FINTECH P2P LENDING AND BANK LOAN IN TIME OF COVID-19

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Abstract

This study investigates the dual impact of peer-to-peer (P2P) FinTech lending and the COVID-19 pandemic on bank lending in Indonesia spanning from 2016 to 2022. Rooted in Christensen's theory of disruptive innovation, the research underscores how FinTech startups, by leveraging innovative technology, create intense competition for traditional banks (Christensen, 1997). Analyzing data from 121 banks, the findings reveal that the proliferation of P2P lending negatively influences bank loan growth, indicating a potential diversion of borrowers from traditional institutions. Surprisingly, the COVID-19 pandemic exhibits no significant impact on overall bank lending, highlighting the sector's stability owing to government and financial institution interventions. Notably, when scrutinizing the joint impact of P2P lending and the pandemic, a positive effect on bank lending emerges, particularly benefiting smaller banks. This suggests that P2P lending activities complement traditional bank lending, especially during challenging periods like the pandemic. Smaller banks, in particular, demonstrate adaptability and resilience by strategically leveraging P2P lending, countering disruptions. The study underscores the pivotal role of smaller banks in navigating economic challenges, providing valuable insights for policymakers, regulators, and financial institutions to adapt to the evolving landscape of financial technology and enhance financial access for the public.

Keywords: Financial Technology, Peer-To-Peer Lending, COVID-19, Bank Lending

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1. INTRODUCTION

In recent years, the financial landscape has witnessed a transformative wave driven by the emergence of peer-to-peer (P2P) FinTech lending platforms. These platforms have disrupted traditional banking systems by offering a novel avenue for borrowers to access funds and investors to seek attractive returns. The advent of P2P FinTech lending has not only reshaped the dynamics of the financial sector but has also posed intriguing questions about its implications, particularly when combined with unprecedented global events such as the COVID-19 pandemic.

The importance of understanding the role of P2P FinTech lending alongside traditional bank lending during the COVID-19 pandemic cannot be overstated. P2P FinTech lending has rapidly gained traction worldwide, attracting both borrowers seeking streamlined access to credit and investors searching for alternative investment opportunities (Tang, 2019; Buchak et al., 2018). Moreover, the COVID-19 pandemic has unleashed a unique set of challenges for the global economy, including the banking sector. Past crises, such as the global financial crisis of 2008, offer valuable insights into the behavior of traditional banks (Bertay et al., 2015; Brei & Schclarek, 2013), but the interaction between P2P FinTech lending and the pandemic remains relatively uncharted territory.

As the world grappled with the unprecedented disruptions caused by the COVID-19 pandemic, banks faced a complex landscape of economic uncertainties, shifting borrower behavior, and evolving regulatory measures (Hasan et al., 2020; Gong et al., 2020). Amid these challenges, P2P FinTech lending platforms continued to operate, potentially acting as a countercyclical source of funding or further intensifying competition within the financial sector (Cornaggia et al., 2018; Tang, 2019). Thus, this research endeavors to shed light on the intricate relationship between P2P FinTech lending and traditional bank lending during the unique context of the COVID-19 pandemic, offering insights that are vital for regulators, policymakers, financial institutions, and investors alike.

The rapid expansion of P2P lending is evident in the substantial increase in lenders and the significant amount of capital disbursed. According to the Indonesian Financial Services Authority, from the end of 2016 to the conclusion of 2017, the count of participants engaged in P2P lending schemes surged by an astonishing 602.7 percent, reaching an impressive figure of 100,940 lenders. Fast-forwarding to 2021, FinTech P2P lending has encompassed more than 13 million consumer accounts, aggregating to a substantial IDR13.6 trillion. In terms of investment, 2021 is poised to witness a substantial inflow of funds into Indonesia's financial technology industry, amounting to $904 million or approximately IDR12.94 trillion (considering an exchange rate of IDR 14,316). This investment infusion is notably equivalent to 23 percent of the overall investments directed toward the FinTech sector in Southeast Asia, underscoring Indonesia's burgeoning prominence in this dynamic industry.

This study examines the influence of P2P FinTech lending and the COVID-19 pandemic on bank lending in Indonesia between 2016 and 2022. The study analyzes data from 121 banks and concludes that the growth of P2P lending has a negative impact on the growth of bank loans, indicating the potential diversion of borrowers from traditional banks. Surprisingly, the COVID-19 pandemic had no significant impact on bank lending, which reflects the stability of the sector as a result of government and financial institution's actions. In addition, when the impact of P2P lending and the pandemic are considered together, a positive effect on bank lending arises, particularly among smaller banks. This indicates that P2P lending activities supplemented traditional bank lending, especially during the pandemic. During this time period, it appeared that smaller institutions benefited more from P2P lending, possibly using it to mitigate economic difficulties. In addition, P2P lending disrupts bank lending, particularly in smaller banks, whereas COVID-19 has a greater impact on larger banks, resulting in a decline in loan growth. During the pandemic, smaller institutions utilized P2P lending, demonstrating their adaptability and resilience.

This study contributes to the existing body of research in several crucial ways. Firstly, it extends the empirical literature on bank lending by delving into the joint impact of the COVID-19 pandemic and P2P FinTech lending on the banking sector. While numerous studies have explored the influence of the pandemic on bank lending (Gong et al., 2020; Hasan et al., 2020) and the separate implications of P2P FinTech lending on traditional banking (Tang, 2019; Cornaggia et al., 2018), our research bridges these domains to capture the nuanced interplay between these two factors during the crisis. By doing so, we provide insights into how P2P FinTech lending interacts with the pandemic's challenges, shedding light on potential countercyclical lending drivers.

Secondly, this study offers a differentiated perspective by examining the joint impact of the COVID-19 pandemic and P2P FinTech lending on various categories of banks. The COVID-19 pandemic's economic ramifications bear some resemblance to the global financial crisis (Caballero & Simsek, 2009; Aldasoro et al., 2020). While previous research has investigated the repercussions of the global financial crisis on bank lending, there has been limited exploration of how the relationship between the COVID-19 pandemic and bank lending varies depending on the type of banks involved. Therefore, our study enhances the understanding of these dynamics by considering the distinctions between government-owned and private banks, as well as large and small banks. This nuanced approach complements existing research on the implications of crises on bank lending and offers valuable insights into how different categories of banks respond to the unique challenges posed by the pandemic and P2P FinTech lending.

Finally, this research contributes to the evolving financial literature by providing a comprehensive analysis of the joint impact of the COVID-19 pandemic and P2P FinTech lending on bank lending, with a focus on the differential responses of various types of banks. This

multifaceted examination enhances our understanding of the complex financial landscape during times of crisis, offering valuable guidance for policymakers, regulators, and financial institutions aiming to navigate these challenges effectively.

The remainder of the paper will proceed as follows. The subsequent Section 2 presents the pertinent literature and formulates the hypotheses of the study. Section 3 outlines the methodology employed in the study. Section 4 provides an analysis. Section 5 proposes examination of the empirical findings. Section 6 serves as the final conclusion of the study.

2. LITERATURE REVIEW

Theoretical frameworks by Christensen (1997), Aaker and Keller (1990), Thakor (2012), and Philippon (2015) enhance our understanding of FinTech's impact on banks. Christensen's (1997) disruptive innovation theory highlights FinTech startups using tech for cost-effective services, intensifying competition. Aaker and Keller's (1990) consumer theory predicts FinTech's novel services will replace traditional banking. Thakor's (2012) model shows FinTech advances boosting financial system competitiveness. Despite risks, Philippon (2015) argues FinTech hasn't reduced intermediation costs, with traditional banks offering higher loan rates. Yet, customers' willingness to pay more for FinTech emphasizes the industry's commitment to exceptional service.

The impact of FinTech on traditional banking institutions is multifaceted and varies across regions and categories. In some cases, FinTech, particularly in the form of P2P lending, has shown itself to be more substitutional than complementary, potentially leading to a loss of loan volume for small non-urban commercial banks (Tang, 2019; Cornaggia et al., 2018). The competitive pressure exerted by FinTech companies has also been observed, with FinTech startups accounting for a significant portion of shadow banking loans in the U.S. mortgage market (Jakšič & Marinč, 2019; Buchak et al., 2018). As a competitor, FinTech has also been associated with increased bank risk (Wang et al., 2021; Katsiampa et al., 2022; Yudaruddin, 2024). In contrast, the presence of FinTech startups has generally had a positive effect on incumbent financial institutions' performance globally, although the impact has diminished recently (Haddad & Hornuf, 2023; AlHares & AlBaker, 2023; Beltrame et al., 2022). Additionally, research suggests that while FinTech lenders may chip away at some profits from incumbent banks, they also contribute to improved stability within the banking sector (Nguyen et al., 2022). The value of FinTech innovation has been recognized, with certain innovations benefiting the financial sector as a whole, even though some have a negative impact on specific financial industries (Chen et al., 2019).

Focusing on Indonesia, Yudaruddin et al. (2023b) have found that FinTech startups exert a detrimental influence on overall bank performance. This research has also revealed that Islamic banks tend to exhibit lower performance compared to their conventional counterparts. In contrast, Yudaruddin (2023a) has reported that FinTech's impact on bank lending during the COVID-19 period is not substantial, especially when banks are affiliated with FinTech entities. Likewise, Yudaruddin et al. (2023) have uncovered that the presence of FinTech firms tends to enhance bank stability, irrespective of the type of FinTech firms involved and the metrics used to assess bank stability. Intriguingly, these studies suggest that smaller and non-listed banks tend to derive more significant benefits from the presence of FinTech firms. Additionally, Junarsin et al. (2023) have contributed insights indicating that the expansion of FinTech lending encourages banks to operate more efficiently, with a focus on improving their credit quality rather than intensifying their risk-taking behavior. These findings underscore the potential for synergy between FinTech lending and traditional banks to enhance overall bank credit quality.

H1: FinTech has a negative impact on bank lending.

Regarding the impact of COVID-19 on financial performance, several empirical studies found a negative effect of COVID-19. For instance, Paminto et al. (2023) and Defung et al. (2023) showed the impact of COVID-19 on the performance of financial companies in the world. The same thing was also shown by Nurlia et al. (2023), Irwansyah et al. (2023), and Deviyanti et al. (2023) found that the energy sector and consumer goods sector were also hit by COVID-19. Meanwhile, the impact of COVID-19 also affected the welfare of the population (Langi et al., 2023). Furthermore, Riadi, Hadjaat, et al. (2022) showed a negative effect of COVID-19 on bank stability. Erdem (2020) noted that the increase in COVID-19 cases had a lower impact on stock returns in countries with a high freedom index. Al-Awadhi et al. (2020) concentrated on the Chinese stock market, indicating that daily growth in total confirmed COVID-19 cases and total death cases had significant negative effects on stock returns across all companies. As a result of COVID-19, Ulfah et al. (2022) discovered a rise in fraudulent activity within businesses. The COVID-19 pandemic had substantial effects on small and medium-sized businesses (Zainurossalamia et al., 2022; Lestari et al., 2022; Achmad et al., 2023; Riadi, Heksarini, et al., 2022; Lestari et al., 2021; Surahman et al., 2023).

Focus on bank lending, the impact of the COVID-19 pandemic on lending behavior has attracted considerable attention. FinTech has an impact on all main banking stakeholders, especially during COVID-19 (Hundal & Zinakova, 2021). Yudaruddin (2023a) discovered a statistically significant and notably negative COVID-19 coefficient for bank lending. Boubakri et al. (2023) extended this insight by demonstrating that both conventional and Islamic banks experienced a decline in lending growth during the initial phase of the crisis, with conventional banks experiencing a more pronounced decline. This distinction highlights the varied effects of the pandemic on banking sector lending practices.

During the pandemic, Dursun-de Neef and Schandlbauer (2021) examined the effects of the pandemic outbreak on bank lending practices and discovered that European banks significantly reduced lending as the number of COVID-19 cases increased. Banks with less capital extended more loans than their counterparts with more capital. Expanding the analysis to a global context, Çolak

and Öztekin (2021) applied the difference-in-difference method to 125 countries' banks. Their findings revealed weaker bank lending in countries hardest hit by the health crisis, illustrating the pandemic's global impact on lending activities. Hasan et al. (2020) provided additional evidence of the heterogeneous impact of the pandemic on financial institutions and businesses. As a response to the crisis, larger and better-capitalized banks were observed to offer more expensive loans. However, the impact of COVID-19 on larger, non-financially constrained firms with diverse listings and reliance on equity financing appeared to be weaker or nonexistent. This nuanced perspective emphasizes the multifaceted nature of the pandemic's impact on banking sector lending practices and financial health.

A large number of studies show the different impacts of the global financial crisis on bank lending depend on government-owned and private banks (Brei & Schclarek, 2013; Bosshardt & Cerutti, 2020; Maria et al., 2022). In their investigation encompassing 25 emerging market economies, Bosshardt and Cerutti (2020) unveiled that public bank increased their lending relatively more than state-owned banks during the global financial crisis. This divergence stemmed from their intention to stabilize the economy rather than superior fundamentals or access to public or depositor funding. Brei and Schclarek (2013) found that government-owned banks augmented their lending during crises, contrasting with the reduced lending by private banks.

Meanwhile, for large and small banks, Tran (2020) observes that both large and small banks experience a negative impact on loan growth before a crisis, especially affecting large banks. However, this impact diminishes slightly during the crisis and eventually disappears. In the study by Liu and Varotto (2021) on Eurozone banks during the sovereign debt crisis, it is found that small banks exhibit less pro-cyclicality compared to their larger counterparts. This is due to their more stable loan growth patterns during both credit booms and downturns. Additionally, Bord et al. (2021) discovered that banks facing real estate price declines intentionally reduce their small business loans. Conversely, regional and local banks, many of which were unaffected by the initial shock, increased their small business lending to nearby customers and strategically expanded their branch networks, subsequently gaining market share over the course of a decade.

H2: COVID-19 has a negative impact on bank lending.

H3: FinTech has a negative impact on bank lending in times of COVID-19.

3. DATA AND METHODOLOGY

This study analyzes the impact of P2P FinTech lending on bank lending in Indonesia. Additionally, the study examines the effects of the COVID-19 pandemic on bank lending in the banking industry. Furthermore, the study explores the joint impact of both P2P FinTech lending and the COVID-19 pandemic on bank lending. In addition, we break down the sample to assess whether there are differing impacts on government-owned and private banks, large banks, and small banks.

Table 1 presents dependent, independent, and control variables. P2P FinTech lending is measured using the growth loan disbursement to borrowers for all P2P FinTech lending platforms in Indonesia. Data was collected from FinTech lending statistics available from the Indonesian Financial Services Authority (*Otoritas Jasa Keuangan, OJK*). Meanwhile, bank-specific variables were gathered from banks' annual financial reports during the period of 2016 to 2022. In this study, we divided the data into two periods: the period before the COVID-19 pandemic (2016–2019) and the period during the COVID-19 pandemic (2020–2022). According to the Indonesian Ministry of Health (2020), the COVID-19 period began on March 2, 2020, the date of the first confirmed COVID-19 case in Indonesia.

This study employs dependent, independent, and control variables. Dependent variables reflect bank lending. Following the approach of Yudaruddin (2023a), Dursun-de Neef and Schandlbauer (2021), Çolak and Öztekin (2021), Hasan et al. (2020), and Yudaruddin (2017), we use the growth of loan bank to measure bank lending. A higher growth of loan banks indicates a higher level of the bank's intermediation function. In terms of explanatory variables of interest, the COVID-19 pandemic is used as an independent variable. Similar to the existing literature, we use a dummy variable with a value of 1 for the years of the COVID-19 pandemic (2020–2022), and 0 otherwise (Dursun-de Neef & Schandlbauer, 2021; Çolak & Öztekin, 2021; Hasan et al., 2020). This study also investigates various bank-specific and macroeconomics control variables (Boubakri et al., 2023; Yudaruddin, 2017; Yudaruddin, 2023c; Dursun-de Neef & Schandlbauer, 2021; Çolak & Öztekin, 2021; Hasan et al., 2020).

Table 1. Dependent, independent, and control variables

Variables	*Abbreviation*	*Definition*	*Expectation sign*
Bank lending	*BLN*	Growth of loan bank	
FinTech P2P	*P2P*	Growth loan disbursement to borrowers	-
COVID-19	*COV*	This dummy variable has a value of 1 if the year of the COVID-19 pandemic (2020–2022), or 0 otherwise	-
Bank size	*SIZE*	Log nature of the total asset	+
Bank deposit	*DEPO*	Growth of bank deposit	+
Equity to total asset	*EQTA*	Equity to total asset	+
Loan loss provision	*LLP*	Loan loss provision to total loan	-
Efficiency	*EFF*	The ratio of income to operating expenses	-
Inflation	*INF*	Annual inflation (%)	-/+
Gross domestic product	*GDP*	GDP per capita growth (annual %)	+

In the econometric methodology, the regressions are conducted in three stages. In the first stage, we regress the equation for FinTech P2P lending, measured by growth loan disbursement to borrowers, COVID-19 (measured by a dummy variable with a value of 1 for the years of the COVID-19 pandemic from 2020 to 2022, and 0 otherwise), and a set of control variables simultaneously, as shown in Eq. (1). In the second stage (Eq. 2), we replicate Eq. (1) but include the variable representing the joint impact of FinTech P2P lending and COVID-19. This second stage is also conducted by stratifying the sample into large and small banks, as well as government-owned and private banks. The following model was utilized to predict bank lending:

$$BLN_{i,t} = \beta_0 + \beta_1 P2P_t + \beta_2 COV_t + \beta_3 SIZE_{i,t} + \beta_4 DEPO_{i,t} + \beta_5 EQTA_{i,t} + \beta_6 LLP_{i,t} + \beta_7 EFF_{i,t} + \beta_8 INF_t + \beta_9 GDP_t + \varepsilon_{i,t} \quad (1)$$

$$BLN_{i,t} = \beta_0 + \beta_1 P2P_t + \beta_2 COV_t + \beta_3 P2P_t * COV_t + \beta_4 SIZE_{i,t} + \beta_5 DEPO_{i,t} + \beta_6 EQTA_{i,t} + \beta_7 LLP_{i,t} + \beta_8 EFF_{i,t} + \beta_9 INF_t + \beta_{10} GDP_t + \varepsilon_{i,t} \quad (2)$$

where *i* refers to an individual bank, *t* to a year, and *BLN* to the dependent variable. The variables *P2P* and *COV* represent the independent variables. Similarly, *SIZE, DEPO, EQTA, LLP, EFF, INF*, and *GDP* serve as control variables, encompassing bank-specific and macroeconomic. Moreover, *i* and *t* denote bank-level error terms. In line with previous research conducted by Yudaruddin (2023a), Dursun-de Neef and Schandlbauer (2021), Çolak and Öztekin (2021), Hasan et al. (2020), and Yudaruddin (2017), this study employs a panel-data regression approach. Panel data analysis harnesses both cross-sectional and time-series variations present in the dataset while mitigating potential issues such as multicollinearity, heteroscedasticity, and estimation bias (Wooldridge, 2010). Similar to the methodologies employed by Yudaruddin (2023a) and Yudaruddin (2017), Kusumawardani et al. (2021), and Safitri et al. (2023), we utilized the fixed effects model (FEM) with the least squares method. To determine the appropriateness of using fixed effects over random effects, we conducted the Hausman test. Leveraging panel data, the fixed-effect model produces unbiased and consistent coefficient estimates (Wooldridge, 2010).

4. RESULT

Table 2 provides descriptive statistics for various variables used in our analysis. Among these variables, we can observe several key insights. First, in terms of bank lending (*BLN*), the mean value is 0.1095, indicating that, on average, banks had a positive lending growth rate. However, the standard deviation of 0.3560 suggests considerable variation in lending growth across banks, indicating that some banks experienced significant contractions in lending while others saw substantial growth. Moving on to P2P lending, the variable *P2P* (P2P FinTech lending) exhibits a substantially higher mean of 148.10, indicating a greater average involvement in P2P lending activities. The variable *COV*, representing the dummy variable for the COVID-19 period, has a mean value of 0.4138, indicating that, on average, a significant portion of the observation period falls within the COVID-19 pandemic period. The other variables, such as *SIZE, DEPO, EQTA, LLP, EFF, INF*, and *GDP*, represent different aspects of bank characteristics and macroeconomic factors. These variables also exhibit variations in their mean values and standard deviations, reflecting the diversity of the banking and economic landscape in the dataset.

Table 2. Statistic descriptive

Variables	*Obs.*	*Mean*	*Std. dev.*	*Min*	*Max*
BLN	677	0.1095	0.3560	-1.0000	2.9774
P2P	679	148.10	177.78	0.3125	530.00
COV	679	0.4138	0.4929	0.0000	1.0000
SIZE	679	16.957	1.3311	14.147	19.812
DEPO	677	10.850	18.495	-38.142	77.865
EQTA	679	0.1719	0.0908	0.0628	0.6700
LLP	678	0.0288	0.0219	0.0021	0.0963
EFF	679	86.029	17.887	52.440	150.91
INF	679	3.0906	1.1564	1.6800	5.5500
GDP	678	6.7987	4.9434	-3.7225	14.148

The correlation matrix presented in Table 3 demonstrates that there is no significant issue of multicollinearity among the variables in this dataset. Multicollinearity usually becomes a concern when correlation coefficients between independent variables are notably high, often exceeding a threshold of 0.80. However, in this case, none of the correlation coefficients between variables reach or exceed this threshold. All correlation coefficients observed are considerably lower, indicating a lack of substantial linear relationships among the variables. Therefore, the absence of multicollinearity suggests that the dataset is suitable for robust regression analysis, enhancing the reliability of the findings.

Table 3. Correlation matrix

Variables	*P2P*	*COV*	*SIZE*	*DEPO*	*EQTA*	*LLP*	*EFF*	*INF*	*GDP*
P2P	1.000								
COV	0.020	1.000							
SIZE	0.166	0.149	1.000						
DEPO	0.004	0.006	-0.001	1.000					
EQTA	0.165	0.154	-0.343	-0.061	1.000				
LLP	0.273	0.318	0.243	-0.154	0.140	1.000			
EFF	-0.057	-0.002	-0.257	-0.083	0.065	0.271	1.000		
INF	0.477	-0.033	0.042	-0.042	0.058	-0.010	-0.103	1.000	
GDP	0.435	-0.050	0.048	0.042	0.061	0.024	-0.085	0.057	1.000

In the initial stage of our analysis, we examined the impact of P2P lending, the COVID-19 pandemic, and several control variables on bank lending, as depicted in Table 4. The results of this analysis revealed a significant and negative effect of growth loan disbursement to borrowers from P2P lending on bank loan growth. This suggests that P2P lending disrupts the performance of bank loans in Indonesia, thus providing support for our first hypothesis (*H1*). In contrast, the COVID-19 pandemic exhibited no significant impact on bank lending. This indicates that there is no significant difference in bank loan growth before and during the COVID-19 period. Consequently, these results do not support our second hypothesis (*H2*). However, when the P2P lending variable interacted with the COVID-19 variable, a positive and significant impact on bank lending emerged. This signifies that growth loan disbursement to borrowers from P2P lending enhances bank loan growth during the COVID-19 period. Therefore, these findings do not support our third hypothesis (*H3*). Furthermore, concerning all control variables, the results show impacts that align with our expectations, with the exception of the efficiency variable (*EFF*), which was found to be insignificant.

Table 4. P2P FinTech lending, COVID-19 and bank lending

Variables	*Equation (1)*			*Equation (2)*		
	Coef.	*Std. err.*	*P > |t|*	*Coef.*	*Std. err.*	*P > |t|*
P2P	-0.0006**	0.0003	0.044	-0.0021***	0.0007	0.004
COV	0.0654	0.0901	0.468	-0.5858*	0.2988	0.050
*P2P * COV*				0.0034**	0.0015	0.023
SIZE	0.2227***	0.0486	0.000	0.2494***	0.0498	0.000
DEPO	0.0013***	0.0002	0.000	0.0013***	0.0002	0.000
EQTA	1.3928***	0.2366	0.000	1.4036***	0.2358	0.000
LLP	-2.9058***	1.0264	0.005	-2.9785***	1.0231	0.004
EFF	0.0009	0.0013	0.487	0.0009	0.0013	0.475
INF	0.0551**	0.0215	0.011	-0.0516	0.0514	0.315
GDP	0.0073*	0.0043	0.086	-0.0074	0.0077	0.338
Constant	-4.0756***	0.8534	0.000	-4.0491***	0.8503	0.000
F-statistic	18.55			17.34		
Prob > F	0.0000			0.0000		
R-squared	0.2281			0.2352		
Number of obs.	676			676		

*Note: * significant at 10%, ** significant at 5%, and *** significant at 1%.*

To gain deeper insights, we further dissected the data, breaking down the sample to assess whether varying impacts exist among government-owned and private banks, as well as large and small banks, as presented in Table 5. In terms of P2P lending, differential impacts on bank lending were identified. P2P lending had a positive and significant effect on bank lending, particularly in government-owned banks. Conversely, it had a negative and significant impact, especially in private-owned banks. Meanwhile, the influence of the COVID-19 variable on bank lending was negative and significant, with this finding being more pronounced in government-owned banks. However, we discovered a positive and significant interaction effect between the *P2P* and *COV* variables on bank lending. This indicates that an increase in growth loan disbursement to borrowers is associated with an increase in bank loan growth during the COVID-19 period, with this effect being more pronounced in private-owned banks.

Table 5. P2P FinTech lending, COVID-19 and bank lending: Government versus private-owned banks

Variables	Equation (1)						Equation)2)					
	Government-owned banks			Private-owned banks			Government-owned banks			Private-owned banks		
	Coef.	Std. err.	P > |t|	Coef.	Std. err.	P > |t|	Coef.	Std. err.	P > |t|	Coef.	Std. err.	P > |t|
P2P	0.0009***	0.0002	0.000	-0.0009**	0.0004	0.034	0.0015**	0.0006	0.012	-0.0025**	0.0010	0.014
COV	-0.2322***	0.0596	0.000	0.1408	0.1251	0.261	0.0082	0.2165	0.970	-0.5531	0.4131	0.181
*P2P * COV*							-0.0013	0.0011	0.250	0.0036*	0.0020	0.079
SIZE	-0.3186***	0.0620	0.000	0.2792***	0.0601	0.000	-0.3664***	0.0745	0.000	0.2986***	0.0609	0.000
DEPO	0.0043***	0.0004	0.000	0.0011***	0.0002	0.000	0.0042***	0.0004	0.000	0.0011***	0.0002	0.000
EQTA	-0.9894	0.6791	0.147	1.3242***	0.2862	0.000	-1.1744*	0.6971	0.094	1.3387***	0.2855	0.000
LLP	-1.9662***	0.6988	0.005	-2.9587**	1.4154	0.037	-1.9098***	0.6998	0.007	-2.9638**	1.4116	0.036
EFF	-0.0016	0.0015	0.259	0.0011	0.0016	0.489	-0.0021	0.0015	0.170	0.0010	0.0016	0.524
INF	-0.0167	0.0148	0.261	0.0680**	0.0298	0.023	0.0203	0.0353	0.566	-0.0460	0.0713	0.519
GDP	-0.0087***	0.0028	0.002	0.0126**	0.0059	0.035	-0.0035	0.0053	0.514	-0.0031	0.0107	0.771
Constant	5.9071***	1.1616	0.000	-5.1022***	1.0497	0.000	6.6092***	1.3101	0.000	-4.9130***	1.0523	0.000
F-statistic	28.35			13.71			25.70			12.72		
Prob > F	0.0000			0.0000			0.0000			0.0000		
R-squared	0.5987			0.2427			0.6018			0.2488		
Number of obs.	211			465			211			465		

*Note: * significant at 10%, ** significant at 5%, and *** significant at 1%.*

Meanwhile, the impact of P2P lending on bank lending revealed a negative and significant effect, with this finding being more pronounced in small banks, as shown in Table 6. In contrast, the impact of COVID-19 was only significant for large banks, with a negative coefficient. This implies that during the COVID-19 period, bank loan growth in large banks was lower compared to small banks. Furthermore, the interaction between the *P2P* and *COV* variables had a positive and significant impact on bank lending, which was more pronounced in small banks.

Table 6. P2P FinTech lending, COVID-19 and bank lending: Large versus small banks

Variables	Equation 1						Equation 2					
	Large banks			Small banks			Large banks			Small banks		
	Coef.	Std. err.	P > |t|	Coef.	Std. err.	P > |t|	Coef.	Std. err.	P > |t|	Coef.	Std. err.	P > |t|
P2P	0.00008	0.0003	0.807	-0.00073*	0.0004	0.080	-0.00005	0.0009	0.956	0.0010***	0.00101	0.005
COV	-0.15478*	0.0931	0.099	0.11204	0.1258	0.374	-0.20298	0.3303	0.540	0.4063*	0.40635	0.056
*P2P * COV*							0.00026	0.0017	0.879	0.0020**	0.00200	0.022
SIZE	0.23377*	0.1273	0.068	0.19250***	0.0673	0.004	0.24393*	0.1441	0.093	0.0688	0.06878	0.001
DEPO	0.00678***	0.0007	0.000	0.00115***	0.0002	0.000	0.006***	0.0007	0.000	0.0002***	0.00019	0.000
EQTA	1.27614	0.8163	0.120	1.61396***	0.3019	0.000	1.31641	0.8606	0.128	0.3006***	0.30058	0.000
LLP	-1.05122	1.3904	0.451	-3.24373**	1.3784	0.019	-1.08522	1.4126	0.444	1.3723**	1.37228	0.025
EFF	0.00296*	0.0017	0.081	0.00101	0.0017	0.552	0.00297*	0.0017	0.082	0.0017	0.00169	0.575
INF	0.01936	0.0247	0.434	0.06116**	0.0295	0.039	0.01178	0.0557	0.833	0.0697	0.06970	0.227
GDP	0.00429	0.0050	0.391	0.00794	0.0058	0.171	0.00324	0.0085	0.705	0.0104	0.01041	0.249
Constant	-4.75863*	2.4600	0.055	-3.50541***	1.1314	0.002	-4.9166*	2.6775	0.068	1.1255***	1.12552	0.002
F-statistic	17.28			12.29			15.55			11.72		
Prob > F	0.0000			0.0000			0.0000			0.0000		
R-squared	0.5056			0.2237			0.5056			0.2343		
Number of obs.	199			477			199			477		

*Note: * significant at 10%, ** significant at 5%, and *** significant at 1%.*

5. DISCUSSION

The indication from this finding is that the growth in loan disbursement from P2P lending platforms has a significant and negative impact on bank loan growth in Indonesia. In other words, the analysis results show that when P2P lending loan disbursement increases, there is a significant decrease in bank loan growth. In more explicit terms, the outcomes of the analysis indicate that as the disbursement of loans via P2P lending increases, there is a corresponding substantial reduction in the growth rate of bank loans in Indonesia. This suggests that the presence and activities of P2P lending are causing a disturbance in the typical trajectory of bank loan performance in the Indonesian context. The negative effect observed implies that P2P lending is diverting potential borrowers away from traditional bank loans, affecting the overall growth pattern of bank loans. This suggests that P2P lending disrupts the performance of bank loans in Indonesia. These results are in line with previous research (Yudaruddin, 2023a; Tang, 2019; Wang et al., 2021; Jakšič & Marinč, 2019; Buchak et al., 2018; Yudaruddin, 2023c).

The COVID-19 pandemic exhibited no significant impact on bank lending. The indication derived from this finding is that the occurrence of the COVID-19 pandemic did not lead to a statistically significant effect on bank lending activities. In other words, the analysis suggests that there is no substantial disparity in the growth rate of bank loans when comparing the period before the onset of the COVID-19 pandemic to the period during its occurrence. This implies that despite the unprecedented circumstances brought about by the pandemic, the growth of bank loans remained relatively stable. The lack of a significant impact could suggest that banks were able to maintain their

lending activities to a reasonable degree despite the challenges posed by the pandemic. It might also imply that the measures taken by the government or financial institutions to stabilize the economy and ensure the continuity of lending had a mitigating effect on the potential negative impacts of the pandemic on bank lending. In summary, the analysis indicates that the COVID-19 pandemic did not result in a discernible change in the growth pattern of bank loans. This suggests a certain level of resilience in the banking sector's lending activities during the pandemic period.

The indication arising from this finding is that when the P2P lending variable is analyzed in conjunction with the COVID-19 variable, a positive and statistically significant effect on bank lending becomes evident. In other words, the analysis demonstrates that the growth in loan disbursement to borrowers from P2P lending platforms has a favorable impact on the growth of bank loans, specifically during the COVID-19 period. This suggests that, contrary to expectations, the presence and activities of P2P lending platforms appear to complement and enhance the growth of bank loans during the challenging circumstances brought about by the COVID-19 pandemic. This may imply that P2P lending platforms served as a supplementary source of financing or support for borrowers and businesses when traditional bank lending might have faced constraints or limitations during the pandemic. In summary, the finding suggests that the synergy between P2P lending and the COVID-19 pandemic had a positive influence on bank lending, signifying that P2P lending's loan disbursement activities contributed to the growth of bank loans during the pandemic period.

The indication from this finding is that P2P lending has a significant and negative impact on bank lending, with this impact being more pronounced in smaller banks. On the other hand, the impact of COVID-19 is only significant for larger banks with a negative coefficient, suggesting that bank loan growth in larger banks was lower compared to smaller banks during the COVID-19 period. Furthermore, the interaction between the P2P lending variable and the COVID-19 variable has a positive and significant impact on bank lending, and this impact is more pronounced in smaller banks. This indicates that during the COVID-19 period, smaller banks tended to benefit more from P2P lending activities, which may have helped them mitigate the larger economic challenges. These findings are in line with research conducted by several scholars such as Brei and Schclarek (2013) and Bosshardt and Cerutti (2020). These studies highlight the differing roles of government-owned and private banks in responding to economic crises, particularly in terms of lending. Most of these studies suggest that government-owned banks tend to increase their lending during crises to assist in stabilizing the economy, while private banks may reduce their lending.

The impact of P2P lending on bank lending is negative and significant, with a more pronounced effect observed in small banks. Conversely, the impact of COVID-19 is only significant for large banks, and it has a negative coefficient, suggesting that bank loan growth in large banks was lower compared to small banks during the COVID-19 period. Additionally, the interaction between the P2P and COVID-19 variables had a positive and significant impact on bank lending, which was more evident in small banks. This implies that smaller banks tended to benefit more from P2P lending activities during the COVID-19 period, possibly aiding them in mitigating the economic challenges posed by the pandemic. These findings are consistent with prior research. For example, Tran (2020) observed that both large and small banks encountered a negative impact on loan growth before a crisis, with a more significant effect on larger banks; this impact diminished during the crisis. Similarly, Bord et al. (2021) noted that banks facing real estate price declines reduced small business loans, while regional and local banks, less affected by the initial shock, expanded small business lending and gained market share by extending their branch networks. These studies collectively shed light on bank lending dynamics during various economic scenarios.

6. CONCLUSION

This study comprehensively explores the impact of P2P FinTech lending on bank lending in Indonesia, considering the influence of the COVID-19 pandemic on the banking industry. Employing a FEM and analyzing data from 121 banks over the period 2016 to 2022, the research unveils significant insights. Firstly, the rise in loan disbursement from P2P lending platforms negatively affects bank loan growth, indicating the potential diversion of borrowers from traditional banks. Surprisingly, the COVID-19 pandemic does not significantly impact overall bank lending, attributed to government and financial institution interventions, maintaining stability. However, the joint impact of P2P lending and the pandemic positively affects bank lending, notably benefiting smaller banks. This suggests P2P lending complements and enhances bank lending during crises, serving as a supplementary financing source. Smaller banks display resilience, leveraging P2P lending to mitigate economic challenges. The findings contribute nuanced insights into P2P lending dynamics, pandemic effects, and their collaborative impact on bank lending in Indonesia. The study underscores the adaptability of smaller banks, providing valuable guidance for policymakers and financial institutions.

The policy implications for regulators emphasize the necessity of tighter monitoring of P2P lending activities and a deeper understanding of their impact on the banking sector. Regulators should actively identify potential risks arising from the substantial growth of P2P lending. Moreover, regulators could contemplate policies that encourage collaboration between P2P lending platforms and traditional banks to enhance financial access for the public. Stakeholders, including borrowers and P2P lending investors, should also receive clear education about the risks and benefits of P2P lending. On the banks' side, policy implications revolve around their ability to adapt to evolving business environments. Banks must be prepared to seek methods to sustain their market share and align their business strategies with the evolving landscape of P2P lending. Additionally, financial innovation, such as enhancing digital

banking services or establishing partnerships with P2P lending platforms, becomes a crucial consideration. Effective risk management concerning P2P lending should be a focal point for banks to safeguard their assets and maintain stability. Exploring collaborations with P2P lending platforms can also aid banks in harnessing synergies, particularly during crises like the COVID-19 pandemic. All of these measures constitute essential steps to assist both banks and regulators in navigating the increasing impact of P2P lending within the financial industry.

Limitations of the study include the use of data from 2016 to 2022, which, while spanning both pre-pandemic and pandemic periods, may benefit from a more extended dataset to comprehensively gauge the long-term effects of P2P lending on the banking sector. Furthermore, the study's exclusive focus on the COVID-19 pandemic as an external factor affecting bank lending highlights the need for future research to encompass a broader spectrum of external variables, such as governmental policy alterations or global economic fluctuations, which could potentially impact the dynamics of bank lending. Suggestions for future research encompass several key areas. First, acquiring access to more extensive and long-term datasets would enable a more profound exploration of the enduring ramifications of P2P lending on the banking sector, potentially necessitating an examination of historical data predating the emergence of P2P lending. Additionally, conducting more comprehensive investigations into the intricate mechanisms through which P2P lending shapes borrower behavior and elicits responses from banks could yield deeper insights. Considering the global nature of P2P lending, comparative studies across different countries may elucidate whether its impact exhibits commonalities or disparities across diverse contexts. Exploring potential policy implications, including the feasibility of more stringent regulations or collaborative frameworks between P2P lending platforms and traditional banks to optimize societal benefits, constitutes another avenue for future research. Finally, broadening the scope to encompass a diverse array of external factors capable of influencing bank lending, ranging from governmental policies to global economic dynamics, promises to contribute to a more holistic comprehension of this complex field.

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