growth, Banking Performance, and The Covid-19 Connection

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Abstract

Introduction/ Main Objectives: *This study investigated the impact of peer-to-peer (P2P) loan growth on banking credit growth in Indonesia, specifically focusing on regions with low and high-risk non-performing loan (NPL) banking, both before and during the exogenous shock of the COVID-19 pandemic.* ***Background Problems:*** *The digitalization of the banking industry faces a new challenge caused by start-up companies taking advantage of financial technology (FinTech) to create a new business model and financial innovation that can create financial solutions for the community.* ***Research Methods:*** *The research employed a panel regression model using monthly data from 33 provinces in Indonesia. The data spans from July 2019 to March 2020, representing the period before the COVID-19 pandemic, and from July 2020 to March 2021, covering the pandemic period.* ***Finding / Results:*** *The regression analysis of data from the pre-COVID-19 periods revealed that the P2P loan growth negatively affects the banking credit growth in the provinces with low-risk banking NPLs; while on the contrary, during the COVID-19 pandemic, the P2P loan growth positively affects the banking credit growth in the provinces with high-risk banking NPL.* ***Conclusion:*** *The complementary impact of the P2P platform on banking occurred during the COVID-19 pandemic, but banks must remain vigilant because the P2P platform had become a substitute for banking prior to the COVID-19 pandemic. Therefore, when the COVID-19 pandemic passes and the stimulus from the financial services authority is no longer valid, there are still potentials for the P2P platform to substitute banks in Indonesia.*

Keywords: *Banking credit; COVID-19; FinTech; Non-performing loan; Peer-to-Peer loan*
JEL Classification: G20; G21

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INTRODUCTION

The digitalization of the banking industry faces a new challenge caused by start-up companies taking advantage of financial technology (FinTech) to create a new business model and financial innovation that can create financial solutions for the community (Gomber et al., 2017). FinTech can meet people's needs for affordable, easy-to-use, and unlimited financial services (Gomber et al., 2017; Liu et al., 2020). The peer-to-peer (P2P) platform is a FinTech-based innovation that facilitates people's loans to another party online, without the need for

intermediaries from traditional financial institutions such, as banks (Lavryk, 2016; Ma et al., 2018). The emergence of FinTech or P2P platforms has revolutionized the current and future financial industry landscape, ushering in a unique digital era, vastly distinct from its predecessors.

This new financial technology from the P2P platform obtained market share faster in developing countries, including Indonesia, compared to the credit market in developed countries (Ma et al., 2018; Stern et al., 2017). This is due to lower financial inclusion in developing countries, and the geographic and infrastructure limitations to perform financial inclusion (Gupta & Xia, 2018; Stern et al., 2017). The growth of P2P loans in Indonesia is rapidly increasing, which is demonstrated by the accumulated growth of P2P loans from Rp. 22,67 trillion in December 2018 to Rp. 155,9 trillion in December 2020, a 588% increase from December 2018 to December 2020 (Otoritas Jasa Keuangan - OJK, 2020). The accumulation of P2P loan platform accounts in Indonesia (see Table 1) has also increased drastically with 330,154 accounts in January 2018 to 43,561,361 accounts by the year 2020, and the level of accumulation growth of borrower accounts between January 2018 – 2020 grew rapidly above 100% or a growth rate of between 134.59% and 1220.429%. This demonstrated that Indonesian people are becoming more educated about the P2P platform facility, which enables borrowers to search or connect directly to a lender.

The FinTech innovation from the P2P platform can support the government to enhance financial inclusion in Indonesia; nevertheless, the P2P platform can pose a challenge or an opportunity for existing traditional financial institutions (banks). Consumer theory showed that an entrant company (P2P platform) could become a substitute for the incumbent if new products replace old products (Aaker & Keller, 1990; Phan et al., 2019); in contrast, the entrant company (P2P platform) could be a complement when a new product is used together with the incumbent's products (Aaker & Keller, 1990; Levin & Milgrom, 2004). This new phenomenon has drawn the attention of academics to perform studies related to the impact of P2P loans on the banking sector (Kohardinata, Soewarno et al., 2020; Kohardinata, Suhardianto et al., 2020; Phan et al., 2019; Tang, 2019; Zalan & Toufaily, 2017; Zhang et al., 2019). The current research is different to previous ones as it involves issues of non-performing loans (NPL) and exogenous shock of the COVID-19 pandemic on the testing of the impact of P2P loans on banking credit.

Table 1. The Accumulation and Growth Accumulation of Borrowers Account

Description	Jan-18	2018	2019	2020
Accumulation of Borrower Account	330,154	4,359,448	18,569,123	43,561,362
Growth Accumulation of Borrower Account		1220.43%	325.95%	134.59%

Source: OJK (2020)

The issue of moral hazard that banks face is the misuse of borrowing that happens after contract agreement, which is caused by creditor negligence to monitor debtor actions,

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consequently, the debtor uses loans for high-risk projects (Beatty et al., 2019; Berndt & Gupta, 2009; Okuyan, 2014). Moral hazard that occurs in banking can be identified through a non-performing loan or NPL; an increase of NPL pushes banks to reconsider long-term strategies of bank's assets (Ivanovi, 2016; Zhang et al., 2016); The greatest threat to the stability of the financial banking sector is NPL (Kozarić & Delihodić, 2020). Low-high banking NPL can affect banking capabilities or limit the movement of banking to face new entrant competitors (Platform P2P). For that reason, the first aim of this study is to investigate the impact of P2P loan growth on banking credit growth with low-high banking NPL threat before the exogenous shock of the COVID-19 pandemic.

The COVID-19 pandemic had spread globally and caused an unprecedented shock to the financial and banking industry. A global shock, COVID-19 forced governments to implement lockdown or restriction of activity policy. Interestingly, the shock drove the adoption rate of technology, which enabled a long-term change to the economy and the community (Fu & Mishra, 2022). The lockdown caused by the exogenous shock of the COVID-19 pandemic could also drive the adoption of P2P loan technology to distribute funds online. The drastic change caused by the COVID-19 exogenous shock created a great hesitation regarding the competition between the P2P platform and banks who faced low-high NPL situation; therefore, the second aim of this study is to assess the impact of P2P loan growth on the banking credit growth related to low-high NPL in banking when COVID-19 exogenous shock occurs.

To the extent of the researcher's knowledge, there has been no research that examined the impact of P2P loan growth on the banking credit growth related to low-high NPL in banking between prior and during COVID-19 exogenous shock. For these aims, this study consists of several sections: following the introduction, the second section is the literature review, the third section explains the research method and data of the study, the fourth section reports the study result, and the fifth section discusses the conclusion and recommendation for future research.

Previous studies examining the impact of P2P loans on bank credit have not yet reached conclusive results. Results from several studies suggest that the P2P platform serves a market that is different to banks or caters to high-risk borrowers and in areas that are underserved by banks; therefore, P2P loans have no impact on traditional banking loans (Jagtiani & Lemieux, 2018; Kohardinata, Soewarno, et al., 2020; Thakor, 2020). Other studies state that P2P lending has a positive impact on the bank loan because the P2P platform can support banks by taking advantage of idle money in the community; in addition, several banks are starting to learn from P2P start-up companies to take advantage of financial information technology, and banks that have realised the benefits of FinTech collaborate with P2P platforms (Jiang et al., 2018; Tang, 2019; Zalan & Toufaily, 2017; Zhang et al., 2019). Other studies state that P2P loans have a negative impact or substitutes for traditional bank loans because banks are still conservative and very cautious in lending, which may cause bank clients to switch to P2P platforms (Phan et al., 2019; Zhang et al., 2019), and the regulators have not set policies on the use of FinTech; therefore, the position of the P2P platform in the community is more profitable than the bank, which is more limited by regulations (Zalan & Toufaily, 2017). Research has shown various results; P2P loans have the potential to have a positive, negative, and even no impact on traditional bank loans.

Research on the impact of P2P lending on bank loans has been done by many researchers in the past. However, to the best of the researcher's knowledge, there has been no research that has examined the impact of P2P lending on bank loans involving the NPL situation faced by traditional banks before the COVID-19 exogenous shock, and there has been no research that has examined the impact of P2P lending on bank loans involving the NPL situation faced by traditional banks during the time of the COVID-19 exogenous shock.

Moral hazard is the term used to describe the misuse of borrowed funds due to the lender cannot monitor the borrower's actions once the loan agreement is in place, which is often referred to as hidden action. Borrowers can be involved in using loan funds on risky projects that are not approved by creditors (Okuyan, 2014). Moral hazard cannot be observed directly but can be concluded through the behaviour of bank management, namely taking risks in loan distribution (Zhang et al., 2016). One of the banking risk and loan quality measures is the ratio of NPL (Lu et al., 2005; Zhang et al., 2016). NPL is a credit that has matured beyond 90 days or three months (Aysan & Disli, 2019; Jin et al., 2019; Umar & Sun, 2016).

The NPL situation that bank management confronts will influence their strategic decisions regarding credit disbursements. Worsening NPL have prompted bank management to reconsider long-term strategies because the worsening NPL ratios have led to reduced banking resources to distribute credit (Ivanovi, 2016; Miyajima, 2020). Cautious bank management tends to cut down the loans when banks face higher NPL, hence, NPL has a negative impact on credit supply (Ivanovi, 2016; Thomas & Singh Thakur, 2020; Zhang et al., 2016). Yet another option states that, if a bank's NPL worsens, then bank managers tend to cover losses by increasing loans (Thomas & Singh Thakur, 2020).

As there are two options in managing loans when NPL is high, the impact of P2P loans on bank loans may be ambiguous. On one hand, the high banking NPL condition allows the growth of P2P loans as a substitute for bank loans, because the banking sector holds back its credit supply. On the contrary, high banking NPL condition allows banks to spur their credit to cover losses from the NPLs, thus preventing P2P platforms from entering the credit market, but spur credit when high bank NPL is a high-risk decision because this decision has the potential to worsen the condition of the bank's NPL. Therefore, the first option is used as a hypothesis because researchers consider that banking management takes lower risk decision, so the hypotheses used is:

H1: The growth of P2P loans had a significant impact on the growth of bank credit before the COVID-19 exogenous shock occurred when NPL was high.

Exogenous shock is a major and enduring theme in economics and management research, even though the circumstances surrounding a shock vary widely; however, these events have one thing in common, that is these shocks appeared suddenly and have far-reaching consequences (Doern et al., 2019; Soluk et al., 2021). The shock that occurred is often referred to as a "black swan" which is a sudden event that is difficult or even impossible to predict by

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anyone, consequently, the shock or exogenous shock could destroy industries and companies (Brown & Kline, 2020; Kuckertz et al., 2020). Exogenous shock raises many possibilities or unexpected government policies, thus exogenous shock studies could provide various implications from time to time.

The COVID-19 is often referred to as a "viral epidemic", which is more serious than the common cold (Brown & Kline, 2020). The COVID-19 virus is believed to have been discovered for the first time in the Wuhan province of China in December 2019, which then spread widely and rapidly in various countries so that it became a global pandemic. Meanwhile, the COVID-19 virus pandemic in Indonesia was first discovered in March 2020 which then spread widely and rapidly in various provinces in Indonesia and continues throughout 2021. The COVID-19 pandemic can be called an exogenous shock because the COVID-19 pandemic has shown a drastic impact on industries and companies where countries have implemented lockdowns and contact restrictions to limit the spread of the COVID-19 virus (Kuckertz et al., 2020; Soluk et al., 2021). The government's policy to loosen restrictions on community activities instead brought about a follow-up COVID-19 exogenous shock (Chandler et al., 2021), and even gave rise to other COVID-19 variants.

Restrictions on community activities or lockdown due to the widespread of the COVID-19 pandemic have led to an increase in the adoption of financial or FinTech usage, and a decrease in cash transactions (Fu & Mishra, 2022; Hasan et al., 2021). From the loan market's point of view, many borrowers did not get approval for credit access from traditional financial institutions during the exogenous shock of COVID-19 due to restrictions on credit distribution by financial institutions or traditional banks, consequently, borrowers used loan applications to fulfil credit requirements (Fu & Mishra, 2022; Tang, 2019; Thakor, 2020). The exogenous shock of COVID-19 and restrictions on community activities are allegedly providing opportunities and flexibility for P2P start-up companies to serve the community in distributing and receiving loan funds online.

Previous research related to NPL and the growth of bank credit after the crisis showed that a poor banking balance sheet, in this case, was the high banking NPL which negatively affects banking credit growth after the crisis (Ivanovi, 2016). The occurrence of a global financial crisis caused a decrease in economic activity, and a decrease in the purchasing power of individuals and companies; therefore, banks experienced an increase in NPL (Zunić et al., 2021). The Covid-19 pandemic is also a global crisis which is a negative consequence for banks in the form of an increase in NPL (Goodell, 2020; Zunić et al., 2021). The increased or high NPL can threaten the financial stability of banks; provisioning for NPL can reduce the growth of loans but this is very important to maintain banking financial stability, and greater trust in the banking system can encourage bank clients to increase their savings and support credit supply (Miyajima, 2020). Previous studies were more focused on the impact of NPL on credit growth related to the global crisis but did not involve new competitors' potentials (P2P platforms) that could serve the banking credit market during the COVID-19 pandemic. The purpose of this study is to examine the impact of P2P loan growth on bank credit growth during the exogenous COVID-19 occurrence when NPL is low-high.

Based on these explanations, researchers view that the COVID-19 crisis or exogenous shock can increase the NPL so that banks hold back their credit distribution during the COVID-19 exogenous shock; Meanwhile, P2P platforms, which are more flexible, easy to use, and not restricted by location, have the potential to serve the banking market. Therefore, the hypothesis used in this test is:

H2: The growth of P2P loans has a significant negative impact on bank credit growth during the exogenous COVID-19 occurrence when NPL is high.

METHOD

This study used monthly data cross-section and time series, so the method used is panel data regression. Panel data regression consists of three types, namely pooled regression (pooled least squares), fixed effect, and random effect, so several tests are needed to choose the best model. The first test is carried out with the F or Chow test to select the suitability between the pooled regression (Pooled least squares/) model with the fixed effect (Dang, 2019; Das, 2019); if the results from the F test or Chow test show significant results ($p < 0.05$) then the fixed effect model is the best model. On the contrary, if the Chow test results are not significant ($p > 0.05$), the pooled regression model would be the best model. Furthermore, if the results from the F or Chow test show that the fixed effect model is the best, then the test is continued with the Hausman test to test between the fixed effect model and the random effect (Baltagi, 2015; Hoechle, 2007); if the Hausman test results show significant results ($p < 0.05$), it implies that the fixed effect model outperforms the random effect model. On top of that, the Lagrange test is used to test the selection of the best model between the random-effects model and pooled ordinary least squares (Shawtari, 2018). Autocorrelation and heteroscedasticity issues in model testing can be detected and resolved through the use of robust standard errors (Hoechle, 2007).

The data utilized in this research is sourced from the Financial Services Authority in Indonesia and encompasses information from 33 provinces. Provincial data were used in this study because of the unavailability of data at other levels such as the firm level. The data used in this study are from the pre-exogenous COVID-19 pandemic period, that is the growth rate data from July 2019-March 2020, as well as the growth rate data during the period of the exogenous COVID-19 pandemic from July 2020-March 2021. This study uses growth rates because this test is expected to be able to capture constant change better and reduce noise effects that have the potential to bias the coefficients due to invariant omitted variables bias (Chauhan & Kumar, 2019; Doan et al., 2015; Nguyen et al., 2017). In addition, growth rates can be used to find out how quickly an indicator increases and decreases over a certain period, and growth rates allow comparisons of different sized entities, such as P2P platforms and banking of different sizes (The Federal Reserve Bank of Dallas, 2020). The research model used in testing the impact of P2P lending on bank credit is as follows:

$$\Delta LOAN = \alpha + \beta 1\ \Delta P2P_{it} + \beta 2\ \Delta DEP_{it} + \beta 3\ \Delta NB_{it} + \beta 4\ \Delta GDPR_{it} + \varepsilon_t \quad (1)$$

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A detailed description of the variables used in the research is presented in Table 2. In his study, the dependent variable is the growth of bank credit (ΔLOAN), the independent variable is the accumulation/real growth P2P loans (ΔP2P), and the control variables consist of banking deposits (ΔDEP) including current account, savings and deposit, number of bank offices (NB), and regional/provincial gross domestic product (GDPR) growth.

Table 2. Variables and Measurements

Variable	Measurement
	Dependent Variable
Bank Credit (ΔLOAN)	% Investment credit growth in each province.
	Independent Variable
P2P Loan (ΔP2P)	% P2P loan accumulation growth (real growth) in each province.
	Control Variable
Bank Deposit (ΔDEP)	% Growth in bank deposits (current account, savings, deposit) in each province.
Number of Bank Offices (NB)	Number of bank offices (Ln Number of Bank Offices) in each province
Gross Domestic Product (ΔGDPR)	% Monthly growth of the regional (provincial) gross domestic product.
The numerical count of provinces (i)	
The numerical count of the month (t)	

Source: Compiled by the authors

The test consists of two stages, namely: (1) testing the impact of P2P loan growth on bank credit growth which is separated based on the ratio of low-high banking NPLs using the median as a separator between low and high NPL ratios before the exogenous shock of COVID-19; (2) the following test examines the impact of P2P loan growth on bank credit growth which is separated based on the ratio of low and high non-performing loans using the median as a separator between low and high NPL ratios during the exogenous shock of COVID-19. The NPL ratio in this study is a comparison between the total non-performing loan compared to the total credit in that province.

RESULT & DISCUSSION

Table 3. Descriptive statistics for testing before COVID-19 exogenous shock

	Low NPL				**High NPL**			
Variable	***Mean***	***Std Dev***	***Min***	***Max***	***Mean***	***Std Dev***	***Min***	***Max***
	(a)	**(b)**	**(c)**	**(d)**	***(e)***	**(f)**	**(g)**	**(h)**
Δ Loan	0.7457	1.5286	-4.2485	10.4666	0.2481	1.4251	-9.3574	3.9219
Δ P2P	11.5965	4.2879	6.5678	45.7662	9.9411	2.5917	0.3431	18.6819
Δ DEP	-0.1286	2.7421	-12.3228	8.0021	0.5023	2.6346	-8.0883	14.6502
NB	4.0512	0.7529	2.7726	6.2344	4.5598	0.8583	2.9444	6.0591
Δ GDPR	-0.0064	1.2577	-3.1705	2.0111	0.0863	1.4684	-4.5106	4.4722

Source: authors' calculations

Table 3 is a descriptive statistic of the variables used to test the impact of P2P loans on bank credit before the COVID-19 pandemic exogenous shock occurred in low and high banking NPL situations. Table 4 is a descriptive statistic of the variables used to test the impact of P2P loans

on bank credit during the COVID-19 pandemic exogenous shock in low and high banking NPL situations.

Table 4. Descriptive statistics for testing during COVID-19 exogenous shock

	Low NPL				High NPL			
Variable	***Mean***	***Std Dev***	***Min***	***Max***	***Mean***	***Std Dev***	***Min***	***Max***
	(a)	**(b)**	**(c)**	**(d)**	***(e)***	**(f)**	**(g)**	**(h)**
Δ Loan	0.6348	1.461	-3.3698	15.4234	0.3461	0.9400	-2.4296	3.4966
Δ P2P	7.5624	6.7198	-2.4503	51.5982	5.9185	3.3012	-9.5398	16.5895
Δ DEP	0.5707	4.0452	-13.2804	18.9557	0.4521	2.2458	-11.2968	7.7632
NB	3.8975	0.5381	2.7726	6.1485	4.7280	0.8821	2.9444	6.1506
Δ GDPR	0.4072	1.0494	-2.0709	2.905	0.4280	1.2176	-3.0933	3.0842

Source: authors' calculations

Table 5 column 1 is a test for selecting the best model in the research model before the COVID-19 exogenous shock and in a low banking NPL situation, the results of the Chow and Lagrange tests show insignificant results, thus the pooled ordinary least squares model is more suitable to be used in this test; likewise with Table 5 column 3 for the selection of research models during the COVID-19 exogenous shock and in low banking NPL situations. Tests for the selection of research models at the time before the exogenous shock of COVID-19 and high banking NPL situations in Table 5 column 2 show that the results of the Chow and Hausman tests are significant, thus the fixed effect model is more suitable for testing this model. Table 5 column 4 shows that the random effect model should be used at the time of COVID-19 exogenous shock because the Chow test results are significant, the Hausman test results are not significant, and the Lagrange test results show significant results.

Table 5. Chow test, Hausman tests, and Lagrange Test

Test	**Before COVID-19 Exogenous Shock**		**During COVID-19 Exogenous Shock**	
	Low NPL	**High NPL**	**Low NPL**	**High NPL**
	(a)	**(b)**	**(c)**	**(d)**
Chow Test (Prob > F)	0.229	0.0172 **	0.2396	0.0061***
Hausman Test		0.0000 ***		0.2896
Lagrange Test	0.1908		1.000	0.0165**
Research Model	PLS	FE	PLS	RE

Source: authors' calculation
Notes: Robust p-val in parentheses, *** p<0.01, ** p<0.05, * p<0.1
PLS=Pooled ordinary least squares; FE= Fixed Effect; RE= Random effect

Table 6. Panel Regression test results

Variables	**Banking credit prior to the occurrence of COVID-19 exogenous shock**		**Banking credit during the occurrence of COVID-19 exogenous shock**	
	Low NPL	**High NPL**	**Low NPL**	**High NPL**
	(a)	**(b)**	**(c)**	**(d)**
Δ P2P	-0.040**	-0.081	0.033	0.112***
	(0.049)	(0.107)	(0.129)	(0.000)
Δ DEP	0.170**	0.210***	0.031*	0.135***

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Variables	Banking credit prior to the occurrence of COVID-19 exogenous shock		Banking credit during the occurrence of COVID-19 exogenous shock	
	Low NPL (a)	High NPL (b)	Low NPL (c)	High NPL (d)
	(0.013)	(0.000)	(0.062)	(0.000)
NB	-0.305*	2.505	-0.465***	-0.133
	(0.057)	(0.700)	(0.000)	(0.292)
Δ GDPR	0.116	0.179***	0.094	-0.045
	(0.235)	(0.001)	(0.226)	(0.492)
Constant	2.469***	-10.489	2.144***	0.286
	(0.002)	(0.721)	(0.000)	(0.600)
R-squared	0.111	0.187	0.062	0.2793
VIF	1,09	5,99	1,03	2,56
Prob>F	0.0008***	0.0000	0.0007 ***	0.0000 ***

Source: authors' calculation
Notes: Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1,

Table 6 column 1 is a test of the impact of P2P loan growth on bank loan growth in a low banking NPL situation and prior to the COVID-19 exogenous shock by using the pooled ordinary least squares (PLS) model approach. The results showed that the growth of P2P loans (Δ P2P) had a significant negative impact on the growth of bank credit when the NPL of banks in the province was low and prior to the exogenous shock of COVID-19 (β = -0.040, p-value = 0.049). The control variable of bank deposits has a significant positive impact (β = 0.170, p-value = 0.013), the number of banking offices has a significant negative impact at a significance level of 10% (β = -0.305, p-value = 0.057), and the gross domestic product at the provincial level does not have a significant impact (β = 0.116, p-value = 0.235). R-squared is 0.111 or 11%, therefore, it can be inferred that this model can explain 11.10% changes in bank credit before the COVID-19 exogenous shock and in provinces with low banking NPL ratios the VIF is 1.09, so it can be concluded that there are no symptoms of multicollinearity, and the F test shows a significant result of 0.0008 so that this model is suitable for use.

The results of testing the research model in provinces with high banking NPL ratios and prior to the COVID-19 exogenous shock using a fixed-effect model approach in Table 6 column 2 found that the growth of P2P loans had no significant impact on bank credit growth (β = -0.081, p-value = 0.107). Savings growth control variable has a significant positive impact (β = 0.210, p-value = 0.000); the number of banking offices has no significant impact (β = 2.505, p-value = 0.700); gross domestic product growth at the provincial level has a significant positive impact (β = 0.179, p-value = 0.001). R-squared in this research model (Table 6 column 2) shows that the model used can explain 18.70% changes in bank credit before the occurrence of COVID-19 exogenous shock and in provinces with high banking NPL ratios VIF is above 5.99 or below 10, so it can be concluded that there are no symptoms of multicollinearity, and the F test shows a significant result of 0.0000 so that this model can explain the phenomenon studied.

The results of the first test show that the impact of P2P loan growth has a significant negative impact or is a substitute for bank credit growth in provinces with low banking NPL risk prior to the COVID-19 exogenous shock. The financial technology owned by the P2P platform is reportedly able to detect and select prospective debtors with good qualities; therefore, the P2P platform tends to enter the provinces with lower banking NPL risk and become competitors that disrupt the market share of banking loans in provinces where the level

of risk (NPL) is lower. The P2P platform provides FinTech-based and online facilities that make it easier for lenders to meet with fund owners; the convenience and flexibility of the P2P platform also allow P2P loans to substitute for bank loans. FinTech of the P2P platform can detect and select prospective debtors who have good quality so that P2P platforms tend to enter provinces with lower NPL risk.

Table 6 column 3 shows the results of testing the research model in provinces with low banking NPL ratios and at the time of the COVID-19 exogenous shock using the pooled least squared model approach. The test results show that P2P loan growth has no significant impact on bank credit growth in provinces with low banking NPL ratios and during the COVID-19 exogenous shock (β = 0.033, p-value = 0.129). The control variable of savings growth has a significant positive impact at a significance level of 10% (β = 0.031, p-value = 0.0062); the number of banking offices has a significant negative impact (β = -0.465, p-value = 0.000); Gross domestic product growth at the provincial level has no significant impact (β = 0.094, p-value = 0.226). R-squared shows that this research model can describe 6.20% changes in bank credit in provinces with low banking NPL ratios and at the time of the COVID-19 exogenous shock. VIF of 1. 03 means that there is no evidence of the presence of multicollinearity symptoms in this research model, and the F test shows a significant result of 0.0007, which makes this a good model to be applied.

The result of the research model testing with a random effect approach on provinces with low NPL baking during the exogenous shock of COVID-19 (Table 6 column 4) found that the P2P loan growth positively affects the banking credit growth (β = 0.112, p-value = 0.000). The control variable of stored growth is positively significant (β = 0.135, p-value = 0.000); the number of bank offices and GDPR does not significantly affect. R-squared on this research model can explain 27.9% of the baking credit change in provinces with high NPL baking ratios during the exogenous shock of COVID-19. VIF of 2.56 or under 10 indicates that there is no multicollinearity in this research model. The F test showed a significance value of 0.0000; therefore, this model is suitable to explain the studied phenomenon.

The following test results have shown that the impact of P2P loan growth has a significant positive impact or is a complement to bank credit growth in provinces with high banking NPL risk during the COVID-19 exogenous shock. The study of exogenous shock is always interesting because it brings out unexpected research results. There are various possible reasons that allow this complementary impact to occur which, of course, needs to be reviewed in further research, namely: The COVID-19 pandemic caused the Financial Services Authority of the Republic of Indonesia to issue a national economic policy No.11/POJK.03/2020 as a countercyclical policy against the spread of COVID-19; this policy helps banks to be more flexible in restructuring credit or financing, and banks can provide new loans or financing and/or provide other funds to borrowers impacted by the COVID-19 pandemic, encompassing from micro, small and medium-sized businesses. This stimulus from the government has given banks more flexibility to channel loans to provinces with high NPL ratios. This stimulus is

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thought to be one of the causes of P2P loan growth not being a substitute for banking growth in provinces with high NPL during the COVID-19 exogenous shock.

Another possible argument is that the substitution impact of P2P loans experienced by banks prior to the exogenous shock of COVID-19 can raise awareness of the importance of developing FinTech to the banks so that banking management can begin to develop divisions/subsidiaries based on FinTech or cooperate credit channelling with P2P platforms. Another possibility is that restrictions on community activities due to the COVID-19 pandemic have pushed the urgency of the community and banks for the need to adopt FinTech, thus encouraging banks to accelerate the adoption of financial technology or cooperate with P2P start-up companies to serve the needs of the community. The limitation of banking due to the reflected moral hazard from high NPL require FinTech advantages to support banking activities.

CONCLUSION

This primary goal of this research to investigate the impact of P2P loan growth on bank loan growth in provinces with low-high NPL ratios and the situation before and during the COVID-19 exogenous shock in Indonesia. In This study, the examination of Hypotheses was conducted utilizing a panel regression approach, and the selection of the best panel regression model using "the Chow test, Hausman test, and Lagrange test". This study uses data at the provincial level in Indonesia in the period before (July 2019-March 2020) and during the occurrence of COVID-19 exogenous shock (July 2020-March 2021). The Result of this study are contradictory to the study hypotheses; the study showed that the P2P loan growth before the exogenous shock of COVID-19 pandemic negatively impacts (substitutes) banking in low risk (low NPL banking ratio). During the exogenous shock of COVID-19, the P2P loan growth positively affects (complements) the banking credit growth in provinces with high NPL banking risk level ratios.

The complementary impact of the P2P platform on banking occurred during the COVID-19 pandemic, but banks must remain vigilant because the P2P platform had become a substitute for banking prior to the COVID-19 pandemic. Therefore, when the COVID-19 pandemic passes and the stimulus from the financial services authority is no longer valid, there are still potentials for the P2P platform to substitute banks in Indonesia. Banking management should develop a division that develops FinTech-based products and work closely with P2P start-up companies to remain alert as to the possibility of substitution impacts from P2P platforms in the future. Policymakers can make policies that facilitate P2P platforms to work and continue to grow together with banks. The substitution and complementary impacts of P2P loan growth on banking growth in low and high NPL situations have the potential to be different if studied after the COVID-19 pandemic has passed, thus future research is expected to be studied further during the COVID-19 pandemic. For future research, researchers may contemplate utilizing low and high NPL classifications based on the NPL standards set by the Financial Services Authority of Indonesia.

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