Financial Technology in Indonesia: Effect of Risk on Financial Performance in Peer-To-Peer Lending

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Abstract

This study aims to acquire empirical evidence related to the effect of risk on financial performance in peer-to-peer lending in Indonesia. By exploring the financial statements throughout 2019-2020. The test uses a panel data regression model, the Common Effect Model as the selected estimation regression model. Financial risk is measured by Operating Income Operating Expenses (BOPO), Net Interest Margin (NIM), Loan to Deposit Ratio (LDR), Debt to Asset Ratio (DAR), Debt to Equity Ratio (DER), and Capital Adequacy Ratio (CAR). In contrast, financial performance is measured by Return on Assets (ROA) and Return on Equity (ROE). The results of this study showed that the solvency risk projected by DAR, DER, and CAR had proven to influence the profitability of peer-to-peer lending in Indonesia projected by both ROA and ROE.

Keywords: peer-to-peer lending, return on assets, return on equity.

1.   INTRODUCTION

Financial Technology (Fintech) has grown rapidly in Indonesia since 2016. This is due to the traditional financial system that has not been able to keep up with the growing demand for technology-based services (Suleiman, 2019). Among the types of fintech services offered, the development of fintech lending in Indonesia has experienced rapid development. Since OJK introduced OJK Regulation Number 77 concerning Information Technology-Based Lending and Borrowing Services (POJK 77) at the end of 2016 (Suleiman, 2021), one of the developments of peer-to-peer lending can be observed through data on the accumulation of loan disbursements from each province in Indonesia.

P2P Lending has a mechanism for borrowing money without using traditional financial intermediaries, such as banks and credit unions (Nowak et al., 2018). The

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lending mechanism is carried out through the platform, the borrower submits the requested loan amount (request for loan amounts), and lenders can find the request through the platform. P2P Lending provides an opportunity for Indonesians who do not have access to formal financial institutions to obtain loans on simpler terms and without having to go directly to bank outlets (Suleiman, 2019). The P2P Lending platform is an alternative that plays an important role as a form of traditional credit intermediation for borrowers who need small-scale loans (Berentsen & Markheim, 2020). This platform opens opportunities to increase financial inclusion further and provide better terms for borrowers.

In addition, in the financial technology field, financial companies in Indonesia still encounter obstacles related to internet speed and financial literacy (Johan, 2020). Minimal financial literacy, low education levels, and limited access to complaint submission forums make some community groups more at risk of fraud or illegal lending practices (Suleiman, 2021). Meanwhile, the rules for the interest rate on P2P lending and fines are regulated indirectly by OJK through the Indonesian Joint Funding Fintech Association (AFPI) (Ananta, 2019). However, after further review, the interest rates and penalties related to P2P Lending loans are still unclear. Unlike the case with formal financial institutions, the basic loan interest rate is regulated and has a clear range.

This study aims to obtain empirical evidence regarding the effect of risk on financial performance in peer-to-peer lending through an analysis of the company's financial capabilities. By analyzing the company's financial condition, the company's performance can be measured by its ability to continue to grow, survive, or even fail (Suhendro, 2017). Measuring a company's financial performance requires relevant information, information that shows the company's operational activities during a certain period, as well as information obtained through financial statement analysis.

This study measure and analyze the financial performance of peer-to-peer lending providers, namely company profitability using Return on Assets (ROA) and Return on Equity (ROE), while financial risk using Net Interest Margin (NIM) as a proxy for interest rate risk, Operating Expenses Operating Income (BOPO) as a proxy for operational risk, Loan to Deposit Ratio (LDR) as a proxy for liquidity risk, Debt to Asset Ratio (DAR), Debt to Equity Ratio (DER), and Capital Adequacy Ratio (CAR) as a proxy for solvency risk.

2.   LITERATURE REVIEW

2.1. Risk

Based on risk appetite, risks are prioritized based on the level of urgency. Then the entity chooses alternative actions to respond to those risks, which refer to the estimated amount of risk. The results of these tests are then presented to key risk stakeholders (COSO, 2017).

Several risks must be managed properly, such as credit, operational, liquidity, and other risks that affect the company's performance. According to the Indonesian Fintech Association (2021), three main risks are crucial in fintech lending, so borrowers and lenders must be aware of and understand the consequences of this fintech lending risk. The first risk is being late in paying the loan principal for more

than 90 days. Thus, paying attention to the payment deadlines for borrowers is very important. Second is the practice of illegal fintech lending. Therefore, borrowers need to ensure that the fintech lending agent or platform that offers fintech lending already has a permit at the OJK. Lastly, the risk of personal data leakage. In this regard, borrowers must be careful in maintaining the confidentiality of their personal data to prevent this (Indonesian Fintech Association, 2021). Thus, risks that influence the achievement of business objectives need to be identified and assessed.

2.2. Financial performance

The company's success in obtaining profits is an achievement or achievement arising from the work process during a certain period. This success can be regarded as good company performance. Therefore, an assessment of financial performance is needed to assess the operational effectiveness of the company in the process of achieving its goals. Through published financial reports, external parties such as investors and creditors can study earnings and profitability, assets and debt levels, use of cash, and total investment owned by the company in a certain period so that the company's current condition is healthy to invest in. or borrow money for investment (Sukamulja, 2019:3).

According to Marginingsih (2017), measuring a company's financial performance can use ratio analysis starting with comparing financial statements, including data on changes that occur during a certain period in terms of the number of rupiah, percentages, to trends. Financial ratios show the actual condition of the company's finances and the company's potential to manage company assets to increase company value (Suhendro, 2017).

2.3. Hypotheses Development

2.3.1 Relationship of Market Risk (interest rate) to Profitability of Peer-to-peer lending in Indonesia

Market risk can be defined as the potential impact of adverse price movements such as interest rates, foreign exchange rates, and equity prices on the economic value of an asset (Yousfi, 2015). Based on research conducted by Harelimana (2017); Juma and Atheru (2018); Kibyegon Josphat and Joseph (2018); Yousfi (2015); Korompis et al. (2020); they found that the market risk relationship, namely interest rate risk, which was proxied using Net Interest Margin (NIM) had a positive and significant effect on profitability (ROA). However, there are differences in results according to Sathyamoorthi et al . (2020) found that interest rate risk has a negative and significant effect on profitability as proxied by Return on Assets (ROA) and Return on Equity (ROE). Based on the arguments and findings of previous research, the first hypothesis can be formulated:

H_1: Market risk effects on profitability

2.3.2 Relationship between Operational Risk and Profitability of Peer-to-peer lending in Indonesia

Operational risk arises from several factors, such as human error, technological system failure, problems in internal processes, and external bank factors (Utami & Silaen, 2018). The ratio of Operating Expenses to Operating Income (BOPO) is commonly used to measure operational risk. BOPO was investigated to determine the efficiency of banking operations which was calculated by comparing operational costs to operating income (Sante et al ., 2021). The BOPO ratio is categorized as good when it has a lower ratio value. It shows that the lower the value of the BOPO ratio, the more efficient a company is in generating profits (Kristianti & Tulenan, 2021).

Bagh et al. (2017) found that risk management practices were proxied using the Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), interest rate risk, liquidity risk, including operational risk, which was tested against financial performance expressed using Return on Equity (ROE). It has a positive and significant influence. Another study by Kansil et al. (2017) obtained empirical evidence that BOPO has a positive and significant effect on profitability as proxied by ROA. These results contradict the findings of Mardiana et al. (2018); Yousfi (2015), who found that operational risk proxied by BOPO had a negative and significant effect on financial performance as proxied using Return on Assets (ROA). Based on the arguments and findings of previous research, the second hypothesis can be formulated:

H_2: Operational risk effects to profitability.

2.3.3 Relationship between Liquidity Risk and Profitability of Peer-to-peer lending in Indonesia

Liquidity risk can be measured using the liquidity ratio. The liquidity ratio shows the company's ability to pay off its short-term obligations or how quickly it can convert its assets into assets (Sukamulja, 2019). One of the liquidity ratios used as an indicator of measurement is the Loan to Deposits Ratio (LDR). This ratio is calculated by comparing the total loans provided with total third-party funds (Korompis et al ., 2020).

Sante et al. (2021); Korompis et al. (2020); Sathyamoorthi et al. (2020); Dewi and Srihandoko (2018); Kansil et al. (2017) found that liquidity risk proxied using Loan to Deposit (LDR) had a negative and insignificant effect on profitability (ROA). In contrast to the findings by Khalifaturofi'ah (2021); Juma and Atheru (2018); Kibyegon Josphat and Joseph (2018); Harelimana (2017) found that liquidity risk has a positive and significant effect on profitability (ROA). Based on the arguments and findings of previous research, the third hypothesis can be formulated:

H_3: Liquidity risk effects to profitability.

2.3.4 The Relationship between Solvency Risk and Profitability of Peer-to-peer lending in Indonesia

Solvency risk analysis is carried out to obtain an overview of the proportion of debt and determine the company's long-term financial risk, which can be measured using the solvency ratio (Sukamulja, 2019). Several studies measure and relate solvency risk to profitability, projected through various ratios as measurement parameters. Sathyamoorthi et al. (2020) found that the Debt to Assets Ratio (DAR)

had a negative and insignificant effect on profitability (ROA), while the Debt to Equity Ratio (DER) had a positive and insignificant effect on profitability (ROE).

Other research by Efriyenty (2020); Khalifaturofi'ah (2021); Pratiwi and Kurniawan (2018) found that solvency risk proxied by the Capital Adequacy Ratio (CAR) has a positive and significant effect on financial performance as proxied using Return on Assets (ROA). However, these findings contradict the findings of Sriyana (2015), who found that solvency risk proxied by the Capital Adequacy Ratio (CAR) had a negative and significant effect on financial performance as proxied using Return on Assets (ROA). Based on the arguments and findings of previous research, a fourth hypothesis can be formulated:

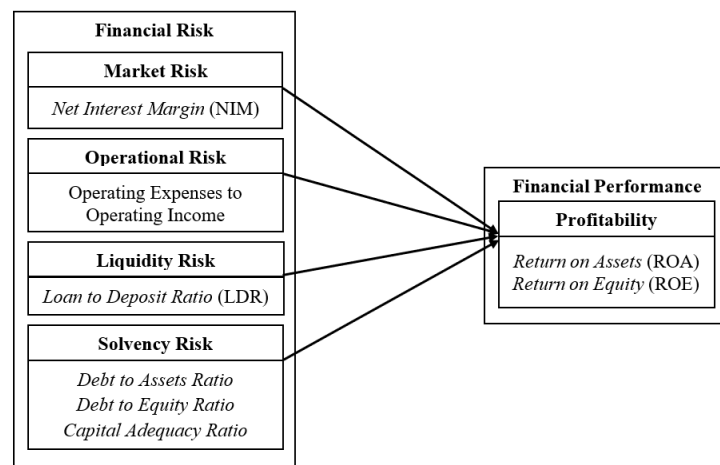**H₄**: Solvency risk effects to profitability.

Figure 1. Research Model

3.   METHODOLOGY

3.1. Data Types

This type of research is quantitative research with a descriptive approach. This study uses secondary data. Secondary data in this study are data from company financial statements and statistical data from the results of a national survey conducted by the Financial Services Authority (OJK), the Indonesian Fintech Association (AFTECH), and Bank Indonesia.

3.2. Sampling Methods and Techniques

The sampling method used is a non-probability sampling design. This design shows that the findings from the sample studied cannot be conclusively generalized to the population. The sampling technique used in the sampling design is the purposive sampling technique. The purposive sampling technique is done by taking samples from the population based on certain criteria.

3.3. Population and Sample

The population used in this study are Financial Technology (FinTech) companies or non-bank companies (IKNB) registered with OJK. As of April 22, 2022,

there are 102 licensed fintech lending companies, including 95 conventional companies and 7 sharia companies.

The sample used in this study was selected based on certain criteria (purposive sampling), which have been determined as follows: (1) Nonbank sub-sector (financial technology companies); (2) The company has financial reports that have been published starting from 2019 to 2020. The observation period is determined based on the availability of publication data (financial reports) and the status of the operator who is licensed/registered at OJK; (3) The size of the sample companies included in the medium-sized business category. The criteria are adjusted to Law no. 20 of 2008; and (4) The sample used focuses on conventional operators because they want to see the general principles that are similar to conventional banks. Samples that meet the criteria based on the purposive sampling method obtained 35 P2P Lending companies as samples, so 70 were obtained as panel data used in data processing during a 2-year observation period.

3.4. Sampling Methods and Techniques

The dependent variable in this study is the financial performance measured using a profitability ratio consisting of Return on Assets (ROA) and Return on Equity (ROE). The profitability ratio is a tool to measure the company's ability to generate profits and measure the rate of return on investment, which also reflects the efforts made by management to maintain the effectiveness of the company's operating activities (Sukamulja, 2019:97).

The independent variable in this study is the financial risk which is measured using certain ratios, namely Net Interest Margin (NIM) as a proxy for market risk (interest rate), Operating Expenses for Operating Income (BOPO) as a proxy for operational risk, Loan to Deposit Ratio (LDR) as a proxy for liquidity risk, Debt to Asset Ratio (DAR), Debt to Equity Ratio (DER), and Capital Adequacy Ratio (CAR) as a proxy for solvency risk.

This P2P lending business mechanism provides loans with a certain interest rate and a time period that adjusts to the amount of the loan provided. An installment system is made to pay off the loan to make it easier for borrowers. Thus, the timeframe in this business category is long-term oriented. Therefore, the company's ability to manage sources of funds and fulfill long-term obligations is an important aspect. In addition, P2P lending is capital intensive, and the source of funding relies heavily on funding sources that come from liabilities (external funding). Therefore, using DAR, DER, and CAR to measure solvency risk is assumed to project better the company's ability to mitigate solvency risk.

Table 1. Variables and Measurements

Variables	Financial Ratios	Abbreviation	Measurements
Dependent Variables			
Return on Assets	Profitability	ROA	$\dfrac{\text{Profit after Tax}}{\text{Total Assets}}$
Return on Equity	Profitability	ROE	$\dfrac{\text{Net Profit}}{\text{Total Equity}}$
Independent Variables			
Net Interest Margin	Market Risk	NIM	$NIM = \dfrac{\text{Net Interest Income}}{\text{Average Productive Assets}}$
Operating Expenses for Operating Income	Operational Risk	BOPO	$BOPO = \dfrac{\text{Total Operating Expenses}}{\text{Total Operating Income}}$
Loan to Deposit Ratio	Liquidity Risk	LDR	$LDR = \dfrac{\text{Total Credits}}{\text{Third Party Funds}}$
Debt to Assets Ratio	Solvency Risk	DAR	$\dfrac{\text{Total Liabilities}}{\text{Total Assets}}$
Debt to Equity Ratio		DER	$DER = \dfrac{\text{Total Liabilities}}{\text{Total Equity}}$
Capital Adequacy Ratio		CAR	$CAR = \dfrac{\text{Capital}}{\text{Risk-Weighted Assets}}$

Source: Authors

3.5. Data Analysis Technique

The analytical technique used in this research is panel data regression analysis. Several stages in panel data regression analysis are quite different from other regression models. The first stage is to determine the estimation model, which consists of a common effect model, a fixed effect model, and a random effect model. After knowing the panel data regression of the estimation model, the next step is to choose an estimation technique or method to find the most appropriate panel data regression model. Several tests were carried out at this stage: the Chow test and the Breusch-Pagan test Lagrange Multiplier.

Classical assumption testing is required in the estimation regression model using the ordinary least square (OLS) method. Not all of the panel data regression models use the OLS method. Of the three-panel data regression models, only two use the OLS method: the common effect model and the fixed effect model. In contrast, the random effect model uses the generalized least square (GLS) method. Thus, if the selected panel data estimation model is other than the random effects model, the first thing to do is test the classical assumptions before testing the hypothesis. A good regression estimation results must avoid deviations from the classical assumptions, characterized by normally distributed data and free from symptoms of multicollinearity and heteroscedasticity.

Furthermore, this study also performs a backward-stepwise regression test to overcome the autocorrelation problem and aims to find the most significant independent variable on the dependent variable in the regression model.

4. RESULT AND DISCUSSION

4.1. Result

The analytical technique used in this research is panel data regression analysis which is processed using the statistical tool Eviews12.

4.1.1. Creating Panel Data Regression Estimation Model

The following are the results of the determination of the panel data regression estimation model in the regression equation (1) with the dependent variable Y_1 (ROA), which is then followed by the regression equation (2) with the dependent variable Y_2 (ROE).

Table 2. Panel Data Regression Estimation Model

No.	Regression Estimation Model	Regression Equation (1)		Regression Equation (2)	
		F Statistics	P Values	F Statistics	P Values
1.	Common Effect Model (CE)	2.962118	0.022211	7.656764	0.000055
2.	Fixed Effect Model (FE)	0.652864	0.810903	2.476371	0.078402
3.	Random Effect Model (RE)	2.962118	0.022211	7.656764	0.000055

Source: Data processed

4.1.2. Selecting Panel Data Regression Estimation Model

A. Chow Test

The Chow test is a test to determine the most appropriate model between the common effect model and the fixed effect model in estimating panel data. Criterion H_0 is not accepted if the F statistic is greater than the critical F value or the probability F statistic is less than the significance level used in the Chow test.

The following are the results of the Chow test on the regression equation (1) with the dependent variable Y_1 (ROA), which is then followed by the regression equation (2) with the dependent variable Y_2 (ROE).

Table 3. Chow Test

Regression Equation (1)			Regression Equation (2)			Information
Cross-Section F	P Values	Critical F	Cross-Section F	P Values	Critical F	
0.355234	0.9742	2.9365	0.969914	0.5499	2.9365	df = (20,9)

Source: Data processed

Suppose the significance level (α) is 5%. In that case, the probability value of the F statistic is greater than the significance level, so the results of the Chow test can be concluded that the common effect (CE) model is stated as the chosen estimation model because the common effect (CE) model is much better than the fixed effect (FE) model.

B. Breusch-Pagan Lagrange Multiplier Test

Based on the results of the Chow test, we can conclude that the CE model was the chosen model, so the Breusch-Pagan Lagrange Multiplier test was carried out to know a more precise estimation model between the common effect model and the random effect model. Criterion H_0, the Breusch-Pagan Lagrange Multiplier test, is not accepted if the value of the Breusch-Pagan Lagrange Multiplier Probability statistic is smaller than the level of significance used in the Breusch-Pagan Lagrange Multiplier test.

Breusch-Pagan Lagrange Multiplier test on the regression equation (1) with the dependent variable Y_1 (ROA), which is then followed by the regression equation (2) with the dependent variable Y_2 (ROE).

Table 4. Breusch-Pagan Lagrange Multiplier Test

Regression Equation (1)		Regression Equation (2)	
Breusch-Pagan (Both)	P Values	Breusch-Pagan (Both)	P Values
8.832380	0.0030	3.417487	0.0645

Source: Data processed

The conclusion from the results of the Breusch-Pagan test is that the common effect (CE) model is more suitable than the random effect (RE) model because the model does not have heteroscedasticity problems and is suitable for the test results criteria.

4.1.3. Classic Assumption Test

A. Normality Test

Criterion H_0 is rejected if the Jarque-Bera Probability value is less than the 5% significance level (α) used in the Jarque-Bera test. Therefore, if the Jarque-Bera value is not significant (less than 2), then the data is normally distributed. In addition, if the Jarque-Bera probability value is greater than the 5% significance level, it can be concluded that the data is normally distributed.

Following are the results of the normality test in the regression equation (1) with the dependent variable Y_1 (ROA), which is then followed by the regression equation (2) with the dependent variable Y_2 (ROE).

Table 5. Normality Test

Regression Equation (1)		Regression Equation (2)	
Jarque-Bera	P Values	Jarque-Bera	P Values
0.315852	0.853913	0.571998	0.751263

Source: Data processed

Based on the results of the normality test above, it is concluded that the data are normally distributed, or the null hypothesis (H_0) is accepted in the regression equation (1) with the dependent variable Y_1 (ROA) and in the regression equation (2) with the dependent variable Y_2 (ROE).

B. Heteroscedasticity Test

The heteroscedasticity test can be done by using the Breusch-Pagan Lagrange Multiplier method. This test was carried out in the second stage after the Chow test. The conclusion from the results of the Breusch-Pagan test is that there are no problems related to heteroscedasticity with the dependent variable Y_1 (ROA) or in the regression equation (2) with the dependent variable Y_2 (ROE).

C. Multicollinearity Test

The estimation regression model does not have multicollinearity problems if the correlation coefficient between independent variables is less than 0,8 (Algifari, 2021). The following are the results of the multicollinearity test in the regression equation (1) with the dependent variable Y_1 (ROA), which is then continued in the regression equation (2) with the dependent variable Y_2 (ROE).

Table 6. Multicollinearity Test

	X_1	X_2	X_3	X_4	X_5	X_6
X_1	1.0000000	0.201175	-0.117801	-0.043514	-0.180790	0.217322
X_2	0.201175	1.0000000	-0.128255	-0.156695	-0.139382	0.466607
X_3	-0.117801	-0.128255	1.0000000	0.327527	0.404426	-0.351619
X_4	-0.043514	-0.156695	0.327527	1.0000000	**0.936773**	-0.447343
X_5	-0.180790	-0.139382	0.404426	**0.936773**	1.0000000	-0.598596
X_6	0.217322	0.466607	-0.351619	-0.447343	-0.598596	1.0000000

Source: Eviews12

The test results above show that the data is still experiencing multicollinearity problems. It happens because the number of observations is very limited. However, the estimator is still BLUE (Best Linear Unbiased Estimator), so the variable X_4 and X_5 is still feasible to be maintained in the regression equation model.

D. Autocorrelation Test

Following are the results of the autocorrelation test using the Durbin Watson test, which is displayed in graphical form, in the regression equation (1) with the dependent variable Y_1 (ROA), which is then continued in the regression equation (2) with the dependent variable Y_2 (ROE).
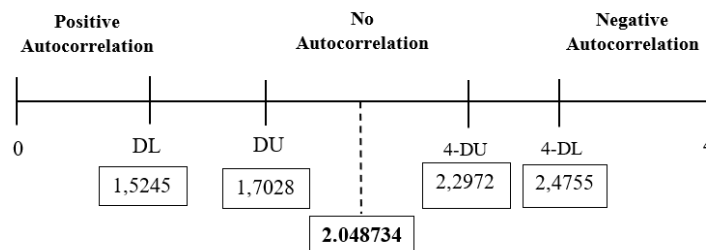

Figure 2. Graph of Durbin Watson test on the regression equation (1) (ROA)
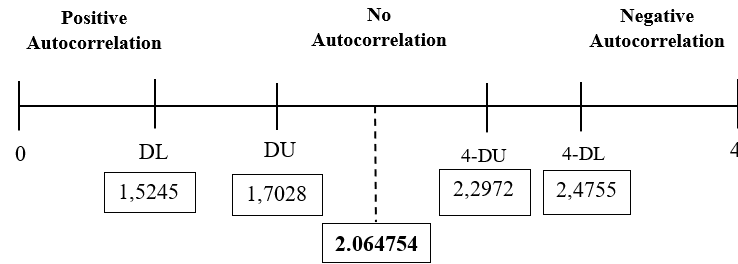
Figure 3. Graph of Durbin Watson test on the regression equation (2) (ROE)

Based on the results of the Durbin-Watson test with a significance level (α) of 5%, it can be concluded that the common effects model in equation (2) with the dependent variable (Y_2) ROE is in a position where there is no autocorrelation problem. The results of the Durbin-Watson test are based on the final results of the backward test stage stepwise regression.

4.1.4. Backward-Stepwise Regression Test

This method begins by including all variables in the regression model. Next, at each step, the least significant independent variable is eliminated. This process continues until there are no insignificant independent variables left. In this test, the researcher determines the level of significance to be a criterion in determining the variables that can be eliminated from the regression model.

The backward-stepwise regression test eliminates X_1 (NIM), X_2 (BOPO), and X_3 (LDR) because it was found that these variables don't fulfill the criteria for the t-test.

Table 7. Test variables X_1, X_2, and X_3 on the regression equation (1) (ROA)

No.	Variable	Coefficient	t- Statistics	P Values
1.	X_1 (NIM)	-0,057377	-0,669043	0,5063
2.	X_2 (BOPO)	-0,181692	-0,705599	0,4861
3.	X_3 (LDR)	0,105298	0,936628	0,3562

Source: Data processed

Table 8. Test variables X_1, X_2, and X_3 in the regression equation (2) (ROE)

No.	Variable	Coefficient	t- Statistics	P Values
1.	X_1 (NIM)	0,074559	0,620135	0,5397
2.	X_2 (BOPO)	-0,075434	-0,357996	0,7229
3.	X_3 (LDR)	0,055399	0,648186	0,5211

Source: Data processed

In the final stage of the backward-stepwise regression test, it was found that the variables that met the t-test criteria in the regression equation were X_4 (DAR), X_5 (DER), and X_6 (CAR). The following is the final result of the backward stepwise regression test on the regression equation (1) with the dependent variable Y_1 (ROA) and the regression equation (2) with the dependent variable Y_2 (ROE).

Table 9. Test variables X_4, X_5, and X_6 in the regression equation (1) (ROA)

No.	Variable	Coefficient	t-Statistic	P Values
1.	X_4 (DAR)	-1.144554	-3.209154	0.0021
2.	X_5 (DER)	1.118930	3.610502	0.0006
3.	X_6 (CAR)	0.764131	3.646686	0.0006
Adjusted R-squared (R^2)		0.188030	**F-statistics**	5.940201
Durbin-Watson stat		2.048734	**Prob(F-statistic)**	0.001271

Source: Data processed

Table 10. Test variables X_4, X_5, and X_6 in the regression equation (2) (ROE)

No.	Variable	Coefficient	t-Statistic	P Values
1.	X_4 (DAR)	-1.804065	-6.126648	0.0000
2.	X_5 (DER)	1.835203	7.172412	0.0000
3.	X_6 (CAR)	1.155799	6.680807	0.0000
Adjusted R-squared (R^2)		0.507858	**F-statistics**	23.01460
Durbin-Watson stat		2.064754	**Prob(F-statistic)**	0.000000

Source: Data processed

Based on the statistical test results ending with the backward stepwise regression method on the common effect model, the panel data regression equation model in this study is shown in equations (1) and (2) as follows.

Regression equation (1):
$$\text{ROA} = -2.35 - 1.14\,\text{DAR} + 1.11\,\text{DER} + 0.76\,\text{CAR} + \varepsilon$$

Regression equation (2):
$$\text{ROE} = -2.52 - 1.80\,\text{DAR} + 1.83\,\text{DER} + 1.15\,\text{CAR} + \varepsilon$$

Where:
X_4 = DAR; X_5 = DER; X_6 = CAR; β_0 = constant; = regression error (error term).

4.2. Discussion

4.2.1. Effect of Market Risk (interest rate) on Profitability

Market risk is proxied by Net Interest Margin (NIM). The greater the NIM value the company achieves, the higher the interest income on the company's productive assets, so that the profit earned will increase and have a good impact on company performance (Korompis et al., 2020). Previous findings that measure the effect of market risk (interest rates) on profitability have been studied by Harelimana (2017); Juma and Atheru (2018); Kibyegon Josphat and Joseph (2018); Korompis et al. (2020); Yousfi (2015) found that the market risk relationship, namely interest rate risk, which was proxied using Net Interest Margin (NIM) had a positive and significant effect on profitability (ROA). Another finding by Sathyamoorthi et al. (2020) found that interest rate risk has a negative and significant effect on profitability as proxied by Return on Assets (ROA) and Return on Equity (ROE).

The findings in previous studies are not in accordance with the findings in this study. Tables 7 and 8 show that the effect of the market risk variable proxied by X_1 (NIM) on Return on Assets (ROA) has a probability value of t statistic of 0.5063, and the effect of X_1 (NIM) on Return on Equity (ROE) has a probability value. The t-statistic is 0.5397. The probability value of the t-statistic Net Interest Margin (NIM) is greater than the level of significance used in the regression model (p-value > 0.05). Thus, the probability value of the t statistic does not fulfill the criteria to support H_1.

The findings in this study indicate that, on average, the company is still in a condition that has not yet made a profit. The company is still in the developing stage throughout the observation period. Thus, no significant effect has been found between interest income (NIM) on profitability. In addition, the value of the correlation coefficient X_1 (NIM) indicates that the results of this study are in accordance with the theory that explains the positive correlation between the effect of market risk (interest rates) on profitability.

The results of the first hypothesis test generate a new assumption that further research can use proxies other than interest rates, such as commodity prices, exchange rates, or other economic variables, such as stock prices.

4.2.2. Effect of Operational Risk on Profitability

Operational risk is proxied by Operating Expenses for Operating Income (BOPO). BOPO shows the company's resource allocation efficiency (Sante et al., 2021). Previous findings that measure the effect of operational risk on profitability have been investigated by Kansil et al. (2017) and obtained empirical evidence that BOPO has a positive and significant impact on profitability as proxied by ROA. These results contradict the findings of Mardiana et al. (2018); Yousfi (2015), who found that operational risk proxied by BOPO had a negative and significant effect on financial performance as proxied using Return on Assets (ROA). Another study by Bagh et al. (2017) found that operational risk tested on financial performance expressed using Return on Equity (ROE) had a positive and significant effect.

The findings in previous studies are not in accordance with the findings in this study. Tables 7 and 8 show that the effect of variable X_2 (BOPO) on Return on Assets (ROA) has a probability value of t statistic of 0,4861, and the effect of variable X_2 (BOPO) on Return on Equity (ROE) has a probability value of t statistic of 0.7229. The probability value of the t statistic of Operating Expenses Operating Income (BOPO) is greater than the level of significance used in the regression model (p-value > 0.05). Thus, the probability value of the t statistic does not fulfill the criteria to support H_2.

Based on the value of the correlation coefficient X_2 (BOPO) indicates that the results of this study are not in accordance with the theory that explains the negative correlation between the effect of operational risk (BOPO) on profitability. This indicates that the company is still not efficient in managing its resources. However, other factors can be considered, such as the company is still developing stages during the research period, so the proportion of operating expenses is greater than its operating income. Thus, there is still no significant effect of BOPO on profitability.

The results of the second hypothesis test generate a new assumption that further research can test with other proxies, such as the receivables turnover ratio, considering that the business orientation of the company under study is a finance company.

4.2.3. Effect of Liquidity Risk on Profitability

Liquidity risk is proxied by the Loan to Deposits Ratio (LDR). LDR is often used to measure the level of liquidity and shows the company's ability to manage or mobilize depositors' funds. LDR has a positive correlation to profitability, so when there is an increase in LDR, profitability also increases (Khalifaturofi'ah & Nasution, 2016). Previous findings that measure the effect of liquidity risk on profitability have been studied by Sante et al. (2021); Korompis et al. (2020); Sathyamoorthi et al. (2020); Dewi and Srihandoko (2018); Kansil et al. (2017) found that liquidity risk proxied using Loan to Deposit (LDR) had a negative and insignificant effect on profitability (ROA). In contrast to the findings by Khalifaturofi'ah (2021); Juma and Atheru (2018); Kibyegon Josphat and Joseph (2018); Harelimana (2017) found that liquidity risk has a positive and significant effect on profitability (ROA).

The findings in previous studies are not in accordance with the findings in this study. Tables 7 and 8 show that the effect of variable X_3 (LDR) on Return on Assets (ROA) has a probability value of t statistic of 0.3562 and the effect of variable X_3 (LDR) on Return on Equity (ROE) of 0.5211. The probability value of the t-statistic Loan to Deposit Ratio (LDR) is greater than the level of significance used in the regression model (p-value > 0.05). Thus, the probability value of the t statistic does not fulfill the criteria to support H_3.

The findings in this study indicate that the depositors' funds have not been appropriately allocated to improve the company's financial performance. However, other factors can be considered, such as not all companies have funding from third parties or related parties. Hence, there is still no significant influence on the profitability of the Loan to Deposits Ratio (LDR). In addition, the correlation coefficient X_3 (LDR) indicates that the results of this study are in accordance with the theory that explains the positive correlation between the influence of liquidity risk on profitability.

The results of the third hypothesis test generate a new assumption that further research can use other proxies, such as the cash ratio, to assess the proportion of cash in the company's total assets and as a representation of the influence of liquidity risk on profitability.

4.2.4. The Influence of Solvency Risk on Profitability

Solvency risk analysis is carried out to obtain an overview of the proportion of debt and determine the company's long-term financial risk, which can be measured using the solvency ratio (Sukamulja, 2019). The company's solvency risk can be measured by several ratios, including the Debt to Assets Ratio (DAR), Debt to Equity Ratio (DER), and Capital Adequacy Ratio (CAR). The DAR and DER ratios show the proportion of liabilities owned, so the greater the percentage of the two ratios, the higher the interest expense and the risk of default on the debt will be suffered by the

company (Andhani, 2019). Therefore, DAR and DER have a negative correlation to profitability. CAR has a positive and significant effect on ROA. A high capital adequacy level will signal profitability positively because it can withstand financial declines and handle a certain number of losses before risking bankruptcy. (Efriyenty, 2020; Khalifaturofi'ah & Nasution, 2016). In addition, CAR has a negative effect on ROE, meaning that the higher the CAR, the higher the idle funds. This will cause the return on equity to be lower (Khalifaturofi'ah, 2021).

Sathyamoorthi et al. (2020) found that the Debt to Assets Ratio (DAR) had a negative and insignificant effect on profitability (ROA), while the Debt to Equity Ratio (DER) had a positive and insignificant effect on profitability (ROE). Other research by Efriyenty (2020); Khalifaturofi'ah (2021); Pratiwi and Kurniawan (2018) found that solvency risk proxied by the Capital Adequacy Ratio (CAR) has a positive and significant effect on financial performance as proxied using Return on Assets (ROA). However, these findings contradict the findings of Sriyana (2015) who found that solvency risk proxied by the Capital Adequacy Ratio (CAR) had a negative and significant effect on financial performance as proxied using Return on Assets (ROA).

The findings in this study regarding the effect of CAR on profitability (ROA) are consistent with the findings made by Efriyenty (2020); Khalifaturofi'ah (2021); Pratiwi, and Kurniawan (2018). This study found that solvency risk proxied by the Capital Adequacy Ratio (CAR) has a positive and significant effect on financial performance as proxied using Return on Equity (ROE). However, the new findings are not in line with the theory presented by Khalifaturofi'ah (2021) regarding the effect of CAR on ROE. In addition, other findings that use DAR and DER as proxies of solvency risk to profitability produce findings that are different from the findings (Sathyamoorthi et al., 2020).

Based on the value of the correlation coefficient, X_3 (DER) on profitability and X_6 (CAR) on ROE shows that the results of this study are not in line with the theory that explains the negative correlation between the effect of solvency risk (DER) on profitability, and a negative correlation between the effect of capital adequacy ratio (CAR) to ROE. This indicates that the positive DER correlation indicates the larger proportion of debt will impact the burden of P2P lending companies during the observation period. The increase in the company's expenses also indicates the company's heavy dependence on funding from external parties such as creditors, this segment is following the condition of the company under study.

In addition, the positive correlation of CAR to ROE also indicates that the capital owned by the company is not operated optimally, so the company is charged with bearing large costs for idle funds. However, other factors can be taken into consideration, such as the company consciously raising funds as an emergency fund or the absence of the right segment to allocate the idle funds. The company's condition is still in the early stages of operation, which raises the suspicion that the company is very selective in operationalizing the available funds.

Table 9 shows that the dependent variable Y_1 (ROA) is positively influenced by the variables X_5 (DER) and X_6 (CAR) with a probability value of t statistic of 0.0006 and 0.0006, and the dependent variable Y_1 (ROA) is influenced by negative by X_4 (DAR) with a probability value of t statistic of 0.0021. Table 10 shows that the dependent variable Y_2 (ROE) is positively influenced by variables X_5 (DER) and X_6 (CAR) with a probability value of t statistic of 0.0000 and 0.0000, and the dependent

variable Y_2 (ROE) is negatively affected by X_4 (DAR) with a probability value of t statistic of 0.0000. The probability value of the t statistic for each variable is smaller than the level of significance used in the regression model (p-value < 0.05). Thus, the probability value of the t statistic fulfills the criteria to support H_4.

Table 11. Summary of Hypothesis Test Results

Financial Risk	Effect on Profitability		Decision
	ROA	ROE	
X_1 (NIM)	Insignificant	Insignificant	H_1 not supported
X_2 (BOPO)	Insignificant	Insignificant	H_2 not supported
X_3 (LDR)	Insignificant	Insignificant	H_3 not supported
X_4 (DAR)	Significant	Significant	
X_5 (DER)	Significant	Significant	H_4 supported
X_6 (CAR)	Significant	Significant	

Source: Author

Based on the results of the hypothesis testing that has been presented in table 11, it can be concluded that the fourth hypothesis (H_4), the solvency risk projected by DAR, DER, and CAR, has proven to influence the profitability of peer-to-peer lending in Indonesia projected by ROA and ROE.

5. CONCLUSION

This study aims to determine the effect of financial risk on the financial performance of peer-to-peer lending companies in Indonesia. The measured financial risk is the market risk (interest rate), operational risk, liquidity risk, and solvency risk. In contrast, financial performance is measured using profitability ratios consisting of Return on Assets (ROA) and Return on Equity (ROE).

The results of the research that has been carried out have found that the level of profitability of P2P Lending companies is only influenced by solvency risk. However, this study failed to prove the effect of market risk (NIM), operational risk (BOPO), and liquidity risk (LDR) on profitability. Therefore, the measure of solvency risk is an important aspect that needs more attention by P2P Lending companies. As a non-bank finance company, funding in this business activity relies more on external funding than internal financing. Thus, the proportion of debt described by the DAR and DER percentage becomes crucial in this business category. In addition, the proportion of capital adequacy represented by CAR needs to be considered because, considering that P2P Lending companies are capital intensive when losses occur due to operational activities, the company must have sufficient capital reserves to handle a certain number of losses before risking bankruptcy. Although some of the risk measures included in this study were not found to affect profitability, it does not mean that they are unimportant and then ignored. However, companies also need to pay attention to other financial risks that could impact the company's financial performance.

The limitation of this study is that the observation period is very short, so the findings obtained from the results of hypothesis testing are not proven. In addition,

the inequality in using proxies for each risk also generates the assumption that it also affects the findings that are not in line with the actual theory. Furthermore, the estimation regression model was used. The estimation regression model used, namely, the common effect model, still has many weaknesses. The assumption that the intercept and slope values are constant over time and individuals is not always true. Even most regression models result in the intercept and slope values constantly changing over time and individuals. Therefore, this model is only optimally used in several units and studies with a short observation period.

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