LIQUIDITY RISK EFFECT ON THE PERFORMANCE OF BANKS IN INDONESIA
(Study of Banking Companies Listed on the Stock Exchange)

Mrs. Yeni Widiastuti, SE.,Msi
Mrs. Rini Dwiyani Hadiwidjaja, SE.,M.Si
Faculty of Economic - Universitas Terbuka
Jl. Cabe Raya, Pondok Cabe, Pamulang, Tangerang Selatan, (021) 7490941
yeni@ut.ac.id, dwiyani.rini@gmail.com
Accounting

ABSTRACT

This research is a descriptive verification research, which means verification of descriptive data that provides answers to the problems faced by explaining the causal relationships between variables through hypothesis testing. The variables in this study consisted of independent variables and dependent variable. Independent variables are *Deposito*(X_1), *Liquidity Gap* (X_2), NPLs (X_3) and *Bank's Size* (X_4), while the dependent variable is *Profitability* (Y). The data in this study are secondary data from the financial statements of banks listed on the Indonesia Stock Exchange (IDX) for the period 2010 to 2013. The sample was the entire Banking Companies listed on the Indonesia Stock Exchange in the period of 2010-2013 (a total of 32 banks).

The results showed that the liquidity risk affecting the bank's profitability significantly, the number of deposits and the level of NPLs are the two factors that affect the liquidity risk of banking companies in Indonesia. The first hypothesis is that the increase in bank deposits will increase the revenues received. There are positive changes in the probability of the banking system as a result of the increase in deposits. These results indicate that bank deposits will grow, and it will help the bank to increase their profits. The second hypothesis is that the assumption that the increase in the liquidity gap will lead to an increase in bank earnings showed no significant results. There is a positive change in the probability of the banking system caused by a fundamental change in the liquidity gap. The third hypothesis is that the increase in NPLs will lead to a decrease in bank profitability. There is a negative change in the probability of the banking system caused by changes in NPLs..

KeyWords: *Liquidity Risk, Bank, Deposits, Performance*

INTRODUCTION

Bank is a financial institution which main activity is saving public funds in the form of current account, savings account, and time deposits. In addition, bank is also known as a place to borrow money (credit) for the people who need it, a place to change money, transfer money, or receive all forms of payment and deposit.

Bank is a partner in fulfilling financial needs of the community. Therefore, the bank should be able to maintain public confidence and maintain the health of the bank in accordance with the provisions on capital adequacy, asset quality, management quality, liquidity, profitability, solvency and other aspects related to the bank business.

According to the SAK No. 31, bank is an industry that relies its business activities on public trust, that is why the level of health needs to be maintained. Therefore the strategic steps that can be done are to improve the bank's performance continuously. It is expected that the good performance of a bank will gain public trust in the bank itself or the banking system as a whole. A benchmark that is often used to assess the performance of banking is ratio or index. Analysis and interpretation of various ratios can provide a better view of the condition of the banking company's performance.

There are several general risks faced by the bank, including the Liquidity Risk, Credit Risk, Market Risk, Operational Risk, Legal Risk, Strategic Risk, Reputation Risk, and Compliance Risk. In this study only four risks are discussed, which are Liquidity Risk, Credit Risk, Market Risk and Operational Risk. Each of these risks has a positive and negative impact on the bank in accordance with the business conditions of banks in certain periods. Liquidity risk is the risk that the bank may not meet its obligations (Jenkinson, 2008), depositors can withdraw their funds at any time, causing a massive sale of assets (Diamond and Rajan, 2001). Liquidity risk does not only affect the performance of the bank but also its reputation (Jenkinson, 2008).

National banking sector has high liquidity to cover unexpected disbursement, but in terms of the implementation of bank intermediation function occur otherwise. The low LDR means there is excess funds in the banking and the bank can not optimize the funds collected to get the earnings received from the utilization of excess funds. The performance of the national banking LENDING sector is still not efficient, whereas loans from banks are expected to encourage the development of the real sector and can accelerate national growth. Improvement in performance of the bank lending sector certainly can not be seperated from the performance of the bank as a whole and improvement in stability and national economic growth.

Researchers had previously focused on liquidity risk which comes from the liability side of the balance sheet of a bank. Liquidity risk may arise due to delays in cash flow of the debtor or early termination of the project (Diamond and Rajan, 2001). In addition, liquidity risk can also be derived from the nature of banking; Macro factors are exogenous, financing, and endogenous operational policies (Ali, 2004).

The research of A. Khoirul Anam (2013) states that the liquidity risk of banks significantly affect profitability, liquidity gap and NPLs as the two factors that exacerbate the liquidity risk and have a negative correlation with profitability. This research was conducted on Commercial Banks and Private Banks Government listed in the Indonesia Stock Exchange (IDX).

Naser AY Tabari, M. Ahmadi and M. Emami (2013) conducted a study on The Effect of Liquidity Risk on the Performance of Commercial Banks. This study used a sample of private banks in Iran from 2003 until 2010. The research showed that the group of macroeconomic variables consisting of the bank's size, the bank's assets, gross domestic product and inflation will affect the performance of banking while the variable specification banks, namely credit risk and liquidity risk does not affect the perfomance of private banks in Iran.

Research from Arif Ahmed and Ahmed N.Anees (2012) states that the variable Deposits, Cash, Liquidity Gap and NPLs affect the performance of banking in Pakistan from 2004 to 2009. Liquidity Gap and NPLs negative effect, while deposits and Cash positive effect on banking performance. Liquidity risk is a serious concern and a challenge for banks in gain as expected, banks are required to optimally manage each asset. Problem that's often encountered by the bank in asset management is to solve the conflict between liquidity and security on the one hand with the ability to increase profits on the other hand. The conflict is known as liquidity versus profitability or as a safety vs. earnings. Management of assets and bank loans are meant to minimize the risk that generally consists of liquidity risk, credit risk, market risk, regulatory risk, operational risk and the risk of human factors (Nasih, 2010).

This study reveals the influence of liquidity risk by the bank performance assessment through its profitability levels. In addition, this study adopts and modifies the research conducted Arif and Anees (2012) and Tabari et.al (2013) to test and evaluate the impact of liquidity risk to the bank's profitability. This study differs from previous studies at least because, (1) This study, in addition to testing the impact of each corporate governance mechanism, also performs simultaneous testing the mechanism of corporate governance on corporate performance; (2) Previous studies have generally focused on the study of the impact of corporate governance on firm value and the quality of earnings, while this study tries to further look at the implications on the performance of the company.

Based on the phenomena and the results of previous studies, the authors are interested in researching on the influence of liquidity risk to the performance via bank profitability. This research adopt and modify research conducted Arif and Anees (2012) and Tabari et.al (2013) to test and evaluate the impact of liquidity risk to the bank's profitability with the title " **Liquidity Risk Effect On The Performance Of Banks In Indonesia** "

LITERATURE REVIEW

Bank Performance Assessment

A company periodically needs to analyze of the company's performance, as well as banks need to analyze performance for the benefit of management and government (through Bank Indonesia) as an attempt to determine the current condition of the company as well as to facilitate in setting business policy for the future , This performance analysis covers all aspects of operational and non operational bank. There are many methods that can be used to measure the performance of a bank, which are also used commonly by banks in the world. General regulations that are applied in Indonesia are align with the regulations of Bank Indonesia known as "Bank Rating".

Financial and non-financial conditions of banks is in the interest of all parties, namely the owner, the management of banks, the government (through Bank Indonesia), and bank service users. Knowledge regarding the information of a bank can be used to evaluate the performance of the bank in applying the precautionary principle, compliance with applicable regulations, and risk management.

The development of methodology for assessing the condition of banks is dynamic so that the bank's health assessment is always adjusted in order to obtain a better reflection about the actual condition of the bank, both current conditon and in the future. Perfecting the assessment method is done both quantitatively and qualitatively, as well as the addition of assessment factors when needed. For banking, the bank condition assessment results can be used as a way to determine policies and implement control strategies, so the bank can apply the rating system for the right bank.

Non Performing Loan (NPL) is one of the key indicators to assess the performance of the bank's functions, because a high NPL is an indicator of the bank's failure to manage business, particularly liquidity problems (inability to pay a third party). According to Madura (2006), one of the factors that led to bank failures is poor management and the absence of tools to measure the management weaknesses.

Liquidity Risk

Liquidity risk is defined as the inability to liquidate a timely manner with reasonable prices (Muranaga & Ohsawa, 2002). Banks face liquidity risk if they do not liquidate their assets at a reasonable price. Assets are offered with low selling prices, while the need to liquidate the bank's assets becomes more urgent. This can lead to losses and a significant decline in revenue.

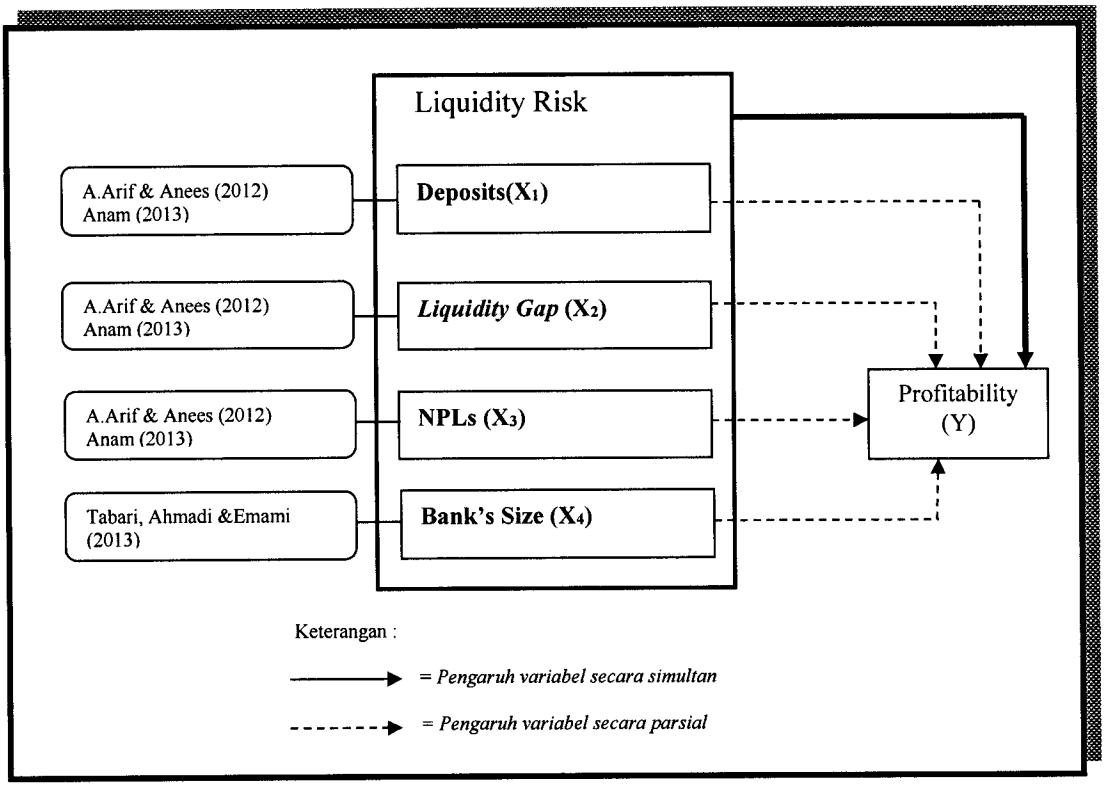
According to Bank Indonesia Regulation No.11 / 25/2009, the definition of liquidity risk is the risk of the bank due to the inability of banks to meet bank's obligations of matured funding from cash flow and/or liquid assets without disrupting bank's day-to-day activities. It could be conlcuded from the definiton that the bank must be able to provide a reserve fund should there be any impromptu withdrawals of cutomer funds and bank's invested assets should also be quite liquid if needed to cover those impromptu withdrawals.

Model Research

The dependent variable in this study is the performance of banking companies proxied by profitability. Profitability can be presented in the form of profit before tax which could be obtained through the company's income statement and becomes the focus of the company's performance. From the standpoint of investors, income is one of the many important indicators to assess the company's prospects in the future, while for customers, profit is one of the basic confidences to keep working with the bank (Mudrajad Kuncoro, 2004: 546).

The independent variable of this study consisted of deposits, liquidity gap, NPLs and the bank's size. These variables are the components that can be used as a basis for evaluating the performance of the banking system. These four independent variables can directly affect bank earnings growth (A.Arif and A.Anees, 2012). This study aimed to determine the direct effect of those four independent variables on profitability. Based on these descriptions, it can be described as the following chart the research model.

Gambar 1. Model Research



Hypothesis

The hypothesis is a temporary answer to the formulation of research problems. Based on the model of research and formulation of the problem that has been stated previously, the research hypothesis can be formulated as follows.

1. Banks'liquidity risk consisting of deposits, Liquidity Gap, and the Bank's NPLs Size has a positive effect simultaneously on profitability in the banking company in Indonesia.
2. Banks' liquidity risk banks consisting of deposits, Liquidity Gap, NPLs and the Bank's Size has a positive effect partially on profitability in the banking companies in Indonesia.

RESEARCH METHOD

This research is descriptive research verification by performing the following steps.

1. Identifying the problem that occurred in the banking company in particular on the development and performance of the banking Liquidity Risk that proxy with Profitability.
2. Collecting data about the development of deposits, Liquidity Gap, NPLs and the Bank's Size and banking performance that proxy with Profitability.
3. Doing literature study to obtain reference theories regarding deposits, Liquidity Gap, NPLs and the Bank's Size and banking performance that proxy with Profitability.
4. Making a hypothesis based on the theory developed.
5. Identifying, giving names of variables, and making an operational definition of each variable.
6. Developing research design and statistical analysis to analyze the data that has been obtained and tested the truth of the hypothesis, both manually and using computer media.
7. Making conclusions on the results of hypothesis testing.
8. Developing research reports

The variables in this study consisted of *Deposits* (X_1), *Liquidity Gap* (X_2), NPLs (X_3), *Bank's Size* (X_4) and Profitability (Y). The definition of each variable is as follows:

Table 1

Variable Operationalization

Variable	Indicator	Skale
Deposits (X_1),	Deposits are accounts of bank customers. Data for deposits taken from the side of the balance sheet liabilities (Arif & Anees, 2012)	Ratio
Liquidity Gap (X_2)	Data for liquidity gap is obtained from table maturing assets and liabilities (Arif & Anees, 2012)	Ratio
NPLs (X_3)	NPLs negative affect on the bank's performance. Provisioning for NPLs is taken from the income statement (Arif & Anees, 2012).	Ratio
Bank's Size (X_4)	Total assets of banks (Tabari, Ahmadi and Amemi, 2013)	Ratio
Profitability (Y)	Data for profitability is taken from the income statement (Arif & Anees, 2012).	Ratio

The data collected in this study is a secondary data quantitative. Data collection techniques used is the method of documentation of bank's financial statements that are accessed through the website http://www.bi.go.id and www.idx.co.id. The financial statements of banks listed on the Indonesia Stock Exchange (BEI) for the period 2010 - 2013. The data is a combination of data between banks (cross section) and time series data or also called the data panel (pooled data).

The sampling technique used was purposive sampling which means the samples are based on several criteria. These criteria consist of 1) Corporate Banking registered (listed) in IDX successively during the period 2010-2013. 2) Present the financial statements Balance Sheet and Income Statement and Statement of bank performance in 2010-2013 and has been published, 3) Present financial data about deposits ratio, Liquidity Gap, NPLs, the Bank's Size and Profitability.

Analysis Method

The analytical method used in this study was a data panel regression model. The formulation of the model is as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + e_{it}$$

Y_{it} = *Profitability*
X_1 = *Deposits* (X_1)
X_2 = *Liquidity Gap* (X_2)
X_3 = NPLs (X_3)
X_4 = B*ank's Size* (X_4)
β_0 = Constants
β_i = Coefficients of each variable (i = 1, 2, 3, 4)
e = Error term

In the regression model with panel data, residual will have three possibilities, namely residual time series, cross section, or a combination of both. Therefore, there are two approaches that can be used to estimate the regression model with panel data which the approach fixed effect and random effect approach.

To determine whether fixed effect or random effect was used, a statistical test procedure called Hausman Test needs to be done (Gujarati, 2008).

Classical assumption test on regression analysis was considered a very important research, testing consists of normality test, multicollinearity, heterorskedastisitas, and auto correlation.

Hypothesis Testing

Testing hypotheses that were used are statistical hypothesis testing, a significant level, and a statistical test.

In accordance to the hypothesis presented, then the hypothesis testing is done as follows:

1. First Hypothesis

   The first hypothesis testing conducted to determine the positive influence of independent variables together using F test. Significant level = 0.05 and a degree of freedom (df) = (k-1) (n k) to determine the value of F which is the benchmark local acceptance and rejection of the hypothesis. If the level of significance (significant F) smaller than = 0.05, it means together all the independent variables significantly influence the dependent variable. Conversely, if a significantly greater level of = 0.05, meaning that together all the independent variables did not significantly affect the dependent variable. R^2 value is used to determine the magnitude of the variation of a variable. The greater the R-value which the ratio between Explaired Sum of Squares of Total Sum of Squares, then it means the greater the variation of the dependent variable can be explained by variations in the independent variables.

2. Second Hypothesis

   The second hypothesis testing is done partially on the regression coefficients using the t test. T test was intended to test the statistical significance of each independent variable in determining the direction of movement of the dependent variable. If the level is significantly smaller than $\alpha = 0.05$, it is partially independent variables significantly influence the dependent variable. Conversely, if the level of significance greater than $\alpha = 0.05$, it is partially independent variables did not significantly affect the dependent variable.

RESULT AND DISCUSSION

Classical assumption test results showed that the normal distribution of data, the correlation between the independent variables have a coefficient of less than 0.8 so there is no

multicollinearity, and also there is no heteroscedasticity and autocorrelation there all the time in the panel data model.

Tabel 2.

Dependent Variable: PROFIT
Method: Panel Least Squares
Date: 12/02/14 Time: 13:32
Sample: 2010 2013
Periods included: 4
Cross-sections included: 33
Total panel (unbalanced) observations: 126

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.892766	1.274923	3.053335	0.0030
DEPOSIT	0.526080	0.084058	6.258543	0.0000
LIQUIDITAS	0.217944	0.144824	1.504889	0.1359
NPL	-0.189486	0.059684	-3.174805	0.0021
SIZE	-0.024142	0.028488	-0.847442	0.3990

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.983995	Mean dependent var	13.10778
Adjusted R-squared	0.977522	S.D. dependent var	2.165590
S.E. of regression	0.324682	Akaike info criterion	0.827718
Sum squared resid	9.382263	Schwarz criterion	1.660594
Log likelihood	-15.14622	Hannan-Quinn criter.	1.166089
F-statistic	151.9971	Durbin-Watson stat	1.611712
Prob(F-statistic)	0.000000		

The data were processed using software Eviews 7, while for the data are Profitability (Y), deposits (X1), Liquidity (X2), NPL (X3) and the Bank's Size (X4) which then produces a regression model as below this:

$$\mathbf{Ln\ Y = 3{,}892 + 0{,}526LnX_1 + 0{,}217LnX_2 - 0{,}189LnX_3 - 0{,}024LnX_4}$$

From the estimation results in Table 4 are known coefficient of each independent variable. Here the meaning of each of the regression coefficients.

- The value of coefficient C is 3.892 and significant. Means any increase in C by 1 unit, the index will increase the PROFITABILITY. The regression coefficient is positive, which means that if the value of C is increasing then PROFITABILITY will also be higher.
- The value of DEPOSITS coefficient is 0.526 and significant. DEPOSITS means any increase in by 1 unit, the index will increase the PROFITABILITY. The regression coefficient is positive, which means if DEPOSITS increasing it will also be higher PROFITABILITY
- LIQUIDITY coefficient is 0.217 and not significant. Means any increase in liquidity index unit will decrease PROFITABILITY. The regression coefficient is positive, which means increased liquidity will further improve PROFITABILITY.

- NPL coefficient value is 0.189 and significant. It means any increase in NPLs by one unit then the index will decrease PROFITABILITY. The regression coefficient is negative it means increasing NPLs will further lower PROFITABILITY.
- SIZE coefficient is 0.024 and not significant. It means any increase in BANK SIZE at 1 unit of the index will decrease PROFITABILITY. The regression coefficient is negative which means increasing SIZE it will decrease PROFITABILITY

HypothesisTesting

a) Simultaneously Hypothesis Testing

F test regression model was used to test the overall significance level coefficient independent variable (X1, X2, X3, and X4) on the dependent variable (Y). F test results are shown in Table 4, was obtained the calculated F value are 151.997 or probability value 0,000 Due the calculated F value (151.997) > the table of F value (2.45), or the probability value (0,000) <0.05, then Ho is rejected. It can be concluded that DEPOSIT (X1), liquidity (X2), NPL (X3) and SIZE (X4) simultaneously affect the PROFIT variable (Y).

b) Partial Hypothesis Testing

T test was conducted to test the level of significance of the regression coefficient of each independent variable (X1, X2, X3, X4) to the dependent variable (Y).

Hypothesis:

- Ho1: $\beta 1 = 0$ DEPOSIT (X1) partially did not increase the PROFIT (Y).
- Ha1: $\beta 1 \neq 0$ DEPOSIT (X1) partially increased the PROFIT (Y).
- Ho2: $\beta 2 = 0$ LIQUIDITY (X2) partially did not increase the PROFIT (Y).
- Ha2: $\beta 2 \neq 0$ LIQUIDITY (X2) partially increased the PROFIT (Y).
- Ho3: $\beta 3 = 0$ NPL (X3) partially did not increase the PROFIT (Y).
- Ha3: $\beta 3 \neq 0$ NPL (X3) partially increased the PROFIT (Y).
- Ho4: $\beta 4 = 0$ SIZE (X4) partially did not increase the PROFIT (Y).
- Ha4: $\beta 4 \neq 0$ SIZE (X4) partially increased the PROFIT (Y).

By the software Eviews 7, the partial test results can be seen in Table 4, as follows.

1. DEPOSIT (X1) obtained t value of 6.258. Because the t count (6.258) > the t table (1.66), then Ho is rejected. Therefore, it can be concluded that DEPOSIT (X1) partially have a significant effect on the PROFIT (Y).
2. LIQUIDITY (X2) obtained t value of 1.504. Because the t count (1.504) < the t table (1.66), then Ho is accepted. Therefore, it can be concluded that the liquidity (X2) partially does not have a significant effect on the PROFIT (Y).

3. NPL (X3) obtained t value of -3.174. Because the t count (-3.174) < the t table (-1.66), then Ho is rejected. Therefore, it can be concluded that the NPL (X3) partially have a significant effect on the PROFIT (Y).
4. SIZE (X4) obtained t value of -0.847. Because the t count (-0.847) > the t table (-1.66), then Ho is accepted. Therefore, it can be concluded that the SIZE (X4) partially does not have a significant impact on PROFIT (Y).

Analysis Coefficient of Determination

The coefficient of determination is used to determine the influence of independent variables (X1, X2, X3, and X4) on the dependent variable (Y). By the Eviews 7 software can be seen the amount influence of R-squared or Adjusted R-squared. Based on Table 4, the value of adjusted R-squared of 0.9775 or 97.75% means DEPOSIT variable (X1), LIQUIDITY (X2), NPL (X3), SIZE (X4) affect the PROFIT variable (Y) equal to 97,75%. While the remaining 2,3% are other variables that were not examined in this research.

Discussions

The empirical test results showed that, out of four hypotheses that have been formulated, three hypotheses can be accepted and one hypothesis is rejected.

Tabel 3.

Summary of Results of Testing Hypotheses

	Hypotheses
H1	Increased deposits will increase Bank Profitability
H2	Increased Liquidity Gap will not lead to an increase or decrease in Bank Profitability
H3	The high NPL provision would lead to a decrease in Bank Profitability.
H4	The amount of the Bank's Size (bank assets) will not causes a decrease or an increase in Bank Profitability.

Increased Bank Deposit will Increase Profitability

B coefficient of inequality deposits is 0526. It shows a 52.6% positive change in the probability of the banking system as a result of one unit change in deposits. Coefficient value of 6258 with a significance value of 0.000 therefore H1 accepted. These results indicate the bank deposits will grow, it will help banks increase the profitability (profits) of their. The significance of the results are consistent with research Arif and Anees (2012); Diamond and Rajan (2001); and Anam (2013).

Increased Liquidity Gap will not cause an increase or decrease in Bank Profitability

B coefficient of liquidity gap is 0.2179. This indicates that there will be a 21.79% probability of a positive change in the banking system caused by a fundamental change in the liquidity gap. Coefficient value of 1.5048 with a significance value of 0.1359 showed no significant results. Liquidity gap shows the maturity mismatch between assets and liabilities, large liquidity gap will affect the banking system's performance positively. The significance of the results does not match or does not consistent with research Arif and Anees (2012) and Anam (2013).

The provision of high NPLs will lead to a decrease in bank profitability

B coefficient of NPLs is -0.1894. This indicates that there will be a 18.94% probability of adverse changes in the banking system caused by changes in NPLs. Coefficient value of -3.1748 with a significance value of 0.021 indicates a significant result. Increase in NPLs led to a decrease in profitability of banks. The significance of the results are consistent with research Arif and Anees (2012); and Anam (2013).

The amount of the Bank's Size (bank assets) will not cause a decrease or an increase in bank profitability

B coefficient of the Bank's Size is -0.0241. This indicates that there will be a negative change of 2.41% in the probability of the banking system caused by a fundamental change in banking assets. Coefficient value of -0.8474 with 0.3990 significance values showed no significant results. These results do not match or is not consistent with the research Tabari et.al (2013).

CONCLUSIONS

The results showed that the liquidity risk affecting the bank's profitability significantly, by the number of deposits and the level of NPLs as two factors that affect the liquidity risk of banking companies in Indonesia.

The first hypothesis test results concluded that an increase in bank deposits will increase the revenues received. There are positive changes in the probability of banking as a result of increase in deposits. These results indicate that bank deposits will grow, and will help to increase the bank profits. The second hypothesis shown that increased liquidity led to an increase in income gap showed no significant results. There are positive changes in the banking probability caused by a fundamental change in the liquidity gap.

The third hypothesis indicates that high NPL provision would lead to a decrease in profitability (profit) received. These results indicate a negative change in the banking probability caused by changes in NPLs. Increase in NPLs led to a decrease in bank profitability.

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