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(Research Article)

Credit risk, operational risk, and liquidity risk on profitability

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Abstract

Profitability is the ability of the Village Credit Institution to generate profits and is a ratio that can assess how the Village Credit Institution's ability to generate profits. The high profitability of the Village Credit Institution indicates the good performance of the Village Credit Institution. This study aims to determine the effect of credit risk, operational risk, and liquidity risk on profitability. This research was conducted at the Village Credit Institution for the period 2017-2021. The data collection method used is the non-behavioral observation method with multiple linear regression data analysis techniques. The results showed that Credit Risk has a negative and significant effect on Profitability. Operational Risk has a negative and significant effect on Profitability. Liquidity Risk has a positive and significant effect on Profitability. The profitability of the Village Credit Institution can be maximized by applying the precautionary principle, monitoring and supervising the operations of the Village Credit Institution to minimize costs and provide sufficient liquidity and balanced with good lending.

Keywords: Credit Risk; Operational Risk; Liquidity Risk; Profitability

1. Introduction

The Village Credit Institution has a great responsibility to the village community because the Village Credit Institution collects funds from the banjars in the village and distributes these funds to the village community so that its management must be effective and efficient in order to benefit the Village Credit Institution in particular and the village in general. The existence of the Village Credit Institution is expected to support the economy in the Village pekraman so as to advance the village in competing in this era of globalization. The Village Credit Institution has also provided economic, social, and cultural benefits to the village community so that its governance needs to be improved as a financial institution owned by the village (Regional Regulation of Bali Province No. 3 of 2017 concerning Village Credit Institutions, 2017).

In assessing whether a Village Credit Institution is conducting its business activities properly or not, namely by measuring the performance of the Village Credit Institution through financial reports. The indicator used in measuring its performance is its profitability ratio. Quoted from Warsa & Mustanda (2016), high profitability indicates that the Village Credit Institution is able to operate effectively and efficiently, allowing the Village Credit Institution to expand its business. The profitability ratio used is Return on Asset (ROA), which is the ratio of profit before tax to total assets. The better the profitability ratio (ROA), the better the ability of the Village Credit Institution to make a profit, which means that the performance of the Village Credit Institution is getting better.

The level of profitability of a financial institution tends to be influenced by several risks, so it needs to be managed properly through effective risk management. The relationship between profitability and risk is discussed in the risk and return trade off theory. It is explained in this theory that the relationship between risk and profitability is not linear, but

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non-linear. There are 3 zones related to the relationship between risk and profitability. In region one (zone 1), the risks taken by financial institutions are too small, so the profits earned are also small and not optimal. At the next stage (zone 2), the addition of risk does not increase the level of profit much. This stage is the optimal stage. At the next stage (zone 3), the risk taken by the organization is too high, so the addition of risk will have a negative impact on the financial institution. So it is necessary to have risk management in financial institutions in order to obtain an optimal level of profit. This risk management aims to create a system or mechanism in financial institutions so that the risks taken can be anticipated and managed for the purpose of increasing the level of profit and value of financial institutions. Therefore, this study aims to determine how much the ability of financial ratios related to financial risk in influencing the profitability of the People's Credit Institution, Karangasem. The risks that affect profitability examined in this study are credit risk, operational risk, and liquidity risk (Roy & Bandopadhyay, 2021).

Credit risk is the risk due to the failure of other parties to fulfill obligations to banks, including credit risk due to debtor failure, credit concentration risk, counterparty credit risk, and settlement risk. Based on Capriani & Dana (2016), credit risk is a risk that occurs because loan payments or loan principal cannot be made within the due date. Non-performing loans result in losses due to non-receipt of funds that have been channeled or interest income resulting in a decrease in total income. The financial ratio used to measure credit risk in this study is Non Performing Loan (NPL), this ratio measures the bank's ability to minimize non-performing loans faced. A high NPL indicates that credit management at the bank is not optimal, which results in the credit risk experienced by the bank being high.

Research on the effect of NPL on ROA conducted by Al- Yatamai et al. (2020) on insurance companies listed on the Kuwait stock exchange, Psaila et al. (2019) on Euro-Mediterranean Commercial Banks, Bhattarai (2020) on commercial banks in Nepal, Sukmadewi (2020) on Banks Listed on the Indonesia Stock Exchange, Peling & Sedana (2018) on PT BPD Bali for the period 2009-2016, and Vellanita et al. (2019) on PT Bank Central Asia for the 2014-2018 period found that NPL has a significant negative effect on profitability. However, quoted from Soares & Yunanto (2018) states that NPL has no effect on profitability at Commercial Banks in Indonesia. In addition, research from Christaria (2016), NPL has no significant negative impact on Return on Asset (ROA) in banks listed on the Indonesia Stock Exchange.

Financial Services Authority Regulation Number 18 / POJK.03 / 2016 concerning the Implementation of Risk Management for Commercial Banks states that Operational Risk is the risk due to inadequate and / or malfunctioning internal processes, human error, system failure, and / or external events that affect the Bank's operations. The financial ratio used to measure operational risk in this study is the financial ratio of Operating Expenses to Operating Income (BOPO). Based on Putri & Dewi (2017), BOPO is the ratio of operating costs to operating income. The ratio of Operating Costs to Operating Income (BOPO) is a ratio used to measure the management ability of the Village Credit Institution in controlling operating costs against operating income. Any increase in operating costs will result in reduced profit before tax which will ultimately reduce the profit or profitability (ROA) of the Village Credit Institution concerned. Village Credit Institutions that have a high level of BOPO indicate that the Village Credit Institution does not carry out its operational activities efficiently, allowing the operational risk owned by the Village Credit Institution to be greater. Research on the effect of BOPO on ROA conducted by Christaria (2016), Al-Yatamai et al. (2020) found the results that BOPO has a negative and significant effect on profitability, but in Dikutip from Sukmadewi (2020), BOPO has no effect on profitability in Banks Listed on the Indonesia Stock Exchange.

According to the Otoritas Jasa Keuangan Number 18 / POJK.03 / 2016 concerning the Implementation of Risk Management for Commercial Banks, liquidity risk is the risk due to the inability of financial institutions to meet maturing obligations from cash flow funding sources and / or from high-quality liquid assets that can be collateralized, without disrupting the activities and financial condition of financial institutions. The financial ratio used to measure liquidity risk in this study is the Loan to Deposit Ratio (LDR).

Loan to Deposit Ratio is a ratio used to measure the composition of the amount of credit provided compared to the amount of public funds and own capital used. LDR is the ratio between loans and third party funds. This ratio shows one assessment of the liquidity of financial institutions. Quoted from Kasmir (2018), the purpose of calculating LDR is to assess the health level of financial institutions in carrying out their operations. Based on Chairunnisah (2019), when liquidity increases, the funds channeled to customers in the form of credit also increase, thus the profit that financial institutions will get from interest returns will also increase, so profitability will also increase. Research on the effect of LDR on ROA conducted by Soares & Yunanto (2018) at Commercial Banks in Indonesia, Limajatini et al. (2019) on conventional banking companies listed on the IDX for the period 2014-2017, Inggawati et al (2018) on Rural Banks in Sidoarjo Regency, Suwandi (2017) on Foreign Exchange National Private Commercial Banks which found the results that LDR statistically has a negative and significant effect on ROA, while research conducted by Sukmadewi (2020) on

Banks Listed on the Indonesia Stock Exchange, Korri & Baskara (2019) on National Private Commercial Banks on the Indonesia Stock Exchange for the period 2015-2017, found that LDR has a significant positive effect on ROA.

Credit risk is a risk due to the failure or inability of the customer to return the loan amount received along with interest, according to the predetermined time period Non Performing Loan (NPL) is a financial ratio that shows the credit risk faced by banks due to lending and investing bank funds in different portfolios. A high NPL indicates that credit management at the bank is not optimal which results in the credit risk experienced by the bank will be high. The higher this ratio, the worse the quality of bank credit which causes the number of non-performing loans to increase and therefore the Village Credit Institution must bear losses in its operational activities so that it affects the decrease in profit (ROA) obtained by the Village Credit Institution.

Research on the effect of NPL on ROA conducted by Al- Yatamai et al. (2020), Sukmadewi (2020) on Banks Listed on the Indonesia Stock Exchange Psaila et al. (2019), Vellanita et al. (2019), Peling & Sedana (2018), Bhattarai (2020), Eston et al. (2016) found that NPL has a significant negative effect on profitability.

H1 : Credit Risk has a negative effect on Profitability

Operational Risk is the risk due to inadequate and / or malfunctioning internal processes, human error, system failure, and / or external events that affect the Bank's operations. In this study, operational efficiency is indicated using the BOPO ratio. Harun (2016), BOPO is the ratio between operating costs to operating income. The smaller the BOPO, the more efficient the operating costs incurred by the company concerned. Any increase in operating costs will result in reduced profit before tax which will ultimately reduce the profit or profitability (ROA) of the company concerned. The higher the operating costs, the smaller the company's profitability. Research on the effect of BOPO on ROA conducted by Al-Yatamai et al. (2020), Christaria (2016), Sukmadewi (2020) found that BOPO has a negative and significant effect on profitability.

H2: Operational Risk has a negative effect on Profitability

Liquidity risk is the risk due to the Bank's inability to meet maturing obligations from cash flow funding sources and / or from high-quality liquid assets that can be collateralized, without disrupting the Bank's activities and financial condition. In this study, liquidity risk is proxied by the LDR ratio which compares the total loans disbursed with the total Third Party Funds (DPK) collected by the bank. When liquidity increases, the funds channeled to customers in the form of credit also increase, thus the profit that the bank will get from interest returns will also increase, so profitability will also increase. Research on the effect of LDR on ROA conducted by Derbali (2021), Karim et al. (2021), Sahyouni & Wang (2019), Sukmadewi (2020), Hapsari (2018), Siskawati et al. (2020), Rohaeni, & Rudiansyah (2017), Dewi & Srihandoko (2018), Adhim (2019), Handayani (2017), Wibowo et al. (2020), Cristina & Artini (2018), Dewi & Srihandoko (2018) LDR has a significant positive effect on ROA.

H3: Liquidity Risk has a positive effect on Profitability

2. Material and methods

The approach used in this research is an associative Quantitative approach. Associative research is a type of research that explains the effect of the independent variable on the dependent variable. This research was conducted at the Village Credit Institution. This research was conducted in the period 2015 to 2019. The object of research is a scientific target to obtain data with the aim and benefit of something objective, valid, and reliable about certain variables. The object of this research is profitability proxied by ROA (Return On Asset Ratio) which is influenced by credit risk proxied by NPL (Non Performing Loan), operational risk proxied by BOPO (Operating Cost of Operating Income), and liquidity risk proxied by LDR (Loan to Deposit Ratio) contained in the Village Credit Institution.The dependent variable in this study is the profitability ratio, namely ROA (Return on Asset Ratio). The independent variables in this study are the credit ratio, namely the Non Performing Loan Ratio, the operational ratio, namely BOPO (Operating Expenses for Operating Income), and the liquidity ratio, namely the Loan to Deposit Ratio.

One of the profitability ratios used to assess the financial performance of a financial institution is ROA (Return On Asset Ratio). This ROA is used to measure the ability of financial institution management to obtain overall profit or profit. In accordance with BI Circular Letter No. 13/30 / DPNP dated December 16, 2011, the ROA ratio can be calculated using the formula ROA = (Profit before tax / Average Total assets) x 100%

Credit risk is proxied by Non Performing Loan (NPL), which is a financial ratio that shows the credit risk faced by banks due to lending and investment of bank funds in different portfolios. A high NPL indicates that credit management at the bank is not optimal, which results in the credit risk experienced by the bank being high. In accordance with BI Circular Letter No. 13/30 / DPNP dated December 16, 2011, the NPL ratio can be calculated using the formula NPL = (Non-performing loans / Total loans) x 100%.

Operational risk is proxied by the financial ratio of Operating Expenses to Operating Income (BOPO). Banks that have a high BOPO level indicate that the bank is not carrying out its operational activities efficiently, allowing the operational risk owned by the bank to be greater. In accordance with BI Circular Letter No. 13/30/DPNP dated December 16, 2011, the BOPO ratio can be calculated using the formula BOPO = (Total Operating Expenses / Total Operating Income) x 100%.

LDR ratio which compares the total loans disbursed with the total Third Party Funds (DPK) collected by the Village Credit Institution. Loan to Deposit Ratio (LDR) is a ratio that shows the level of bank liquidity. In accordance with BI Circular Letter No. 13/30 / DPNP dated December 16, 2011, LDR can be calculated by the formula LDR = (Total loans granted / Total third party funds) x 100%.

The type of data used is quantitative data, namely data in the form of numbers, namely the financial statements of the Village Credit Institution for the period 2017 to 2021 obtained from the Village Credit Institution Empowerment Agency (LPLembaga Pengkreditan Desa) Karangasem Regency. The data source used is secondary data, namely data in the form of financial reports of the Village Credit Institution (Village Credit Institution), Karangasem. obtained from the Village Credit Institution Empowerment Agency (LPLembaga Pengkreditan Desa) Karangasem Regency.

The population in this study were all existing Village Credit Institutions as many as 20 Village Credit Institutions. The sample of this study used a non-probability sampling technique with a sampling method using purposive sampling.

3. Results and discussion

Based on the structural equation, it can be stated, the constant value is 0.062. This shows that if the value of the independent variables, namely NPL, BOPO, and LDR is equal to zero, then the profitability value of the Village Credit Institution (ROA) is 0.062 units. The regression coefficient value of the NPL variable (X1) is -0.083 has the interpretation that if the NPL ratio increases by one unit, it will result in a decrease in profitability (ROA) at the Village Credit Institution in Bebandem sub-district by -0.083 units assuming that the other variables are constant. The regression coefficient value of the BOPO variable (X2) is -0.044 which has the interpretation that if the risk of the BOPO variable increases by one unit, it will result in a decrease in profitability (ROA) at the Village Credit Institution by 0.044 units assuming other variables are constant. The regression coefficient value of the LDR ratio (X3) is 0.011. This indicates that an increase in the LDR ratio by one unit will result in an increase in the profitability of the Village Credit Institution by 0.011 units assuming other variables are constant.

Table 1 Multiple Linear Regression Analysis Results

		Unstandardized Coefficients		**Standardized Coefficients**		
Model		**B**	**Std. Error**	**Beta**	**T**	**Sig.**
1	(Constant)	0.062	0.011		5.824	0.000
	NPL	-0.083	0.022	-0.294	-3.748	0.000
	BOPO	-0.044	0.012	-0.338	-3.559	0.001
	LDR	0.011	0.002	0.544	5.709	0.000

Secondary Data, 2023

The analysis results in Table 2 show, the amount of R Square is 0.676 or 67.6%. Thus, the ROA variable can be explained by the LDR, NPL, BOPO variables by 67.6%, the rest is explained by other variables outside the model.

Table 2 Determination Coefficient

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.822	0.676	0.658	0.011621

Secondary Data, 2023

Table 3 F-Test Result

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.015	3	0.005	36.886	0.000[b]
	Residual	0.007	53	0.000		
	Total	0.022	56			

Secondary Data, 2023

The results of the model feasibility test (F-test) obtained a calculated F-test value of 36,886 with a significance level of 0.000 which is smaller than 0.05 so, the hypothesis is accepted. NPL, BOPO, and LDR variables are simultaneously and significantly able to affect the profitability of the Village Credit Institution. It can be concluded that this research model is said to be feasible to study and can be continued with hypothesis proving.

Table 4 T-Test Result

Model		t	Sig.
1	(Constant)	5.824	0.000
	NPL	-3.748	0.000
	BOPO	-3.559	0.001
	LDR	5.709	0.000

Secondary Data, 2023

Based on table 4, the t-test significance value for the efficiency level variable is 0.000 less than the significance of 0.05 with a regression coefficient value of -3.748 so that the credit risk variable (NPL) has a significant negative effect on the profitability of the Village Credit Institution. The test results state that credit risk has a negative effect on profitability (H1 is accepted).

The results showed that credit risk had a significant negative effect on profitability at the Village Credit Institution for the period 2017-2021. This result means that if there is an increase in credit risk (NPL), its profitability (ROA) will decrease. The relationship between the effect of credit risk on profitability (return) in this study shows that, the higher the non-performing loans owned by the Village Credit Institution indicates a decrease in the return (income) experienced by the Village Credit Institution because the Village Credit Institution does not receive back the funds that have been distributed along with interest income which results in a decrease in total income. This is in accordance with the risk and return trade-off theory where it is explained that the relationship between risk and the level of profit is not linear, but non-linear. This means that the higher the risk taken does not necessarily increase the return obtained by the Village Credit Institution and can even have a negative impact on the return obtained. The results of this study are in accordance with research conducted by Sukmadewi (2020), Peling & Sedana (2018), Psaila et al. (2019), Bhattarai (2020), Eston et al. (2016), and Vellanita et al. (2019) which state that credit risk (NPL) has a negative and significant effect on ROA.

The significance value of the t-test for the efficiency level variable of 0.001 is smaller than the significance of 0.05 with a regression coefficient value of -3.559 so that the operational risk variable (BOPO) has a significant negative effect on the profitability of the Village Credit Institution. The test results state that operational risk has a negative effect on profitability (H2 accepted).

The results showed that operational risk had a significant negative effect on profitability at the Village Credit Institution for the period 2017-2021. The research results that show this negative effect mean that if there is an increase in operational risk (BOPO), the profitability (ROA) of village credit institutions decreases. The relationship between the effect of operational risk on profitability in this study shows that, the higher the BOPO owned by the Village Credit Institution indicates the Village Credit Institution's lack of ability to reduce operational costs in managing its business so that it raises high operating costs and directly reduces the income that the Village Credit Institution receives. This is in accordance with the risk and return trade-off theory where it is explained that the relationship between risk and profit level is not linear, but non-linear. This means that the higher the risk taken does not necessarily increase the return obtained by the Village Credit Institution and can even have a negative impact on the return obtained. The results of this study are in accordance with research conducted by Peling & Sedana (2018) showing the results that BOPO has a negative and significant effect on ROA.

The significance value of the efficiency level variable of 0.000 is smaller than the significance of 0.05 with a regression coefficient value of 5.709 so that, the liquidity risk variable (LDR) has a significant positive effect on the profitability of the Village Credit Institution. The test results state that liquidity risk has a positive effect on profitability (H3 accepted).

The results showed that liquidity risk (LDR) had a positive and significant effect on ROA at Village Credit Institutions for the period 2017-2021. LDR is a ratio used to see the ratio of loans disbursed to third party funds collected from the public. The higher the LDR means the higher the third party funds channeled to customers in the form of credit supported by good credit quality which will have an impact on increasing the interest income received from the distribution of credit and directly increase the profitability of the Village Credit Institution. The results of this study are in accordance with the risk and return trade-off theory which states that risk must be managed properly in order to obtain maximum return. This indicates that the Village Credit Institution's ability to manage risk, especially liquidity risk, is good enough to increase the return earned by the Village Credit Institution. The results of this study are in accordance with research conducted by Sukmadewi (2020), Hapsari (2018) which states that LDR has a positive and significant effect on profitability.

This study discusses the effect of credit risk (NPL), operational risk (BOPO), and liquidity risk (LDR) variables on profitability (ROA). The risk and return trade-off theory explains that the relationship between risk and profitability is not linear, but non-linear. NPL and BOPO variables have a significant negative effect on profitability, in contrast to the LDR variable which has a positive effect on profitability. High NPL indicates that credit management at the Village Credit Institution is not optimal which results in the credit risk experienced by the bank will be high so that the Village Credit Institution must bear losses in its operational activities so that it affects the decline in profitability (ROA). The higher the BOPO, the less efficient the operating costs incurred by the Village Credit Institution. Any increase in operating costs will result in reduced profit before tax which will ultimately reduce profit or profitability (ROA). When the number of loans disbursed increases and is able to meet its short-term obligations, the income from the loans disbursed will increase and increase the profitability of the Village Credit Institution.

From the results of the research that has been conducted, this study provides implications that the variables studied, namely credit risk (NPL), operational risk (BOPO), and liquidity risk (LDR) support the theory that the relationship between risk and profitability is not linear, but non-linear. So that it is necessary to have risk management in the operational activities of the Village Credit Institution and take good account of the risks taken with the expected level of return so that there is accuracy in the risks taken and optimize the return obtained by the Village Credit Institution (in accordance with zone 2 of the risk and return trade-off theory). The results of this study are also in accordance with empirical research that has been conducted previously. Bad debts and high operational costs will reduce the profitability of the Village Credit Institution, indicating that there is no balance between the risks taken and the returns obtained. As well as the possibility of credit risk and operational risk being in zone 1 or zone 3 on the risk and return trade-off theory chart. The relationship between the credit risk and operational risk variables strengthens the evidence from previous studies which found a significant negative relationship between the NPL and BOPO variables on profitability. An increase in non-performing loans will reduce the income received by the Village Credit Institution. Village Credit Institutions must be able to manage credit effectively by applying the principle of prudence. An increase in operating costs will reduce the income of the Village Credit Institution, so the Village Credit Institution must identify sources of operational risk and monitor the implementation of bank operational processes and systems so that cost expenditures can be minimized.

The LDR variable has a significant positive effect on profitability. This means that an increase in lending will increase the income received. The increase in lending must be supported by quality credit and adjusted to Bank Indonesia's LDR limit. This is in accordance with the risk and return trade-off theory where there is an appropriate relationship between liquidity risk and the level of profit (in zone 2 of the risk and return trade-off theory chart). So it is important for Village Credit Institutions to carry out risk management and have an overview of liquidity conditions by analyzing liquidity ratios based on past liquidity data. These results also strengthen previous research which found that LDR has a significant positive effect on profitability.

The results of this study are expected to be able to provide information aimed at the Village Credit Institution so that it can be taken into consideration in making decisions related to operational activities carried out by the Village Credit Institution. The management of the Village Credit Institution must be based on effective and efficient management to support the sustainability of the Village Credit Institution's business. The Village Credit Institution manager should also increase monitoring and evaluation activities so that there are no irregularities that can increase the risk of loss and disrupt the operational activities of the Village Credit Institution, thereby reducing the level of profitability obtained. The Village Credit Institution Manager is expected to apply the principle of prudence in providing credit to prospective debtors and limiting the provision of funds both to related parties and to non-related parties by a certain percentage. The Village Credit Institution Manager is expected to identify sources of operational risk and monitor the implementation of bank operational processes and systems so that operational costs can be minimized. The Village Credit Institution manager is also expected to increase lending to increase the income received with a note that the lending must be supported by quality credit and adjusted to the Bank Indonesia LDR safe limit.

4. Conclusion

Based on the results of data analysis and discussion, several conclusions can be drawn, namely Credit Risk (NPL) has a significant negative effect on the profitability of the Village Credit Institution for the period 2017-2021. This means that the higher the credit risk, the lower the income received by the Village Credit Institution. High credit risk results in losses due to non-receipt of funds that have been channeled and interest income resulting in a decrease in total income. With this reduced income, it will directly affect the level of profitability received by the Village Credit Institution.

Operational Risk (BOPO) has a significant negative effect on the profitability of the Village Credit Institution for the period 2017-2021. This means that the higher the operational costs charged, the lower the income received by the Village Credit Institution. The higher the BOPO reflects the lack of ability of the Village Credit Institution to reduce operating costs and increase its operating income which will result in a lack of income generated which will ultimately reduce the profitability of the Village Credit Institution. Liquidity Risk (LDR) has a significant positive effect on the profitability of the Village Credit Institution for the period 2017-2021. This means that the higher the funds channeled, the higher the income that the Village Credit Institution can receive. Village Credit Institutions need to provide sufficient liquidity to operate effectively and efficiently so that they can fulfill their obligations to creditors that are due. It is important for the Village Credit Institution to have an overview of liquidity conditions by analyzing liquidity ratios based on liquidity data from the previous period.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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