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Peer-to-Peer Lending's Influence on Bank Performance: Core Capital Perspectives

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ABSTRACT

The study intends to evaluate the influence of peer-to-peer lending (P2P lending) on banks performance, focusing on differences in core capital classifications. Using data from the Financial Service Authority and Bank Indonesia websites, the analysis spans the fourth quarter of 2021 to the third quarter of 2023. The results reveal that P2P lending negatively affects bank performance, with more significant adverse impacts observed in banks with lower core capital, categorized under KBMI 1 and 2, compared to KBMI 3 and 4. These findings underscore the need for regulatory policies tailored to address the vulnerabilities of smaller banks, including measures to promote consolidation and capital augmentation. This study offers valuable insights into the interplay between financial technology and banking regulations, providing practical implications for policymakers and stakeholders.

Keywords: *Peer-to-peer lending, bank performance, fintech, conventional banks, regulation*

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1. INTRODUCTION

Financial technology (Fintech) is a phenomenon that has emerged in recent years as a financial institution capable of overcoming asymmetric information in traditional financial entities, reducing costs, and maintaining a proficient level of efficiency in its business operations (Abuamsha, 2022). Wang et al. (2023) also emphasized the effectiveness of fintech in maintaining a low level of non-performing loans. The proliferation of mobile applications has significantly bolstered the presence of fintech as a viable financial alternative.

Fintech companies provide innovative business models that offer conveniences in the context of business operations. This situation leads to the transformation of fintech into a highly efficient and consumer-centric financial institution. Due to these benefits, fintech has fostered the belief that it affects traditional financial institutions, particularly banking. This is because fintech is anticipated to intensify competition in the banking sector by catering to customer demands for financial services, offering enhanced convenience, and addressing a broader range of financial requirements (Kharrat et al., 2023). Fintech is expected to provide consumer services at lower prices (Lee et al., 2021).

Fintech, which merges financial services and technology, has emerged as a prominent source of innovation in the finance industry. The Financial Stability Board (FSB) defines fintech as a comprehensive term encompassing various elements, including business models, technological applications, operational processes, and innovative products. Fintech is characterized by its ability to drive innovation within the financial sector and exert a substantial influence on areas such as capital markets, financial institutions, and financial services (Ramlall, 2018).

A fintech platform that directly impacts the banking sector is the peer-to-peer lending or P2P lending platform. P2P lending is a rapidly growing form of financial service innovation. P2P lending connects individuals or entities with surplus funds to others needing funds (Ramlall, 2018). In the past, banks dominated almost all these functions. However, the emergence of P2P lending has altered this situation. The existence of P2P lending prompts banks to confront different levels of competition (Kohardinata, Suhardianto, et al., 2020) as they vie for the same clientele, but the adoption of P2P lending's superior technical innovation is expected to adversely affect banking performance. Conversely, the emergence of P2P lending has prompted the banking sector to transform its business and reduce transaction-related costs. Therefore, P2P lending has a beneficial effect since it incentivizes banks to implement substantial digital advancements. Conversely, current discussions indicate that regulations governing P2P lending are generally less strict than those in the banking sector (Dasilas & Karanović, 2023). P2P lending takes advantage of this by providing inexpensive and efficient services.

Nevertheless, the discussion of whether the impact of P2P lending on the financial system remains a topic of research. Several studies have shown that the loan growth from P2P lending is unlikely to substantially affect the advancement of non-MSME bank loans, which are the main focus of traditional banks (Kohardinata, Suhardianto, et al., 2020). P2P lending caters to the varied needs of customers with different preferences. This implies that P2P lending may not function as a direct substitute for conventional banking services, as it serves diverse market sectors. As a result, they continue to complement each other well.

P2P lending has significantly grown in developing countries due to a lack of banking services. This phenomenon occurs because of individuals' lack of familiarity with banking services. In addition, the geographical conditions present significant challenges, as banks continue to depend on physical locations to provide their services, as mandated by the regulator (Murinde et al., 2022). This situation increases the costs of banking services . This finding has stimulated the growth of financial services based on fintech, particularly Peer-to-Peer (P2P) Lending, in numerous developing countries located in remote geographical areas.

The vital function of banking in the financial system requires further investigation to assess the influence of P2P lending on banking. A solid and efficient banking sector is essential for fostering economic growth at the national level, as banks play a crucial role as intermediaries in the economy. Conversely, the presence of P2P Lending as an alternative to intermediary organizations generates optimism that there will be financial institutions that function more effectively in catering to the broader population and ultimately foster enhanced economic expansion.

Through a market segmentation approach to banking and P2P lending, Tang (2019) discovered that P2P lending is a substitute for traditional banking in providing loans to underserved groups, particularly those on the fringes of the financial system. Additionally, P2P lending acts as a supplementary source of loans for smaller amounts. According to Saiedi et al. (2022), clients who save money in banks lack trust, leading them to switch to P2P lending platforms. In their study, Dasilas & Karanović (2023) determined that the presence of fintech firms had a beneficial impact on the Net Interest Margin (NIM) and Yield on Earning Assets (YEA).

Recently, Indonesia's fintech sector has risen significantly, becoming a challenge to the traditional banking system. In just over ten years, the number of fintech companies grew from 51 in 2011 to 334 by 2022 (Kumar et al., 2023). The impressive growth primarily stems from robust government support, a surge in investor interest, and widespread adoption of digital technology among individuals . As a result, Indonesia has a thriving fintech ecosystem offering lending, payments, wealth management, and even insurance. Fintech is making finance more accessible, especially for those previously left out. They are doing this through innovative solutions like digital wallets, loans directly between people (peer-to-peer), and digital banking designed for small businesses. As fintech improves , it is capturing a larger share of the market traditionally held by banks. This translates into more convenient and personalized financial services for Indonesians (Okubo & Adrian, 2023).

In Indonesia, Tobing and Wijaya (2020) employed transaction volume as a proxy to measure the performance of fintech companies, while the Capital Adequacy Ratio (CAR) was utilized as an indicator of bank performance. Their test results indicate that P2P Lending negatively affects bank performance. However, third-party payments-a different fintech startup platform-have a beneficial impact on bank performance. Before establishing a partnership agreement, the rise in P2P Lending loans detrimentally impacted the loans provided by Rural Banks (BPR). Following the establishment of the partnership, the loans generated by P2P Lending positively influenced the performance of Rural Banks. Utilizing data from Indonesia, Wahyuni et al. (2024) find that P2P lending positively impacts conventional banks' performance, indicating potential for collaboration. On the other hand, P2P lending negatively affects the performance of Islamic banks. This condition is further exacerbated by the crisis during the COVID-19 pandemic. In his research, Kohardinata, Soewarno, et al. (2020) find that P2P lending has a negative impact on bank lending to Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. Conversely, P2P lending does not significantly impact lending to the non-MSME sector.

In their study in Indonesia, Phan et al. (2020) discovered that emerging firms in the fintech industry harmed bank performance, regardless of whether banks were categorized by market capitalization or operational age. This study builds upon the previous research conducted by Phan et al. (2020) by categorizing banks according to their core capital as an analytical instrument. Additionally, it utilizes the most up-to-date data from banking and P2P lending.

The observations pertain to the regulations on bank capital levels, specifically those pertaining to Bank Groups based on Core Capital (KBMI/Kelompok Bank berdasarkan Modal Inti) released by the Financial Services Authority (OJK) in August 2021. The categorization of banks according to KBMI is as follows: KBMI I includes banks with a paid-up capital of up to IDR 6 trillion; KBMI II comprises banks with a paid-up capital exceeding IDR 6 trillion but not exceeding IDR 14 trillion; KBMI III encompasses banks with a paid-up capital exceeding IDR 14 trillion but not exceeding IDR 70 trillion; and KBMI IV consists of banks with a paid-up capital exceeding IDR 70 trillion. Categorizing banks according to their core capital directly influences the range of products and services they can offer. A bank with more significant core capital can offer a broader range of services. Therefore, there are two objectives in this research. The first objective is to determine the impact of P2P lending on bank performance. The second objective is to determine the impact of banks' core capital on the relationship between P2P lending and bank performance.

2. LITERATURE REVIEW

Disruptive Innovation Theory

Disruptive Innovation Theory (Christensen, 1997) can be employed to examine the influence of P2P lending on the banking sector. This hypothesis posits that new participants use cutting-edge technology to enhance efficiency, reduce prices, and increase accessibility. The technologies of artificial intelligence, blockchain, cloud computing, and big data have eliminated the constraints on financial services that existed in traditional financial institutions (Lee et al., 2021). This condition fosters competitiveness between long-established enterprises and newly entered companies.

According to this hypothesis, new participants typically cater to consumers lacking access to existing market players (Kohardinata et al., 2020). Yudaruddin (2022) further highlighted that P2P lending serves specific market niches that traditional banks overlook. According to Christensen (1997), new entrants can generate competition by establishing a previously non-existent market. The emergence of new companies has compelled old players to take notice of a market that was once not a priority for them.

P2P lending serves underserved customers who have been neglected by banks, particularly those who are small-scale and less financially lucrative. Throughout the process, novice players consistently enhance their proficiency to rival experienced competitors. This circumstance persisted until P2P lending achieved the ability to compete with the banking industry in the same market. Moreover, users in the primary market have begun to utilize services provided by P2P lending. Each stage gradually diminishes the market share that banks have exclusively held, further decreasing their profitability. Disruptive Innovation Theory categorizes P2P lending as a viable alternative to traditional banking services.

Consumer Theory

The Consumer Theory, proposed by Aaker and Keller (1990), is the second theory explaining the occurrence of P2P lending. This theory posits that a product or service will be considered complementary if used in conjunction with an already established product or service and will be seen as a replacement or substitute for an existing product if the new player's offering fulfills the exact consumer needs. Substitute products or services possess a broad scope of applicability, allowing them to supplant current products or services while fulfilling identical requirements.

Consumer Theory elucidates the potential for mutually beneficial or complementary relationships to arise when the introduction of P2P lending enhances the performance of banks. Kohardinata et al. (2020) clarify this phenomenon by examining the impact of P2P lending on Rural Banks when P2P lending forms a collaborative relationship with Rural Banks through a memorandum of understanding. The study conducted by Kohardinata et al. (2020) demonstrates that the presence of this memorandum has altered the impact of P2P lending on BPR, shifting it from a previously negative influence to a positive one. According to Disruptive Innovation Theory, P2P lending serves as a substitute for conventional financial services.

Bank Group Based on Core Capital

Previous research examined how one variable influences other variables concerning banks in specific groups, such as large or small banks. Phan et al. (2020) investigated the influence of the presence of fintech by categorizing banks based on market capitalization value. The findings of Phan et al. (2020) indicate that the negative effects of the presence of fintech have a greater impact on banks with large capitalization.

Hypothesis Development

The presence of P2P lending decreases bank performance in Indonesia. These findings include those found in Kohardinata et al. (2020), Phan et al. (2020), and Yudaruddin (2022). Their findings differ on several bank characteristics but show a negative impact from P2P lending companies overall. Referring to these conditions, the hypothesis proposed in this research is:

H1 = The presence of P2P lending adversely impacts on bank performance

Small banks respond more quickly to technological changes than large ones (Scott et al., 2017). This occurs because internal systems in small banks are more efficient, making it easier for them to adapt to the innovation shocks that arise. Conversely, the classification of banks based on core capital or KBMI enables large banks, or those included in the high KBMI category, to provide more features and conveniences, including the products offered and the ease of opening branch offices (Peraturan Otoritas Jasa Keuangan Republik Indonesia Nomor 12/POJK.03/2021 Tentang Bank Umum, 2021). This situation allows large banks to adapt more quickly when facing increased competition. Based on this explanation, the hypothesis proposed in this research is:

H_2 = The negative impact of P2P lending on KBMI 1 and 2 is more significant than KBMI 3 and 4

3. RESEARCH METHOD

3.1 Data

This research investigates the impact of P2P lending on banking performance. To achieve this, the research uses Net Interest Margin (NIM) as a proxy for banking performance, with NIM serving as the dependent variable. The use of NIM as a proxy refers to Dasilas and Karanović (2023). The selection of NIM as the sole dependent variable in this study is based on Saksonova (2014), who identifies NIM as the best proxy for illustrating the operational efficiency and stability of banks. Furthermore, Lestari et al. (2021) highlight NIM as a critical indicator for assessing the sustainability and health of the banking system, noting that banks with higher NIMs are better positioned to generate profits, withstand financial crises, and ensure stakeholder welfare. Supporting this, Hodula (2023) employs NIM as the primary dependent variable using the Dealership Model to explain the impact of P2P lending on bank performance, as observing its pressure on NIM is the most effective approach. Unlike focusing solely on lending or deposit rates, which offer a limited view, analyzing NIM provides a comprehensive perspective, capturing the dynamics of both interest income and interest expenses.

The main variable is the number of P2P loans. The number of P2P loans as a proxy is also used by Phan et al. (2020). This study employs control variables, which are categorized into two groups: firm-specific and country-specific. The firm-specific control variables include total assets, Capital Adequacy Ratio (CAR), and Loan to Deposit Ratio (LDR). The total assets variable utilizes the natural logarithm value of total assets. Meanwhile, the LDR variable is subjected to winsorization at the 1st and 99th percentiles. This study also utilizes country-specific control variables: Gross Domestic Product (GDP) and the inflation rate.

3.2 Empirical Model

We investigated the impact of P2P lending on bank performance by using the following model:

$$NIM_{i,t} = P2P_{i,t} + ASSET_{i,t} + CAR_{i,t} + LDR_{i,t} + GDP_t + INF_t + \varepsilon_{i,t} \quad (1)$$

Table 1 presents the definitions, sources, and expected signs of the variables. P2P lending, the main variable in this study, negatively influences bank performance (Saiedi et al., 2022; Siek & Sutanto, 2019). The subsequent section elucidates the expected signs of the control variables.

TABLE 1 | Variable Description

Variable	Definition	Expected Sign	Source
NIM	The ratio of net interest income to average loan portfolio		Bank quarterly publication report (OJK)
P2P	Number of P2P lending	-	P2P Lending Statistic Report
ASSET	Total asset	+/-	Bank quarterly publication report (OJK)
CAR	The ratio of equity to asset	+/-	Bank quarterly publication report (OJK)
LDR	The ratio of loan disbursed to third-party funding	+/-	Bank quarterly publication report (OJK)
GDP	Growth of Gross Domestic Period	+	Indonesian Financial System Statistics
INF	GDP Deflator	-	Indonesian Financial System Statistics

Source: Data processed (2024)

The first control variable is total assets. Total assets serve as a proxy for size. Prior research indicates inconclusive findings. Large banks derive advantages from operational efficiency resulting from economies of scope and economies of scale (Khan et al., 2018). Additionally, prominent banks benefit from reduced capital expenses and have the potential to achieve income diversification by expanding their range of products (Hamid & Ibrahim, 2021). Conversely, Agostino et al. (2023) suggest an adverse correlation exists between a bank's size and performance, primarily attributed to bureaucratic factors. Alternative studies indicate that variations in methodologies or circumstances result in differences in the influence of size on performance (Hamid & Ibrahim, 2021).

The second control variable is the ratio of capital to assets. The capital-to-assets ratio yields diverse findings. The signaling hypothesis posits that a high capital ratio positively influences performance by reflecting banks' expectations of future solid performance, sending a positive signal to investors (Berger, 1995). Moreover, this circumstance enhances the bank's performance. Conversely, high capital suggests that the bank deals with greater expenses. Hence, capital adversely impacts the performance of banks (Oino, 2018).

The third control variable is the Loan to Deposit Ratio (LDR). Yudaruddin (2022) found that the LDR harmed banking performance. Meanwhile, Khatima et al. (2023) concluded that the higher the LDR, the better the banking performance. These findings demonstrate inconsistent results regarding the impact of the LDR on performance. Therefore, this research concludes that the LDR can negatively or positively impact bank performance (Amir & Amri, 2022).

This research employs country-specific variables as control variables due to the influence of external factors, such as macroeconomics and conditions specific to each bank, on performance. This study incorporates two country-specific macroeconomic indicators: GDP growth and inflation rate. The positive correlation between GDP growth and bank performance arises from an upsurge in economic activity that leads to increased demand for bank services, thereby enhancing overall performance (Fidanoski & Sergi, 2017). Consequently, this study predicts that an increase in GDP will favorably impact the performance of banks. Studies indicate that inflation has a detrimental effect on the performance of banks (Dasilas & Karanović, 2023). Inflation leads to price increases, reducing demand and negatively affecting bank performance.

3.3 Data Analysis Technique

This study utilized a panel regression analysis. Panel regression is a statistical method that analyzes a panel data dataset. Panel data refers to data collected over time from multiple individuals or entities. It involves a collection of observations gathered over a specific period. Panel regression can employ pooled least squares, fixed, or random effects models. The Hausman Test is a method commonly used to identify the optimal model for panel regression. This research employs a fixed effects model based on the results of testing using the Hausman Test.

In addition to employing a static model, this research utilizes a dynamic model for hypothesis testing. The dynamic model is used due to prior research observing a simultaneous association between bank performance and P2P lending (Phan et al., 2020; Zhao et al., 2022). Therefore, this research employs the Two-Step Generalized Method of Moments (GMM), or two-step GMM.

This study's observations cover all conventional banks from the fourth quarter of 2021 to the third quarter of 2023. Additionally, the observations focus on banks included in KBMI categories 1 and 2 as well as those in KBMI categories 3 and 4. Consequently, this study conducts three panel regressions.

4. RESULTS AND DISCUSSION

4. 1 RESULT

4. 1. 1 Descriptive Statistics

Table 2 presents the descriptive statistics of the dataset. Some basic statistics are included in the table to illustrate the characteristics of the data. Descriptive statistics are divided into three groups. The first group consists of a dataset from all banks, the second group contains a dataset from banks included in the KBMI 1 and 2 categories, and the third comprises a dataset from bank groups classified as KBMI 3 and 4. There are a total of 745 data observations for all banks. The data is firm -quarter. The time frame spans eight consecutive quarters, specifically from Q3 2021 to Q3 2023. There are a total of 95 banks. Out of this total, 79 banks were categorized into KBMI categories 1 and 2. The remaining 17 banks were allocated to bank groups 3 and 4. During the observation period, a bank transitioned from KBMI groups 1 and 2 to KBMI groups 3 and 4.

TABLE 2 | Descriptive Statistic

All banks					
Variable	**Obs.**	**Mean**	**Std. Deviation**	**Min**	**Max**
NIM	745	4.89	2.85	-2.91	19.57
P2P	745	102	0.50	101	103
ASSET	745	IDR 110 trillion	IDR 273 trillion	IDR 2.27 trillion	IDR1.750 trillion
CAR	745	41.34	40.08	0.22	285.16
LDR	745	85.46	43.09	0.82	355
GDP	745	0.3	8.12	-15.05	17.72
INFL	745	6.59	3.84	-0.4	11.16
KBMI 1 and 2					
Variable	**Obs.**	**Mean**	**Std. Deviation**	**Min**	**Max**
NIM	611	5.03	3.07	-2.91	19.57
P2P	611	102	0.50	101	103
ASSET	611	IDR33.8 trillion	IDR38.9 trillion	IDR2.27 trillion	IDR191 trillion
CAR	611	45.06	43.32	0.22	285.16
LDR	611	84.99	45.95	0.82	355
GDP	611	0.3	8.12	-15.05	17.72
INFL	611	6.59	3.84	-0.4	11.16
KBMI 3 and 4					
Variable	**Obs.**	**Mean**	**Std. Deviation**	**Min**	**Max**
NIM	134	4.26	1.30	0.47	7.35
P2P	134	102	0.49	101	103
ASSET	134	IDR456 trillion	IDR514 trillion	IDR 66 trillion	IDR 1,750 trillion
CAR	134	24.39	5.21	15.99	41.4
LDR	134	87.64	26.42	0.82	156.79
GDP	134	0.3	8.12	-15.05	17.72
INF	134	6.59	3.84	-0.4	11.16

Source: Data processed (2024)

The mean Net Interest Margin (NIM) across all banks is 4.89%. The average NIM of KBMI 1 and 2 exceeds that of KBMI 3 and 4. Specifically, the average NIM of KBMI 1 and 2 is 5.03%, while the average NIM of KBMI 3 and 4 is 4.26%. The banks in KBMI 1 and 2 exhibit a broader range of NIM. This is demonstrated by the higher standard deviation of NIM for KBMI 1 and 2 compared to that of KBMI 3 and 4. The minimum NIM value for KBMI 1 and 2 is -2.91%, while the highest NIM value for KBMI 3 and 4 is 19.57%. For KBMI 3 and 4, the minimum NIM value is 0.47%, which is higher than the minimum NIM value for KBMI 1 and 2. On the other hand, the highest NIM value for KBMI 3 and 4 is 7.35%, which is lower than the maximum NIM value for KBMI 1 and 2. The number of P2P lending companies varied between 101 and 103 over eight quarters. The number of P2P lending companies has been declining over time. During the third quarter of 2021, there were 103 P2P lending companies, compared to 101 in the same quarter of 2023.

Assets serve as a quantitative indicator of a bank's size. The aggregated bank data indicate that the mean assets of the banks included in this study amount to IDR 110 trillion. The smallest bank has assets of IDR 2.27 trillion, while the largest bank

has assets worth IDR 1,750 trillion. According to the KBMI classification, banks in KBMI 1 and 2 have an average asset value of IDR 33.8 trillion, while banks in KBMI 3 and 4 have an average asset value of IDR 456 trillion. The data indicate a signif icant disparity in size between banks classified in KBMI categories 1 and 2 and those classified in categories 3 and 4. The KBMI 1 and 2 bank groups have the lowest asset value, amounting to IDR 2.27 trillion, while the KBMI 3 and 4 bank groups have the lowest asset value of IDR 66 trillion. Concerning the largest assets, banks in the KBMI 1 and 2 categories hold assets of IDR 191 trillion. Meanwhile, the KBMI 3 and 4 groups possess banks with the highest total assets, totaling IDR 1,750 trillion.

The average Capital Adequacy Ratio (CAR) value for all banks is 41.34%. This figure exceeds the recommended range of 8% to 11%. The CAR values in the KBMI 1 and 2 groups exhibit significant variability. The descriptive statistical analysis reveals that the standard deviation for KBMI 1 and 2 banks is 43.3%. Additionally, the smallest CAR value is 0.22%, while the maximum is 285.16%. Meanwhile, the average Capital Adequacy Ratio (CAR) for banks in the KBMI 3 and 4 groups is 24.39%. The minimum Capital Adequacy Ratio (CAR) for banks in groups 3 and 4 is 15.99%, whereas the maximum CAR is 41.4%.

The following inferences can be drawn from the LDR value. The mean Loan-to-Deposit Ratio (LDR) across all banks is 85.46%. All banks maintain a minimum Loan-to-Deposit Ratio (LDR) of 0.82%, while the maximum LDR is 355%. The average LDR value for KBMI 1 and 2 is 84.99%. However, for KBMI 3 and 4, it is 87.64%. This indicates a slight disparity in the mean LDR values between the two groups.

The country-specific control variables show descriptive statistics as follows. The study period observed an average GDP growth rate of 0.3%. The minimum GDP growth rate is -15.05%, while the maximum is 17.72%. The research period yielded an average inflation rate of 6.59%. The inflation rate reaches its minimum at -0.4%. This figure indicates a period of deflation during one of the observation periods. Concurrently, the inflation rate peaked at 11.16%.

TABLE 3 | Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) NIM	1.000						
(2) P2P	-0.090	1.000					
(3) ASSET	-0.146	-0.040	1.000				
(4) LDR	0.238	-0.035	-0.044	1.000			
(5) CAR	0.079	-0.013	-0.412	0.200	1.000		
(6) GDP	0.063	-0.467	0.038	0.043	0.004	1.000	
(7) INFL	-0.066	0.410	-0.027	-0.063	-0.029	-0.280	1.000

Source: Data processed (2024)

Table 3 demonstrates the results of correlation testing using pairwise correlation. The table displays the correlation among all the factors examined in this study. This data indicates that there is either an imperfect or no relationship among the in dependent variables. Therefore, the model does not exhibit any issues with multicollinearity.

4. 1. 2 Result for Static Regression

Table 4 displays the test results using a static model. Given that the dataset used in this study contains panel data, a Hausman test is conducted before performing the regression analysis. The purpose of this test is to ascertain whether the appropriate regression model to use is the Random Effects Model (REM) or the Fixed Effects Model (FEM). The Hausman test indicates that the static regression model employed in this study is a Fixed Effects Model (FEM). The regression results for all banks appear in Column (1) of Table 4. The regression outcomes for KBMI groups 1 and 2 are presented in Column (2). The regression findings for KBMI bank groups 3 and 4 can be seen in Column (3).

TABLE 4 | Result for Static Regression

	(1) NIM	(2) NIM	(3) NIM
P2P	-0.280***	-0.322***	-0.104
	(-3.85)	(-3.68)	(-1.66)
ASSET	0.810**	0.786**	1.075**
	(2.11)	(2.08)	(2.71)
LDR	0.00607	0.00638	-0.00808***
	(1.39)	(1.34)	(-2.98)
CAR	0.00382	0.00378	-0.0356
	(1.26)	(1.26)	(-1.71)
GDP	0.829	0.978	0.188
	(1.09)	(1.06)	(0.46)
INFL	-0.0215*	-0.0262*	-0.00905
	(-1.87)	(-1.87)	(-0.77)
CONSTANTA	18.89*	24.06**	-4.364
	(1.92)	(2.27)	(-0.40)
No of Obs.	744	611	133
R^2	0.180	0.191	0.219
adj. R^2	0.173	0.183	0.182
F-test	6.107	5.892	4.954
Prob > F	0.0000197	0.0000416	0.00481

Source: Data processed (2024)

(1) Estimation model with all banks; (2) Estimation model with banks included in KBMI 1 and 2; (3) Estimation model with banks included in KBMI 3 and 4

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Columns (1) and (2) demonstrate the existence of P2P lending, which has a significant negative effect on NIM (Net Interest Margin). The data in the two columns indicate that the P2P slope coefficient exhibits a statistically significant difference from zero. The coefficient value of -0.28 and t-stat of -3.85 in column (1) suggest that P2P adversely affects NIM. The coefficient value indicates that launching every new P2P lending platform results in an average reduction of 0.02% in NIM. P2P lending has a more pronounced adverse effect on NIM of the KBMI 1 and 2 bank groupings. The coefficient value for P2P in column (2) is -0.32, with a t-statistic of -3.68. The data indicates that the new launching of P2P has reduced the average NIM for the KBMI 1 and 2 bank groups by -0.03%. This finding aligns with hypothesis 2.

The findings of the tests conducted on control variables are as follows. The asset has a positive and significant impact on three columns. Meanwhile, inflation significantly has a negative impact on columns 1 and 2. This phenomenon can arise since major financial institutions can operate more effectively, enhancing their overall performance (Fidanoski & Sergi, 2017). Meanwhile, the regression analysis exhibits that the LDR significantly negatively impacts banks' performance in the KBMI 3 and 4 categories. Inflation has a negative and significant impact on KBMI 1 and 2 banks.

4. 1. 3 Dynamic Regression Model

Table 5 displays the test outcomes obtained using the dynamic regression model. The present study utilizes the GMM two-step model for dynamic regression analysis. The validity of the GMM model employed can be assessed by examining Hansen and AR(2). Tests conducted on both demonstrate the usability of the analytical results.

TABLE 5 | Result for Dynamic Regression

	(1) NIM	(2) NIM	(3) NIM
L.NIM	0.0585	0.168	0.930***
	(0.44)	(0.95)	(3.84)
P2P	-0.198**	-0.269**	-0.162*
	(-2.25)	(-2.63)	(-1.95)
ASSET	0.734	1.110	-0.0188
	(0.91)	(0.74)	(-0.05)
LDR	-0.0161	-0.0285*	-0.00452
	(-1.19)	(-1.83)	(-0.43)
CAR	0.00117	0.00467	0.104
	(0.14)	(0.37)	(1.31)
GDP	0.458	0.647	0.746
	(0.60)	(0.67)	(0.78)
INFL	-0.0186	-0.0222	0.0550
	(-1.65)	(-1.46)	(1.69)
CONSTANTA	13.53	15.18	14.74
	(1.15)	(0.59)	(1.49)
No. of Obs	649	532	116
AR(2)	0.759	0.502	0.962
Hansen	0.311	0.532	0.953

Source: Data processed (2024)

(1) Estimation model with all banks; (2) Estimation model with banks included in KBMI 1 and 2; (3) Estimation model with banks included in KBMI 3 and 4

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5 presents results similar to those in Table 4. It demonstrates that P2P lending negatively affects the performance of commercial banks. The impact is more pronounced for banks in the KBMI 1 and 2 groups. The coefficient value for P2P in column (1) is -0.20, with a t-statistic of -2.25. The data indicates that the new launch of P2P has reduced the average NIM for the KBMI 1 and 2 bank groups by -0.02%. This implies that the economic significance of a one-unit increase in P2P lending corresponds to a decrease in NIM of 0.02%. Meanwhile, the coefficient value for P2P in column (2) is -0.269, with a t-statistic of -2.63; thus, the economic significance is -0.03%. In other words, increasing P2P lending by one unit will decrease commercial banks' NIM by -0.03%. This occurs in banks classified as KBMI 1 and 2. GMM results also show a significantly negative value for the P2P coefficient, with a coefficient value of -0.162 and t-statistics of -1.95. Consequently, the economic significance is -0.02%, which indicates that an increase of one unit in P2P lending will decrease NIM in the KBMI 3 and 4 groups by 0.02%.

4.2 DISCUSSION

The findings corroborate Hypothesis 1, explicitly indicating that the existence of P2P lending negatively influences NIM. This discovery also validates the conclusions reached by Phan et al. (2020) and Siek and Sutanto (2019). Both authors conclude that the presence of P2P lending has a detrimental effect on bank performance. Therefore, this data provides evidence for the validity of Disruptive Innovation Theory, which states that the entry of new competitors has the potential to disrupt established firms in the market. This phenomenon can arise due to the introduction of newer players who bring advanced technology, enabling them to provide products at more affordable costs. Meanwhile, this finding contrasts with the Consumer Theory proposed by Kohardinata, Suhardianto, et al. (2020), which suggests that P2P lending and banks can establish cooperation and collaboration, indicating the potential for a more synergistic relationship in certain contexts.

Nevertheless, these conclusions directly oppose those of Dasilas and Karanović (2023). Dasilas and Karanović (2023) conducted their studies in England. They discovered that FinTech significantly enhanced the performance of the banking sector.

This corroborates the viewpoint that FinTech drives banks to adapt more quickly. Banking achieves this by providing technologically driven services to enhance operational efficiency. Nevertheless, this does not apply to conditions in Indonesia. FinTech, specifically P2P lending, poses a rivalry to banks due to its fast and straightforward service.

P2P lending has a more pronounced adverse effect on the NIM of the KBMI 1 and 2 bank groupings. This finding aligns with Hypothesis 2. Chen et al. (2020) concluded similar results. Their research shows that small banks and banks that have not yet been listed on the stock exchange are more strongly impacted by the presence of FinTech. This situation is analogous to banks classified under KBMI categories 1 and 2. Their research findings demonstrated that FinTech had a more significant impact on large banks. In other words, large banks cannot adapt quickly because they face higher adjustment costs. Consistent with the results of the static regression model, the GMM model also shows that P2P lending has an adverse effect on the overall banking sector. Banks in KBMI 1 and 2 groups experienced a more significant adverse effect. Meanwhile, the control variable, LDR, exhibits a negative and statistically significant impact solely within the subset of banks encompassed by KBMI 1 and 2.

5. CONCLUSION

This research examines the influence of P2P lending on bank performance, particularly focusing on the differentiated impact on bank groups based on core capital. The findings confirm previous studies, demonstrating a negative influence of P2P lending on bank performance. Notably, this negative effect is more pronounced for banks with smaller core capital, categorized as KBMI 1 and 2. These results highlight the heightened vulnerability of smaller banks to the competitive pressures introduced by P2P lending, which may stem from several underlying factors.

First, KBMI 1 and 2 banks often cater to similar customer segments as P2P lending platforms, particularly MSMEs and low-income borrowers. This customer overlap intensifies competition, as P2P lending platforms typically offer faster loan approvals, lower operational costs, and greater accessibility through digital interfaces, which may appeal to these shared customer bases. Second, smaller banks may lag in technological readiness compared to P2P lending platforms, limiting their ability to compete in terms of digital offerings and operational efficiency. Many KBMI 1 and 2 banks operate with legacy systems that hinder their capacity to innovate and deliver the seamless, tech-driven experiences demanded by modern customers. This technological gap not only affects customer retention but also limits these banks' ability to adopt advanced data analytics for credit scoring and risk assessment, areas where P2P platforms excel. Third, regulatory gaps further exacerbate the challenges faced by KBMI 1 and 2 banks. While P2P lending platforms often operate within regulatory frameworks designed to encourage fintech innovation, smaller banks must comply with stringent capital adequacy and risk management regulations. This asymmetry in regulatory requirements may create an uneven playing field, disadvantaging smaller banks and amplifying the competitive pressures they face.

6. LIMITATION AND IMPLICATION

The relatively short observation period (2021–2023) is a limitation of this study, as it may not fully capture the long-term effects and broader trends of P2P lending's impact on banking performance. This time frame was chosen because POJK Number 12/POJK.03/2021 was only implemented in 2021, making it essential to focus on the period immediately following this policy change. Additionally, this time frame aligns with the post-pandemic recovery period, which is critical for understanding the immediate dynamics. However, this limitation may affect the generalizability of the findings across different economic cycles, regulatory changes, or market conditions.

Future studies could address this limitation by extending the observation period to include data over a longer time horizon, enabling a more comprehensive analysis of long-term trends and delayed impacts. Comparative studies across different countries or regions could also provide a broader context and enhance the applicability of the findings. The second limitation is that this research only utilizes conventional banks; consequently, this study cannot capture the impact of P2P lending on Sharia banks.

The findings highlight significant practical implications for policymakers and banks in addressing the challenges and opportunities posed by P2P lending. Policymakers should consider developing adaptive regulations that align with banks' varying levels of core capital, ensuring a balanced regulatory framework that supports smaller banks while encouraging innovation and collaboration. Such regulations could include incentivizing traditional banks to partner with P2P lending platforms, such as regulatory sandboxes or tax benefits for collaborative initiatives, fostering a synergistic ecosystem. Additionally, policymakers could establish guidelines to ensure fair competition, mitigate risks, and protect consumer interests, particularly in underserved markets. For banks, the findings underscore the need to embrace digital transformation and develop strategies to adapt to the competitive landscape shaped by P2P lending. Banks can leverage their established trust and infrastructure to form partnerships with P2P platforms, creating co-lending models or offering bundled financial products to expand market reach and improve efficiency. Moreover, investing in technology to enhance operational efficiency and better meet customer expectations can help banks compete effectively. By focusing on collaboration rather than competition, banks can turn potential disruptions into opportunities to enhance financial inclusion and drive sustainable growth.

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