

## DETERMINANTS OF PROFITABILITY IN COMMERCIAL BANKS OF INDONESIA AN EMPIRICAL STUDY

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**ABSTRACT.** *This study aims to determine the factors that affect the profitability of commercial banks in Indonesia. This research is a quantitative research using a sample six largest banks with total assets under ICMD. The banks included in the sample in this study is that Bank Mandiri (Persero) Tbk., Bank Rakyat Indonesia (Persero) Tbk., Bank Central Asia Tbk., Bank Negara Indonesia (Persero) Tbk., Bank Danamon Indonesia Tbk., and Bank Pan Indonesia Tbk. The research data in the form of panel data obtained from the annual financial statements of the bank. Techniques using multiple linear regression analysis. The results showed that the variables of liquidity of banks, non-performing loans and capital adequacy simultaneously affect the bank's profitability. The partial effect of liquidity and non-performing loans significantly influence the profitability of banks. While the capital adequacy ratio of no significant impact on the profitability of commercial banks in Indonesia.*

**KEYWORDS:** *liquidity, NPL, capital adequacy, profitability*

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### INTRODUCTION

The banking industry plays an important role in the process of economic development in a country, which is to run the main function as a financial intermediary for those excess funds to those who need funds. This is in accordance with the law of the Republic of Indonesia No. 10 of 1998 on Banking, indicating that the bank is an entity that collects funds from the public in the form of savings and channel them to the public in the form of credit or other forms in order to improve the standard of living of the people. This sector is an important part in determining the macroeconomic and monetary policies were strong at the national level (Javaid et al., 2011).

The basis of the business activities of the bank is public trust. It is visible in main activities of banks that accept deposits from the public in the form of savings, current accounts, time deposits, and give credit to those who need funds. Kasmir (2012) argues for the world of banking, credit is a key element for gains. That is, the profits of a bank is affected of total outstanding loans in a period. The more loans, the greater the interest income gains. Today almost all the banks still rely on the main income of the total lending. Other income derived from fees charged to customers who buy other bank services. Both of these major sources must be combined in order to bank profits can be optimized.

Value profitability can be used as one means of measuring the health of banks, the higher the profitability reflects the health of the bank. Bank Indonesia prefer the value of a bank's profitability as measured by Return on Assets (ROA). Profitability as measured by ROA can see the effectiveness of asset funds mostly come from public deposits (Dendawijaya, 2009).

One of the functions of banks as a conduit of funds to the community should be supported by the bank's liquidity. Bank liquidity is the ability of banks to meet short-term obligations and

meet the credit application or financing quickly. Banks said to be liquid if it is able to meet the financing request quickly. In maintaining the liquidity of banks must have cash assets and other assets that can be redeemed at any time. They should also have the ability to create new assets through the use of cash earning assets either through investment and the distribution of funding. Therefore, if the bank's assets more than the bank's ability to meet the loan application, the better. Loan to Asset Ratio (LAR) is a liquidity ratio shows the bank's ability to meet the demand for credit by using the total assets owned by the bank.

In practice that the optimal bank profits, the amount of outstanding loans must be in accordance with the set targets. Management should establish how the target loans to be disbursed each period. Management also should pay attention to credit quality. This is important because the quality of credit associated with the risk of congestion (problematic) a lending. That is, the increased quality of loans, it will minimize the risk of the possibility of such credit freeze or have problems. As it is known that the credit crunch will lead to the bank's profit decline. Credit risk can be measured through the Non Performing Loan (NPL).

In support of lending, in addition to the quality of the credit to reduce non-performing loans (NPL), the level of capital adequacy of banks is also considered important. Bank Indonesia requires each bank generally provide a minimum capital of 8% of total risk-weighted assets (RWA). The provisions on minimum capital for commercial banks that apply in Indonesia following the standard Bank of Indonesia Settlements (BIS). Percentage of minimum capital requirements required under the BIS is called Capital Adequacy Ratio (CAR). CAR indicates how much the bank has adequate capital to support their needs and as a basis for assessing the prospects of the relevant bank business continuity (Dendawijaya, 2009). For the banking industry, capital is an important thing, the bank must be able to maintain customer confidence with the necessary capital for the daily operational activities. Therefore, more and more capital owned bank, then the bank will be able to add the finance portfolio.

LAR research related to the profitability of banks do Widati (2012), Artarina and Masdjojo (2013) and Kennets, et al (2013) which states that the LAR effect on profitability. While research conducted Hutagalung, et al (2013) stated that the LAR no significant effect on the profitability of banks. Other studies related to the effect on the profitability of banks NPL do Hutagalung, et al (2013) as well as Kennets, et al. (2013) which states that the NPL negative effect on the profitability of banks. While the results of different studies conducted Wibowo and Syaichu (2013) as well as Artarina and Masdjojo (2013) which states that the NPL has no significant effect on profitability. The next study relating to the effect of CAR on the profitability of banks, among others, Hutagalung, et al (2013), Prasanjaya and Ramantha (2013), Artarina and Masdjojo (2013) as well as Wibowo and Syaichu (2013) which states that the CAR no significant effect on profitability, While research Widati (2012) and Kennets, et al (2013) stated that CAR affect the profitability of banks. Several studies relating to the factors that affect profitability, among others LDR, CAR and NPL showed inconsistent results, so the researchers felt the need to do more research.

## LITERATURE REVIEW

### Bank Likuidity

Bank liquidity is the ability of banks to meet short-term obligations and meet the credit application or financing quickly. Banks said to be liquid if it is able to meet the financing

request quickly. This ratio is very important for a company because of relating to altering its assets into cash. According to Agus Sartono (2008) liquidity ratio indicates the ability to pay short-term financial obligations on time. Understanding the liquidity ratio according to Brigham and Houston (2010) is an asset that is traded in an active market that can be converted quickly into cash at prevailing market prices. Further Subramanyam (2012) describes the liquidity ratio serves to evaluate the ability to meet short-term obligations. In this study, liquidity ratios of banks measured by the loan to asset ratio (LAR). According to Rival, et al (2007), LAR is a ratio used to indicate the ability of banks to meet the credit demand by using the total assets of the bank. This ratio is used as an indicator of a bank's ability to generate revenue from the finance portfolio. The greater the value of this ratio, the better the performance of bank financing due to the level the greater the results obtained, so the banks in disbursing financing will be greater. LAR ratio is used to measure the bank's ability to meet the demand for credit through guarantees a number of assets (Abdullah, 2003).

LAR can be calculated using the following formula (Dendawijaya, 2009):

$$LAR = \frac{\text{Jumlah Kredit yang diberikan}}{\text{Total Asset}} \times 100\%$$

### **Credit Risk**

Credit terms, according to law No.10 of 1998 on amendments to the act No.7 of 1992 on banking is the provision of money or bills can be equated with it, based on agreements between bank lending and other parties who require the borrower to repay their debts after a certain period with the amount of interest, remuneration or profit sharing. The notion of credit by Syamsu (2008) is the provision of cash or the equivalent, based on the agreement or consent between bank lending with another party that requires the borrower to repay the debt after a certain period of time with interest. The other view expressed by Rival, et al (2006) that the credit is the delivery of goods, services or money from one party to the appointment of the receiver payer credit to the lender on the date that has been agreed by both parties.

Dendawijaya (2009) says that the NPL is a failure of the debtor to meet its obligations to pay principal and interest loan that has been agreed by both parties in the credit agreement. Meanwhile, according to Siamat (2004) definition of nonperforming loans can be defined as a loan repayment experiencing difficulties due to the gap and the factors or due to external factors beyond the ability of debtors. According Dendawijaya (2009) non-performing loans are credits its collectibility category qualifies as a bad credit or also known as Non Performing Loan (NPL). This ratio indicates the ability of bank management to manage problem loans granted by banks. That is, the higher this ratio the more worse the quality of bank credit that led to the greater number of problem loans. One of the risks faced by banks is the risk of non-payment of loans that have been granted or are often called credit risk. Credit risk is generally arise. The existence of NPLs in considerable amounts can cause difficulties at once diminishes the bank concerned.

According to Slamet Riyadi (2006) states that the amount of NPL allowed by Bank Indonesia at this time is a maximum of 5%, if it exceeds 5%, it will affect the rating of the bank concerned. The greater the level of NPL shows that the bank is not a professional in the management of credit. According Taswan (2010) and Bank Indonesia Circular Letter No. 3/30 / DPNP dated December 14, 2001 NPL calculation is as follows:

$$NPL = \frac{\text{Problem Loans}}{\text{Total Credit}} \times 100\%$$

### Capital Adequacy

According Hasibuan (2004), it is generally argued that the bank's own capital is the amount of cash that has been deposited owners and other resources that come from the bank itself which consists of core capital and supplementary capital. The bank's capital is also the funds in inventasikan by the owner for the establishment of business entities of banks in addition to comply with rules prescribed (Siamat, 2004).

Capital is a sector that is very important for the development and progress of the bank, as well as efforts to maintain public confidence. As befits a business entity, the bank's capital must be used to maintain the possibility of the risk of loss resulting from the movement of bank assets which are essentially mostly from third-party loans.

Capital adequacy in this study is proxied through the Capital Adequacy Ratio (CAR). Mudrajad Kuncoro and Suhardjono (2002) states that the CAR is an analytical tool used to determine how much capital is sufficient to support its operations and reserves to absorb losses that might occur. This ratio is a ratio that indicates capital adequacy which must be maintained by each bank as a certain proportion of total risk-weighted assets. CAR indicates how much the bank has adequate capital to support their needs and as a basis for assessing the prospects of the relevant bank business continuity (Dendawijaya, 2009).

In accordance with Circular Letter No. 26/5 / BPPP dated May 29, 1993 the amount of CAR is to be achieved by a bank of at least 8% since the end of 1995, and since the end of 1997, which should achieve a minimum CAR of 8%. Further Dendawijaya (2009) to formulate a mathematical model as follows:

$$CAR = \frac{\text{bank capital}}{\text{risk - weighted assets}} \times 100\%$$

Components of capital consists of core capital and supplementary capital by taking into account the inclusion of the bank as a reduction of capital. Risk-Weighted Assets of commercial banks is calculated based on the risk weighting of each post balance sheet assets and account administration.

### Profitability

Profitability is the ability of a company to generate profits for a certain period. The profitability of the company shows a comparison between the earnings or capital assets that generate such profits. In order for the calculation of the ratio closer to the actual conditions (real), then the position of capital or assets is calculated as the average - average over this period (Riyadi, 2006).

According to Riyanto (1998), profitability is the ability of a bank to generate operating income with their own capital and foreign capital used to result in such profits. Profitability of a company is measured by the success of the company and the ability to use assets productively. Profitability is often used to measure the efficiency of capital use in used in operations, therefore it is a great advantage does not guarantee or not the size that the company is managed. Using profitability to measure the efficiency of a company is a good way, because

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the company will be difficult to improve profitability without increasing efficiency. This ratio is used to assess how much the company's ability to generate profit (Harahap, 2004).

Profitability measured by Return on Assets (ROA). According Munawir (2002) ROA is a ratio that reflects some of the many companies Terah obtain the results of the financial resources invested companies. ROA is used to measure the ability of the bank's management to obtain an overall profit (Dendawijaya, 2009). The greater the ROA of a bank, the greater the profit level reached the bank, the better the position of the bank in terms of asset utilization. Mathematically ROA can be formulated as follows (Dendawijaya, 2009):

$$ROA = \frac{EAT}{Total\ Assets} \times 100\%$$

Bank Indonesia is more concerned with valuation of ROA, it is because Bank Indonesia as a manager and supervisor of banks prefer the value of profitability of a bank as measured by assets with funds mostly come from public savings fund (Dendawijaya, 2009). Within the framework of assessment of the health of banks, BI akanmenentukan bank is healthy if the bank has a ROA above 1.215%.

## RESEARCH METHODOLOGY

This type of research used by this research is ekplanasi. The data used is secondary data drawn from the company's financial reporting data. The population in this study is the banking companies listed in Indonesia Stock Exchange.

- (1).Banking company with assets of Rp. 50 trillion
- (2).Included in the 10 largest banks berasetkan by Indonesia Capital Market Directory (ICMD).
- (3).Banking company issued a full annual financial statements.

From these criteria, there are 6 samples to be examined in this study are six commercial banks in Indonesia which can be seen from the table below:

Table 1. Sample Banks

No	Code	Bank Name
1	BMRI	Bank Mandiri (Persero) Tbk
2	BBRI	Bank Rakyat Indonesia Tbk
3	BBCA	Bank Central Asia Tbk
4	BBNI	Bank Negara Indonesia Tbk
5	BDMN	Bank Danamon Indonesia Tbk
6	PNBN	Bank Pan Indonesia Tbk

Data used in this study is panel data, so necessary to test panel data. The analysis tool used using multiple regression coefficient of determination and by first performed classical assumption. As for a hypothetical test, F test and t test.

## RESEARCH RESULTS AND DISCUSSION

At this stage, the analysis of the test data and models in the study. For testing of the model on panel data can be made by Housman Test, this is done to choose between the fixed effect model or the model of random effect. The results of Hausman test calculation is as follows;

**Table 2. Results of the Hausman Test Calculation**

Correlated Random Effects - Hausman Test  
Equation: Untitled  
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.430712	3	0.0038

Based on the output table above, note that the value prob. chi-square test for the estimation Hausman amounted to 0.0038. Because the value prob. chi-square  $< \alpha$  then  $H_0$  is rejected, where  $0.0038 < 0.05(\alpha)$ . It can be concluded that in this study for the variable LAR, NPL and CAR to ROA, the model used is a model Fixed Effect. Classic assumption test is a multiple regression analysis requirements. This classic assumption test including normality test, heteroscedasticity test, autocorrelation and multicollinearity test. The test results showed that both the classic assumption normality test, heteroscedasticity, autocorrelation and multicollinearity test there were no violations.

### Multiple Linear Regression Analysis

To see the effect of bank liquidity (LAR), Credit Risk (NPL) dan Tingkat Capital adequacy (CAR) to profitability (ROA), then used a multiple regression analysis with the following equation:

$$\hat{Y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

where :

Y = Profitability (ROA)

$X_1$  = Liquidity Bank (LAR)

$X_2$  = Credit Risk (NPL)

$X_3$  = Capital adequacy ratio (CAR)

$\beta_0$  = Constant

$\beta_1, \beta_2, \beta_3$  = Regression Coefficients

Results processing Eviews software for simple regression analysis are presented in the following table:

**Table 3. Multiple Regression Analysis**

Dependent Variable: ROA  
 Method: Panel Least Squares  
 Date: 04/11/14 Time: 10:12  
 Sample: 2008 2012  
 Periods included: 5  
 Cross-sections included: 6  
 Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.068855	1.701449	0.040468	0.9681
LAR	0.044042	0.020537	2.144582	0.0438
NPL	-0.256271	0.103576	-2.474237	0.0220
CAR	0.062659	0.043504	1.440304	0.1645

Based on calculations in the table above, obtained from the simple linear regression equation as follows:

$$Y = 0.068855 + 0.044042 X_1 - 0.256271 X_2 + 0.062659 X_3$$

Regression coefficients on the independent variables describe when the independent variable is expected to rise by one unit and the estimated value of other independent variables constant or equal to zero, then the value of the dependent variable can be expected to rise or fall in accordance with the sign of regression coefficient independent variable. Obtained from the above regression equation constant value of 0.068855. That is, if ROA is not affected by the three independent variables LAR, NPL and CAR (zero), then the magnitude of the average percentage of ROA will be worth 0.068855.

Signs independent variable regression coefficient indicates the direction the relationship of the variables concerned with ROA. The regression coefficient for the independent variable  $X_1$  is positive, indicating the existence of a direct relationship between the Bank's liquidity and profitability.  $X_1$  variable regression coefficient of 0.044042 implies for each increment of one unit of Bank liquidity will lead to increased profitability amounted to 0.044042.

The regression coefficient for the independent variable  $X_2$  is negative, indicating the existence of the trade-offs between Credit Risk and profitability. The regression coefficient  $X_2 = -0.256271$  implies for each increment of one unit of Credit Risk will lead to a decline in the profitability of -0.256271.

The regression coefficient for the independent variable  $X_3$  is positive, indicating the existence of a direct relationship between the level of capital adequacy and profitability. The regression coefficient  $X_3 = 0.062659$  for each increment implies capital adequacy rate of one unit will lead to increased profitability amounted to 0.062659.

**Coefficient of Determination**

To determine the contribution of independent variables on the dependent variable views of the coefficient of determination.

**Table 4. Coefficient of Determination**

R-squared	0.902932	Mean dependent var	2.916667
Adjusted R-squared	0.865953	S.D. dependent var	1.053475
S.E. of regression	0.385703	Akaike info criterion	1.175824
Sum squared resid	3.124095	Schwarz criterion	1.596184
Log likelihood	-8.637365	Hannan-Quinn criter.	1.310301
F-statistic	24.41778	Durbin-Watson stat	1.411487
Prob(F-statistic)	0.000000		

Based on the results above Eviews output, the value of Adjusted R-squared of 0.865953. This shows that the contribution of bank liquidity, credit risk and capital adequacy level of profitability was 86.6% while the remaining 13.4% is contributed by other variables besides independent variables studied.

**Hypothesis Testing**

## a. Simultaneous Hypothesis Testing (Test F)

To determine whether or not a significant effect on the liquidity of banks, credit risk and capital adequacy together on a profitability used by test F. From Table 4 above, the value of Prob. F count equal to 0.000000. Because the value of Prob. F count (0.000000)  $< 0.05$ ,  $H_1$  accepted. It can be concluded that there is significant influence of the variable bank liquidity, credit risk and capital adequacy levels simultaneously towards profitability

## b. Partial Hypothesis Testing (Test t)

To determine whether or not a significant effect on the liquidity of banks, credit risk and capital adequacy level is partially on the profitability of the t test was used. Based on Table 3 above were obtained the following results:

- (1). For variable values obtained bank liquidity prob.  $0.0438 < \alpha (0.05)$ , the  $H_1$  is accepted. Therefore, it can be concluded that the liquidity of banks) partially have a significant effect on profitability.
- (2). For credit risk variable values obtained prob.  $0.0220 < \alpha (0.05)$ , the  $H_1$  is accepted. Therefore, it can be concluded that the credit risk is partially have a significant effect on profitability.
- (3). For variable rate capital adequacy obtained values prob.  $0.1645 > \alpha (0.05)$ , the  $H_1$  is rejected. Therefore, it can be concluded that the level of capital adequacy is partially not have a significant effect on profitability.

**DISCUSSION RESEARCH**

The ratio is used to measure bank liquidity variables in this study as the ratio of LAR. This ratio is used to measure the amount of loans extended by the amount of property owned by the bank and also to measure the bank's ability to meet the demand for credit through guarantees a number of assets. This ratio uses a formula that total loans divided by total assets. The higher the ratio, the greater the low level of bank liquidity. The greater lending, the lower the credit risk that may be encountered due to loans funded by assets. Total loans obtained



from the total bill or the total loans. Total assets acquired from the total amount of cash, demand deposits, bonds, accounts receivable and other assets owned by banks.

The average value of LAR commercial banks almost over 50% of the total assets used for distribution. The increase in lending this shows the level of public trust in banks is high. High level of loan portfolio, as well as not to disturb liabilities in short term use. This shows the bank's liquidity is good.

Liquidity of banks partially have a significant effect on profitability. The increase in the value of total loans and total assets will lead to a rise in bank earnings. The increase in bank revenue a direct effect on income before taxes so that there are positive influence on LAR to ROA.

The results are consistent with that has been done Widati (2012), Artarina and Masdjojo (2013) as well as Charles and Okaro Kennets (2013) which states that the LAR effect on profitability. However, this result is different from that done Hutagalung et al (2011) suggest that LAR no significant effect on the profitability of banks.

NPL ratio used to measure credit risk in this study using a formula that is total nonperforming loans divided by total loans. This ratio indicates the ability of bank management to manage credit. problematic given by the bank. That is, the higher this ratio it will be The worse the credit quality of banks that caused the greater the number of problem loans, the greater the return rate of bad loans. The existence of NPLs in considerable amounts may cause difficulties as well as reduce the level of bank profits is concerned. Therefore, banks are required to maintain the credit is not in the NPL.

The results of the analysis of the study found a negative effect of credit risk on profitability. This can be explained by the increase in non-performing loans may decrease the profitability of banks. The higher the credit problems will then profit before tax will decrease, and vice versa.

The results are consistent with that done Hutagalung et al (2011) and Charles, et al (2013) which states that the NPL negative effect on the profitability of banks. However, the results of this study different from those Wibowo, et al (2013) and Artarina, et al. (2013) which states that the NPL has no significant effect on profitability.

CAR indicates how much the bank has adequate capital to support their needs. This ratio is formulated by comparing the total capital and risk weighted assets (RWA). The higher the value of a bank's CAR, the greater the bank's total capital and more flexibility in the management of the company, both financing and additional capital in order to increase profitability. Bank capital can be derived from the sum of paid-in capital, retained earnings, and others, while its risk weighted assets derived from the sum of its assets and RWA RWA administration.

Variable coefficient has a capital adequacy ratio in a positive direction on the profitability of banks, meaning that when the increased level of capital adequacy, profitability of banks will increase, and vice versa. However, the increase or decrease in CAR which was followed by an increase or decrease in the profitability of the changes are not significant. This means that changes in the CAR is not very meaningful to changes in the bank's profitability.

The results are consistent with the committed Djumahir, et al (2011), Prasanjaya, et al (2013), Artarina, et al (2013) and Wibowo, et al (2013) which states that the CAR had no significant effect on profitability. But the result is in contrast to research conducted Widati (2012) and Charles, et al (2013) stated that CAR affect the profitability of banks.

## CONCLUSION

Based on the results of research on the effect of bank liquidity, credit risk, and the level of capital adequacy of the bank's profitability of commercial banks in Indonesia, it could be concluded as follows:

- 1) Liquidity of banks, credit risk, and the level of capital adequacy simultaneously significant effect on the profitability of commercial banks. The magnitude of the effect of bank liquidity, credit risk, and the level of capital adequacy simultaneously towards profitability of 86.6% and the remaining 13.4% is influenced by other factors.
- 2) Partially bank liquidity and credit risks significant effect on the profitability of banks, while the capital adequacy partially no significant effect on the profitability of commercial banks. As for the effect of bank liquidity to profitability is positive, whereas the effect of credit risk to the profitability of banks is negative.

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