The Analysis of the Effect of Liqudity Risk and Credit Risk to the Profitability in Conventional Banks of Indonesia

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Abstract: This paper aims to analyze the effect of liquidity risk and credit risk to the profitability in conventional banks. The method used is explanatory survey. The data used in this study was secondary data from the annual financial statements of each of the banks listed on the stock exchanges of Indonesia in 2007 - 2016. The samples used are top 10 conventional Banks (chosen by asset). The method used is panel data regression model. Liquidity risk is measured by *Loan to Deposit Ratio* (LDR), credit risk is measured by *Non-Performing Loan* (NPL) and profitability is measured by *Return On Assets* (ROA). The result showed that liquidity risk (LDR) and credit risk (NPL) have significant negative impact on the profitability (ROA) in conventional banks.

1 INTRODUCTION

The existence of the banking sector as a sub-system in the economy of a country has a significant role, even the daily lifes of modern society largely involve services from the banking sector. This is because the banking sector has a primary function as a financial intermediary between economic units with a surplus of funds and underfunded economic units. Through a bank, funds can be collected from the community in various forms of deposits. Then, the funds that have been collected are channeled back by the bank in the form of credit to the business sector or other parties in need. If the community life and economic are more developed, it also needs to increase the role of the banking sector through the development of its services products (Rahmi, 2014).

Due to the relationship to the community, the Bank must be able to improve its performance by maintaining the bank's soundness. To keep its performance, bank encounters various risks such as liquidity risk and credit risk. According (Hartley, et al., 2013), liquidity risk is a risk when the bank is not able to provide funds/cash. Liquidity in commercial banks is the ability to repay funds as the due date.

Here are some previous studies that examined the relationship between liquidity risk and bank profitability showing differences in their research results. A study by (Bourke, 1989) found that there was a positive relationship between liquidity and bank profitability in 90 banks in Europe, North America and Australia in 1972-1981. In contrast, other studies had different results from Bourke's research, Such as (Molyneux & Thornton, 1992) and (Goddard et al., 2004), they found that there was a negative relationship between liquidity and profitability in the European Bank of the late 1980s to the mid-1990s.

(Funso, et al., 2012) state that of several risks faced by banks, credit risk plays the role most in bank profitability. Credit risk is the possibility of losing the outstanding loan either in whole or in part until the specified time (Basel Committee, 2001).

The effect of credit risk on profitability has been done by several researchers. (Funso, et al., 2012) found that Non Performing Loans negatively affect the profitability of banks. Other researchers also found similar results, as (Kargi, 2011) found that credit risk had a negative effect on the Bank's profitability in Nigeria. (Epure and Lafuente, 2012) found that non-performing loans negatively affected the performance of banks in Costa Rica between 1998 and 2007. Then, (Kithinji, 2010) found that non-performing loans had no effect on commercial bank profits in Kenya.

The purpose of this research is to analyze the effect of liquidity risk and credit risk to profitability by using explanatory survey method. The results of this study can be used to find out what and how much influence of risks that arise in maintaining the soundness of a bank.

2 METHODS

The method used is explanatory survey. The population in this study are Conventional Commercial Banks listed on the Indonesia Stock Exchange in 2007 - 2016. The sample technique used in this study is purposive sampling with the banks of which criterion having 10 largest assets in Indonesia in 2016, so that there are 100 observation data obtained.

The data collected was analyzed by panel data regression by following the equation below:

$$Y = \alpha + \beta1X1 + \beta2X2 + \varepsilon \qquad (1)$$

Where:

Y	= Profitability (ROA)
A	= Constants
β1, β2	= Regression Coefficient
X1	= Liquidity Risk (LDR)
X2	= Credit Risk (NPL)
ε	= error term

Bank Indonesia Regulation Number 11/25 / PBI / 2010 concerning changes in PBI Number 5/8 / PBI / 2003 concerning the Implementation of Financial Management Risk defines liquidity risk as a risk due to the inability of the Bank to meet the obligations due from sources of cash flow and / or high quality liquid assets which can be used, without disrupting the activity and the inancial condition of the bank. Liquidity risk is calculated using the Loan Deposit Ratio (LDR) proxy. LDR is the ratio between the total amount of credit provided by the bank and funds received by the bank (Dendawijaya, 2009).

Credit Risk according to Bank Indonesia Regulation Number 11/25 / PBI / 2010 concerning Changes in PBI Number 5/8 / PBI / 2003 concerning Implementation of Risk Management is risk due to failure of debtors and/or other parties to fulfill obligations to banks. Credit risk arises because the borrower is unable to meet its financial obligations to the bank at the due date. Credit risk is calculated using a Non Performing Loan (NPL) proxy. NPL is the ratio of total loans with problem to total credit given to third party (Dendawijaya, 2009).

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Profitability is the ability of a company to generate profit over a certain period. Profitability of the company shows the comparison between profits with assets or capital that generate such profits (Dendawijaya, 2009). Profitability is calculated using ROA proxy. ROA is the ratio between net income and total company assets.

3 RESULTS AND DISCUSSION

Descriptive statistical analysis is used to provide an overview of the variables in this study. Here are the descriptive statistics results of each variable.

Table 1: Descriptive Statistics Results

Descriptive Statistics					
	N	Min	Max	Mean	Std. Dev
X1=*LDR*	100	43.60	108.86	83.4215	13.89627
X2=*NPL*	100	.37	8.83	2.7141	1.47527
Y=*ROA*	100	-4.90	5.15	2.3460	1.34636
Valid N (listwise)	100				

Based on Table 1. it can be seen that the number of observation in this study is as many as 100 data. The mean of liquidity risk (LDR) variable is 83.4215 with a maximum value of 108.86 and a minimum value of 43.60.

The mean of credit risk variable (NPL) is 2.7141 with a maximum value of 8.83 and a minimum value of 0.37. The mean of profitability variable (ROA) is 2.3460 with a maximum value of 5.15 and a minimum value of -4.90. Based on the data, it can be seen that all variables have greater mean value than the standard deviation, so that it can be concluded that the variable data are grouped or not varied.

From Table 2. it can be seen that the value of Adjusted R2 obtained is 0.226 or 22.6%. This means that the ratio of LDR and NPL can explain the profitability of Conventional Commercial Banks in 2007 - 2016 projected through ROA of 22.6%, while the remaining (77.4%) is influenced by other variables that are not analyzed in this research.

Table 2: Coefficient of Determination Test Results (R^2)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.492[a]	.242	.226	1.18430
a. Predictors: (Constant), X2=NPL, X1=LDR				

From Table 3. It can be seen that the $F_{calculate}$ is 15,475 and has probability value of 0.000 <0.05, the regression model of this study is to predict the research variables.

Table 3: F Statistics Test Results

ANOVA[a]						
	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	43.408	2	21.704	15.475	.000[b]
1	Residual	136.048	97	1.403		
	Total	179.456	99			
a. Dependent Variable: Y=ROA						
b. Predictors: (Constant), X2=NPL, X1=LDR						

Table 4: Regression Test Results

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.589	.743		7.524	.000
1 X1=LDR	-.028	.009	-.285	-3.213	.002
X2=NPL	-.347	.081	-.380	-4.285	.000
a. Dependent Variable: Y=ROA					

Based on the result of t-test method, it can be seen the influences between liquidity risk and credit risk variable to the profitability variable are as follows:

1. The LDR variable has $t_{calculate}$ of -3.213 and t_{table} of 1.9847. Therefore, $t_{calculate} < t_{tabel}$ which is -3.213 <1.9847 and has probability value of 0.002 <0.05, then H1 is rejected which means LDR has significant negeative influence on ROA.

2. The NPL Variable has $t_{calculate}$ value of -4.285 and t_{table} of 1.9847. Therefore, $t_{calculate} < t_{tabel}$ and has a probability value of 0.000 <0.05, then H_2 is rejected, which means NPL has a significant negative impact on ROA.

Based on the tabulation of statistical data in table 4., it creates linear regression equation as follows: The value of constants obtained is 5,589. This means that if the LDR and NPL variables do not exist or are zero, then the profitability (ROA) is 5.589.

Based on the test results, it is obtained significant level of probability of LDR (0.002); less than 0.05 and negative regression coefficient (0.028); so, it can be concluded that H_1 is accepted and H_0 is rejected, which means that LDR has significant effect on the profitability with negative effect. These results indicate that the greater the LDR, the smaller the profitability and the smaller the LDR, the greater the profitability with an increase of 0.028.

Based on the test results, it is obtained significant level of NPL probability (0.000); less than 0.05 and negative regression coefficient (0.347); so it can be concluded that H_2 is accepted and H_0 is rejected, which means that the NPL has significant effect on profitability with a negative effect. These results in indicate that the larger the NPL, the smaller the profitability and the smaller the NPL, the greater the profitability with an increase of 0.347.

Thi study shown that Loan to Deposit and Non Performing Loan significantly influence negatively on Return On Assets at Banks listed on Indonesia Stock Exchange (IDX) in 2007-2016. This study is in line with previous researchers, (Molyneux & Thornton, 1992), (Goddard et al, 2004), (Funso et al., 2012), (Epure and Lafuente, 2012) and (Kargi, 2011).

4 CONCLUSIONS

Some of the findings in this study either descriptively or in verifiable way indicate that this research has shown the fact that Loan to Deposit and Non Performing Loan significantly influence negatively on Return on Assets at Banks listed on Indonesia Stock Exchange (IDX) in 2007-2016. The limitation of this study is to use only two bank risks (liquidity risk and credit risk) which play role in the profitability of the company, other risks used in the banking industry are market risk, operational risk, legal risk, reputation risk, strategic risk and compliance risk. Other variables are Net Interest Margin (NIM), Operating Cost compared to Operating Income (*BOPO*), Earning Asset Quality and Inflation in order to obtain more varied results that can illustrate the things that can affect the profitability. The results of the study can be used as input for policy makers especially those related to bank profitability. The policy maker can use joint management of liquidity risk and credit risk to increase bank stability and monitoring credit disbursement process to maintain good account.

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