Financing Risk in Islamic Rural Banking in Indonesia: Internal and External Factors Determining

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ABSTRACT

Financing risk is the most vital aspect in banking, so it must be managed so that it does not increase. The purpose of this study is to test the factors that determine financing risk. Financing risk is measured by non-performance financing (NPF), while the factors that are suspected of influencing financing risk consist of internal and external factors. Internal factors consist of profitability as measured by return on assets (ROA), capital as measured by capital adequacy ratio (CAR), liquidity risk as measured by financing to deposit ratio (FDR), and bank efficiency level as measured by operating expense to operating income ratio (EIR). While external factors consist of inflation rate, and Bank Indonesia interest rate. The population in this study were Islamic Rural Banks (IRBs) operating in Indonesia as many as 164 IRBs. Samples were taken as many as 75 IRBs with purposive sampling. The observation period was 4 years with quarterly data so that 1,200 observation data were collected. Hypothesis testing used panel data regression analysis by selecting three panel data regression models. After being tested with chow-test, Hausman-test, and Lagrange Multiplier-test, the common effect model was obtained as the best model. The results of the study with the common effect model are profitability (ROA), capital (CAR), efficiency level (EIR), and BI-rate have a positive and significant effect on financing risk. While liquidity risk (FDR) and inflation do not affect financing risk.

Keywords: financing risk, profitability, liquidity risk, bank efficiency, inflation, BI-rate\

INTRODUCTION

Islamic rural banking (IRBs) has a very important role in supporting the poor and Micro, Small and Medium Enterprises (MSMEs) in Indonesia, because they have less access to general banking (Beik et al., 2009). IRBs provide savings products and loan services designed to meet working capital and investment needs for small businesses with coverage in rural and suburban areas (Priyadi et al., 2021; Widarjono & Rudatin, 2021). Fakhrunnas (2020) stated that the Indonesian economy is supported by MSMEs, which contribute more than 60% of Gross Domestic Product (GDP), but still cannot access capital from general banking. Therefore, the role of IRBs is needed, especially in providing funds in accordance with Islamic teachings. The banking industry is an institution with very strict regulations, so it faces various risks. One of the risks faced by banks is the non-payment of loans provided, both principal and installments (T. Rahman & Fatmawati, 2020).

The main function of IRBs in addition to accepting customer deposits is to provide loans to the community, both individuals and MSMEs, in accordance with Islamic teachings. Loans provided by IRBs, which are often referred to as financing, of course have risks, namely financing risks as measured by non-performing financing (Muhammad et al., 2021). This risk is the main risk for IRBs, because the higher the non-performing financing (NPF), the lower the profitability. Therefore, IRBs must reserve their funds for this purpose which will later be treated as expenses, thus reducing bank profits (Ramadhani & Sutrisno., 2022; Rahman & Fatmawati., 2020). Therefore, management needs to be careful in handling this financing risk. Many factors influence the size of this financing risk, both internal bank factors and external factors.

Internal bank factors that will be studied include bank profitability, liquidity risk, capitalization, and efficiency level. Profitability shows the bank's ability to generate profits from its operating activities (Kryeziu & Hoxha, 2021; Quan et al., 2019). Banks with high profitability have more reserves to manage financing risks, so they can reduce financing risks (Muhammad et al., 2020). The higher the profitability, the bank can also improve the quality of financing and choose more stable business segments to be financed (Priyadi et al., 2021). Several studies have shown that profitability as measured by return on assets (ROA) has a significant positive effect on financing risk (Sari, 2016; Priyadi et al., 2021), but many researchers have found significant and negative effects (Muhammad et al., 2020; Rahman & Fatmawati., 2020; Wicaksono et al., 2024; Masfiatun et al., 2024).

Capital for banks is very important because the function of capital is as a reserve if the bank experiences losses (Lihn et al., 2019; Risyanto & Soraya, 2021). Strong bank capital shows the bank's ability to absorb the risk of problematic financing. Thus, the higher the bank's capital, the more it is able to reduce financing risk. Muhammad et al., (2020); Saputri et al., (2020); Zuhri & Asiyah., (2023) found a significant negative effect between capital as measured by the capital adequacy ratio on financing risk. Meanwhile, liquidity risk as measured by the financing to deposit ratio (FDR) shows the amount of funds loaned compared to public savings. The greater the FDR, the greater the funds channeled for financing (Yustina et al., 2021). The greater the FDR, if the financing selection process is not good, it has the potential to increase financing risk, so that NPF will increase. The results of research from Zuhri & Asiyah., (2023) show a positive effect between FDR and NPF. Likewise, several researchers also found a positive effect between FDR and NPF (Rizqa & Haryono., 2023; Sari, 2016). However, the results of research from Munifatussaidah (2020); Aprilianto (2020) and Suhel et al., (2022) found a negative effect of FDR on NPF.

The level of bank efficiency as measured by the ratio of operating costs to operating income (OIR) shows that the greater the OIR, the less efficient the bank is (Havidz & Setiawan, 2015; Sofyan, 2019). The high OIR is caused by the high operational costs of the bank, which results in disruption to bank operations which will ultimately increase NPF. When the OIR is high, a large portion of operating income will be absorbed to cover operational costs, which makes it vulnerable to increasing NPF (Shah et al., 2021). Research results from Widarjono & Rudatin., (2021); Rizqa & Haryono., (2023) found a negative influence of OIR on NPF.

Interest rates are an instrument applied by conventional banks, while IRBs use profit sharing and profit margin instruments to determine the price of their financing products (Nugraheni & Alimin, 2020). Although IRBs do not use interest instruments, they still consider conventional bank interest rates in determining profit margins. An increase in interest rates proxied by the BI rate will affect the profit margin or profit sharing. Therefore, interest rates affect the financing risk of IRBs, because an increase in interest rates will cause an increase in the profit margin so that customers must repay their loans in larger amounts which results in a potential increase in NPF (Priyadi et al., 2021). The results of research from Tunay & Akhisar., (2021) found that the BI rate has a positive effect on financing risk.

Inflation can be interpreted as an increase in the general price of products and services over time (Wicaksono et al., 2024). High inflation causes people's purchasing power to decrease which has an impact on decreasing purchases. This can cause a decrease in production which in turn reduces the ability of

entrepreneurs to pay loans. (Retnowati & Jayanto, 2020) and (Suhel et al., 2022) revealed that high inflation causes financing risks to increase.

LITERATURE REVIEW

Financing Risk

One of the functions of Islamic banks is to provide financing to customers in accordance with sharia principles (Sudarsono et al., 2019). According to Widodo & Asas., (2017), Islamic bank financing is divided into 3 categories, namely financing based on profit sharing (musharaka and mudharaba financing), based on profit margin (murabaha, salam, and istishna financing), and the lease principle (ijarah). Musharaka financing is financing based on profit sharing with a partnership agreement where the bank will include capital in the customer company, where the bank's profit comes from the profit sharing of the business with the agreed profit sharing ratio (Apriyanti et al., 2020). Meanwhile, mudharaba financing is an agreement between the entrepreneur (mudharib) and the bank based on profit sharing, where the profit sharing ratio is determined based on an agreement determined at the beginning. Customers prepare projects and management while banks provide the funds needed (Sudarsono et al., 2019). Murabaha financing is financing provided for the purchase of capital goods with a sale and purchase agreement where the bank will buy capital goods and sell them to customers by adding a certain agreed profit margin. This financing portion is the largest, perhaps because the risk is the smallest, easy and simple because the calculation is similar to interest-based credit (Pratikno & Ratnasari, 2017). While financing based on rent (ijarah), its operations are like operating leases where the bank buys fixed assets which are then leased to its customers. This financing portion is very small, especially for IRBs.

In the banking business, the biggest risk faced is financing risk, namely non-payment of financing, both profit margins, profit sharing, and principal installments of the loan (Widarjono et al., 2020). Alsyahrin et al., (2018) stated that if a bank fails to control financing risk, it can have an impact on the bank's profitability. Non-performing financing in Islamic banking is often referred to as problematic financing which is measured by non-performing financing (NPF). NPF can be interpreted as a comparison between problematic financing and total financing provided to customers. The amount of NPF can reduce bank performance because it will be treated as a cost that reduces bank profits. Therefore, Islamic bank management must be able to control so that NPF can be reduced as small as possible (Wasiaturrahma et al., 2020).

Profitability and Financing Risk

The main indicator of bank performance is profitability, namely the bank's ability to generate profits. One measure of profitability is return on assets (ROA), which is the bank's ability to generate profits with all assets owned by the bank (Widyakto & Wahyudi, 2021). The higher the ROA, the greater the profit obtained by the bank and the better the bank's performance. High ROA indicates that management is able to manage income and optimize financing in obtaining profits. High profits are also supported by the success of managing financing, thereby reducing financing risks (Rahman et al., 2016). Several studies have also found that greater profitability will reduce financing risks (Muhammad et al., 2020; Rahman & Fatmawati., 2020; Wicaksono et al., 2024; Masfiatun et al., 2024). Therefore, the hypothesis proposed is:

H₁: Profitability (ROA) has a negative effect on financing risk (NPF).

Capital and Financing Risk

Capital for banks is one of the most important and crucial components, because bank capital is regulated by the government, which must not be less than 8%. One of the functions of capital for banks is to cover losses experienced by banks. Bank capital is measured by the capital adequacy ratio (CAR), which is the

comparison between the amount of bank equity and risk-weighted assets (Anggareni et al., 2021). The amount of CAR indicates the bank's ability to cover the risk of asset decline due to losses from risky assets. CAR indicates the amount of funds invested by the owner, so that high CAR can reduce the losses incurred. Muhammad et al., (2020) found that bank capital has a negative effect on financing risk in Islamic banks. Sukmana & Febriyati, (2016) stated that the amount of CAR can be used by banks to develop information technology that can identify and assess more credible prospective customers so that it can reduce risk financing. Muhammad et al., (2020); Saputri et al., (2020) and Zuhri & Asiyah, (2023) also found a negative effect between CAR and NPF. Thus, the hypothesis proposed is:

H₂: Bank capital (CAR) has a negative effect on financing risk (NPF).

Liquidity risk and financing risk

Bank liquidity is the bank's ability to meet customer funding needs, both in terms of withdrawing funds and providing funds for credit for conventional banks or financing for Islamic banks (Mongid, 2015). The liquidity of Islamic banks to meet financing commitments is measured by the financing to deposit ratio (FDR). A high FDR indicates the amount of funds channeled for financing. FDR is the ratio between total financing and total third-party funds (Yustina et al., 2021). The higher the FDR, the greater the funds channeled for financing, and the higher the profitability. Zuhri & Asiyah., (2023) stated that a high FDR must be followed by good financing selection, if financing only pursues targets, the higher the FDR, the greater the NPF. Rizqa & Haryono., (2023) and Sari (2016) also found that FDR has a positive effect on NPF. Thus, the hypothesis proposed is:

H₃: Liquidity risk (FDR) has a negative effect on financing risk (NPF).

Bank efficiency and financing risk

Bank management is selected and tasked by shareholders to improve the welfare of the owners. Therefore, management must be able to work efficiently by minimizing operational costs so that profitability can be increased (Purwasih & Wibowo, 2021). Bank efficiency is measured by the operating expenses to operating income ratio (OIR), where the lower the OIR, the more efficient the bank is because the operational costs are lower (Nguyen & Vo, 2021; Zolkifli et al., 2019). Abdelmagid (2020) and Rafiullah & Atiquzzafar., (2018) found that increasing OIR has an impact on increasing NPF. Research results from Widarjono & Rudatin., (2021); Rizqa & Haryono., (2023) and Shah et al., (2021) also found a positive effect between OIR and NPF. Therefore, the hypothesis proposed is:

H₄: Bank efficiency (OIR) has a positive effect on financing risk (NPF).

BI rate and financing risk

Interest rates are instruments used for all conventional banking products, both savings products and fund distribution products (credit). The interest rates determined by conventional banks are greatly influenced by the Bank Indonesia interest rate (Adiwirawan, 2022). Islamic banks, although they do not use interest rate instruments, in determining their prices, still refer to conventional bank interest rates and the BI rate. The BI rate also affects the economy which also has an impact on companies, both large companies and MSMEs. Therefore, the higher the BI rate, the lower the payment capacity of entrepreneurs (Saputri et al., 2020). The results of research by Rizqa & Haryono., (2023) and Zuhri & Asiyah., (2023) found that the BI rate has a positive effect on financing risk (NPF), so the hypothesis is:

H₅: Interest rate (BIR) has a negative effect on financing risk (NPF).

Inflation and financing risk

One of the factors that affects the economic conditions of a country is inflation. Inflation can be interpreted as an increase in the general price of products and services over time (Wicaksono et al., 2024). High inflation causes people's purchasing power to decrease which has an impact on decreasing purchases. This can cause a decrease in production which in turn reduces the ability of entrepreneurs to pay loans. (Retnowati & Jayanto, 2020) and (Suhel et al., 2022) revealed that high inflation increases financing risk. Thus, the hypothesis proposed is:

H_6: Inflation (INF) has a positive effect on financing risk (NPF).

METHOD

Population and Sample

The population in this study is Islamic Rural Banks (IRBs) operating in Indonesia as many as 146 IRBs. Samples were taken as many as 75 IRBs using the purposive sampling method. The observation period was 4 years with quarterly data. The data source was taken from the Financial Services Authority (OJK) website.

Research Variables

The research variables consist of dependent variables, namely financing risk measured by non-performing financing, and six independent variables consisting of profitability (ROA), bank capital (CAR), liquidity risk (FDR), bank efficiency (OEIR), BI-rate, and inflation rate. The measurements for each variable and its sources are shown in table 1 below:

Table 1. Variable and Measurement

No	Variable	Measurement	Source
1	Non-financing risk (NPF)	Non-perform Financing/Total Financing	(Widarjono et al., 2020)
2	Profitability (ROA)	Earning After Tax/Total Assets	(Istan & Fahlevi, 2020)
3	Bank Capital (CAR)	Equity/Risk weighted Assets	(Mursal et al., 2019)
4	Liquidity risk (FDR)	Total financing/Total Deposit	(Addou & Bensghir, 2021)
5	Bank Efficiency (OEIR)	Operating expense/Operating income	(Abdelmagid, 2020)
6	BI Rate (BIR)	BI rate end year	(Setiawan, 2021)
7	Inflation rate (INF)	Inflation end year	(Fakhrunnas, 2020)

Data Analysis

Since the data is panel data, then to test the hypothesis will use panel data regression analysis. In panel data regression will produce three regression equation models, namely common effect model, fixed effect model, and random effect model. To choose the best model will be tested with Chow-test, Hausman-test, and Lagrange Multiplier (LM)-test. Here is the regression equation:

$$NPF_{t-1} = \alpha + \beta_1 ROA_{t-1} + \beta_2 CAR_{t-1} + \beta_3 FDR_{t-1} + \beta_4 OEIR_{t-1} + \beta_5 BIR_{t-1} + \beta_6 INF_{t-1} + \varepsilon$$

RESULTS

Descriptive Statistics

The research data consists of 1,200 observation data with the following minimum, maximum, mean and standard deviation data descriptions:

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NPF	1200	0.01	65.05	7.6292	7.16371
ROA	1200	-30.38	63.04	1.9141	4.49933
CAR	1200	2.54	95.09	12.7105	11.1478
FDR	1200	34.08	384.87	93.6913	23.33975
OEIR	1200	10.64	448.29	87.8597	30.32818
BIR	1200	3.5	6	4.4062	0.96003
INF	1200	-0.1	0.25	-0.01	0.07741
Valid N (listwise)	1200				

Source: Data processed

Based on table 2, it shows that NPF is still too high because NPF is 7.62%, above the maximum limit of 5%. This also has an impact on the return on assets (ROA) which is relatively small with an average value of 1.91%. Meanwhile, capitalization is quite good because it has an average value of 12.71% above the minimum provision of 8%. Financing to debt ratio (FDR) is very ideal because it has an average value of 93.69%. Likewise, the level of bank efficiency is also quite good because it has an average value of 87.86%. Bank Indonesia's interest rate with an average of 4.41%, and inflation is very low with an average of -0.01%

Model Test

From the results of data processing using e-views with the panel data regression method, three regression equation models were obtained consisting of the common effect model (CEM), fixed effect capital (FEM), and random effect model (REM). To select the best model, the Chow-test, Hausman-test, and LM-test were used. Table 3 shows the test results which produce a better common effect model than the other two models.

Tabel 3. The Resul of Chow-test, Hausman-test; dan LM-test

Type of Test	Test Summary			Best Model
Chow-test	Staistic	df	Prob	Commen effect
	0.853344	741,118	0.8058	
Hausman-test	Chi Sq. Satistic	Chi. Sq df	Prob	Commen effect
	12.668112	7	0.0806	
LM-test	Cross Section	Time	Both	Commen effect
	1.439776	0.743550	2.183326	
	(-0.2302)	(-0.3885)	(-0.1395)	

Source: Data processed

Hypothesis Test Results

After the model test was conducted, it turned out that the best model was the common effect model (CEM) as in table 4 below. To find out whether the hypothesis is accepted or rejected, it will be compared with the set significance level of 0.05. If the prob. value is smaller than 0.05, then the hypothesis is accepted, meaning that the independent variable has a significant effect on the dependent variable. Conversely, if the prob. value is greater than 0.05, then the hypothesis is rejected.

Table 4. Hypothesis Result with Common Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	174.044	76.81646	2.265713	0.0236
ROA	0.140067	0.050211	2.789552	0.0054
CAR	0.080679	0.017642	4.573169	0.0000
FDR	0.010239	0.008365	1.224014	0.2212
OEIR	0.083035	0.007574	10.96269	0.0000
INF	5.158806	2.9778	1.732422	0.0835
BI_RATE	0.814584	0.288977	2.818851	0.0049
R-squared	0.139608	Mean dependent var		7.629183
Adjusted R-squared	0.134556	S.D. dependent var		7.163707
S.E. of regression	6.664344	Akaike info criterion		6.638065
Sum squared resid	52940.88	Schwarz criterion		6.671998
Log likelihood	-3974.839	Hannan-Quinn criter.		6.650847
F-statistic	27.63076	Durbin-Watson stat		2.047216
Prob(F-statistic)	0.00000			

Source: Data processed

Discussion

The results of the hypothesis test of the effect of profitability on financing risk show a prob. value of 0.0054 which is smaller than 0.05 with a positive coefficient. Thus, profitability (ROA) has a significant positive effect on financing risk. Because the hypothesis is that ROA has a negative effect on NPF, the hypothesis is rejected. These results show that the orientation of IRBs is more on profitability, even though NPF is high, profitability is expected to remain high by increasing FDR (Priyadi et al., 2021). High profitability can be obtained by increasing financing or increasing FDR, because the main source of income for IRBs is obtained from the amount of financing. To achieve high financing, the financing strategy is often aggressive, which results in increasing NPF. Management realizes that high profitability is still attractive for investors to invest in banks. These results are in accordance with the findings of Priyadi et al., (2021) and Sari (2016) who found that profitability as measured by ROA has a positive effect on financing risk.

The hypothesis test of the effect of bank capital (CAR) on financing risk shows a prob. value. 0.0000 is smaller than 0.05, meaning that CAR has a significant positive effect on financing risk. Because the hypothesis proposed that CAR has a negative effect on NPF, the hypothesis of this study is also rejected because the results are significantly positive. This result contradicts several researchers who stated that CAR has a negative effect on NPF (Saputri et al., 2020; Munifatussaidah., 2020; Rizqa & Haryono., 2023). According to Priyadi et al., (2021), CAR is likely to have a positive effect on NPF, because high NPF requires IRBs to provide more capital, which has an impact that the higher the NPF, the higher

the CAR. Meanwhile, Supriani & Sudarsono., (2018) explained that due to excess CAR, banks carry out excessive financing to obtain maximum profit, so that the financing analysis becomes less good which causes high NPF. Likewise with the research results from Widarjono & Rudatin., (2021) and Wicaksono et al., (2024) which found that CAR has a positive effect on NPF.

The results of the hypothesis test of the effect of FDR on NPF showed a prob. value of 0.2212 greater than 0.05. These results indicate that liquidity risk (FDR) has no effect on financing risk. Thus, the hypothesis is rejected, meaning that the high or low FDR has no effect on NPF. Priyadi et al., (2021) stated that if the financing provided has been analyzed properly, the size of the financing will not increase NPF. Meanwhile, Muhammad et al., (2020) argue that the possibility of IRBs' income is not only focused on financing but also from other sources of income. Several researchers also found that FDR had no significant effect on NPF (Fakhrunnas & Hasanah., (2022); Rahman & Fatmawati., (2020); Retnowati & Jayanto., (2020); Saputri et al., (2020).

The results of the hypothesis test of the effect of bank efficiency on NPF show a prob. value of 0.000 is smaller than 0.05, so it can be concluded that bank efficiency as measured by OEIR has a significant positive effect on NPF, and the hypothesis is accepted. The higher the OEIR, the lower the efficiency of IRBs, because they cannot manage their operational costs properly. Supriani & Sudarsono., (2018) stated that the high OEIR is caused by the costs incurred due to the increasing number of IRBs establishing branch offices and assistant offices, which has an impact on increasing bank operational costs. The large OEIR will also reduce profitability because operational costs are too high, thus reducing the reserve funds that can be used to cover problematic financing (Retnowati & Jayanto, 2020). These results also support several research results that found that OEIR has a positive effect on NPF (Saputri et al., 2020; Munifatussaidah, 2020; Masfiatun et al., 2024)

The results of the hypothesis test on the effect of the inflation rate on NPF produced a probability value of 0.0835 greater than 0.05. It can be concluded that inflation has no effect on NPF, so the hypothesis is rejected. The size of the inflation rate does not affect the size of the NPF in IRBs. When viewed from descriptive statistics, the average inflation is -0.01 where the inflation rate can be said to be very small so that it does not have much effect on the economy and also on banking. Inflation is an external factor that cannot be controlled by banks, while IRBs customers who are in the low-income and MSME categories may never consider inflation in taking financing, so it has no effect on NPF. This result contradicts research by Budiarto, (2021) and Wiryono & Effendi., (2018) which found a negative effect of inflation on NPF. However, many studies have found that inflation has no effect on NPF (Fakhrunnas & Hasanah, 2022; Wicaksono et al., 2024; Suhel et al., 2022; Priyadi et al., 2021; Masfiatun et al., 2024).

The results of the hypothesis test on the effect of the BI rate on NPF produced a probability value of 0.0049 which is smaller than 0.05, meaning that the BI rate has a significant and positive effect on NPF. This result is in accordance with the hypothesis proposed, so the hypothesis is accepted. Although IRBs are Islamic banks that do not use interest instruments in their operations, the BI rate will have an impact on the economy. The higher the BI rate, the higher the interest rates, both deposit interest rates and loan interest rates. With high interest rates, the interest installments that must be paid will be higher, allowing many customers to default, and ultimately increasing NPF. The results of this study support the findings of Tunay & Akhisar., (2021) who found that the BI-rate had a positive effect on NPF, and Arintoko et al., (2024) who found that loan interest rates had an effect on the credit risk of commercial banks in Türkiye.

CONCLUSION AND RECOMMENDATIONS

Based on the results of the hypothesis test, it can be concluded that there are three internal variables whose hypotheses are rejected. Profitability (ROA) and bank capital (CAR) have a significant effect but the direction of the effect is opposite so that the hypothesis is rejected while liquidity risk has no significant effect on NPF. There is one internal variable whose hypothesis is accepted, namely bank efficiency as measured by OEIR. While there is one external variable whose hypothesis is proven,

namely the BI-rate has a positive effect on NPF, and one variable has no effect, namely the inflation variable.

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