THE INFLUENCE OF CAPITAL ADEQUACY RATIO, RETURN ON ASSET AND LOAN TO DEPOSIT RATIO TO DEPOSIT TWELVE MONTH BANK PERSERO IN INDONESIA

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Abstract

One of bank product use for collected money from people with rate of return is time deposit, term one month, three months, six months, twelve months and two years. Almilia and Utomo (2006) was research factor of determine interest rate of time deposit one month, three months, six months, twelve months and two years, but not base of bank company, Region Development Bank, National Private General Bank, also Foreign Bank and Association Bank categories. Result of research cannot explain which General Banks was interest rate of time deposit affected significant scale. This research is purpose to know CAR (Capital Adequacy Ratio), ROA (Return on Asset) and LDR (Loan to Deposit Ratio) affect on interest rate of time deposit term twelve months for bank company categories in Indonesia.

Analysis does by multiple regressions. The model is Y=E0+E1X1+E2X2+E3X3+e. Interest rate of time deposit twelve month is dependent variable and CAR, ROA and LDR is independent variables.

Result of research is CAR, ROA and LDR have significant affect (α = 0,05) on interest rate of time deposit twelve month at bank company in Indonesia is 61.2% while 38.8% is affect another factor. Partial scale CAR has significant affect on interest rate of time deposit twelve month at Bank Company in Indonesia. ROA and LDR partial scale have affected but not significant on interest rate of time deposit twelve month at bank company in Indonesia.

Keywords: capital adequacy ratio, return on assets, loan to deposit ratio, interest rate of time deposit.

INTRODUCTION

Background

Monetary crisis that began with the falling value of the rupiah against the U.S. dollar has been destroyed joint economy, including banking. Inflation is one of the effects of a prolonged economic crisis that hit the country. Inflation is a situation where there is a significant price increase which continues over time within a period long enough to be followed by further decline in real value of the country's currency (Tajul Khalwatry, 2000: 5).

In mid 1997, problems of inflation and exchange rate crisis of sticking due to the inflation rate reached 11.5% and the rupiah fell significantly. Such crises result in corporate debt, especially debt in the form of foreign currency financing depends on the banks become larger. Further result is the emergence of NPL (Non-Performing Loans) or a credit crunch that directly and indirectly will interfere with the bank operating.

The high NPL rate will directly cause the decline in the quality of banking assets in the balance sheet, in addition to increasing the burden of banks to set aside funds as a reserve fund bad credit removal (allowance for doubtful accounts). The next impact is low CAR (Capital Adequacy Ratio) which is a capital adequacy ratio as the quotient between the assets and capital. With a little more CAR, some banks could no longer run the operation. Low CAR will directly cause the value of
banking companies in the stock market decline. Aggregation of this will lead to poor sentiment in the market and generally will bring the economy towards recession.

Government in this Bank Indonesia has sought to move the Indonesian banking industry towards a better and avoid the recession is through the implementation of programs Indonesian Banking Architecture (API). The direction of industrial development policy in the future of banking is defined in the API based on the vision of achieving a healthy banking system, strong and efficient to create stable financial systems in order to help drive national economic growth.

Other efforts undertaken by the government to avoid a recession is to overcome inflation by simply pressing either the money supply in the narrow sense (M1) and broad sense (M2) or the liquidity of the economy. The effect of this policy, private banks and government banks competing to raise interest rates. Interest given by banks to the public is a major attraction for people to deposit money in banks, whereas for banks, the greater the public funds that could be collected, will enhance the ability of banks to finance the operations of most of its assets for the provision of credit to the community. Conversely, if interest rates are too low, the amount of money circulating in the community will increase because people would prefer to play their money in other sectors are considered productive. Thus, the rate of inflation can be controlled through interest rate policy (Tajul Khalwaty, 2000: 144).

One of the bank's products is used to raise funds from the public in exchange rates is a deposit (time deposit) with a period of one month, three months, six months, twelve months and two years. Previous researchers Luciana Spica Almilia and Anton Wahyu Utomo (2006) examined the factors that affect the deposit rates of one month, three months, six months and twelve months at a commercial bank, but not by categories Persero Bank, Bank Pembangunan Daerah (BPD), the National Private Banks (BUSN) Foreign Exchange, the National Private Banks (BUSN) non-foreign exchange and foreign banks and the mixture so that the obtained results of the research cannot explain the commercial banks which the determination of fixed deposit rates significantly affected by these factors.

Problem formulation
Formulation of the problem this research is to know the effect of CAR (Capital Adequacy Ratio), ROA (Return On Assets) and LDR (Loan to Deposit Ratio) on interest rate deposits for the twelve months for bank company categories in Indonesia.

This research was conducted through analysis of financial statements for 2006 until 2008 at the for bank company in Indonesia; PT Bank Export Indonesia (BEI), PT Bank Nasional Indonesia (BNI) Tbk, PT Bank Rakyat Indonesia (BRI) Tbk, the State Savings Bank (BTN) and PT Bank Mandiri Tbk.

Research Objectives
Knowing the influence of CAR (Capital Adequacy Ratio), ROA (Return On Assets) and LDR (Loan to Deposit Ratio) on interest rate deposits to twelve months bank company categories in Indonesia.

RESEARCH METHOD
Research Object
Object of this research is Bank Company in Indonesia. Object consists of PT Bank Export Indonesia (BEI), PT Bank Nasional Indonesia (BNI) Tbk, PT Bank Rakyat Indonesia (BRI) Tbk, the State Savings Bank (BTN) and PT Bank Mandiri Tbk.

Data and Variables
This study uses secondary data. The data is the value of the interest rate deposits and twelve months the Bank's financial statements to determine CAR Persero (Adequacy Capital Ratio), ROA (Return on Assets), LDR (Loans to Deposit Ratio) all Bank Indonesia Persero calculated in the quarter.
Variables in this study are: Bound variable (dependent), the interest rate deposits twelve months (Y) is expressed in percent and the independent variable (independent), the independent variable (X) that affects the variables bound (Y) is: X1 = CAR, X2 = ROA, X3 = LDR.
Data Collection Method

Data collection method used was observations of Bank Indonesia Annual Report, Seki (Economic and Financial Statistics Indonesia), Financial Reports Publication Bank Company in Indonesia and the Indonesian banking data for 2006 through 2008 in the first quarter.

The Analysis Tools Used

Analysis tool used is the Multiple Linear Regression tool SPSS (Statistical Product and Service Solution). Multiple Linear Regression is used as a tool for analysis, the analysis in this research aims to determine the influence of CAR (Capital Adequacy Ratio), ROA (Return On Assets) and LDR (Loan to Deposit Ratio) and interest rate time deposits twelve months, and analysis Multiple Linear Regression is the analysis that aims to determine the effect more than two independent variables of the dependent variable.

To determine the influence of independent variables which consists of the CAR (Capital Adequacy Ratio), ROA (Return On Assets) and LDR (Loan to Deposit Ratio) on interest rate deposits twelve months as a dependent variable, are used models Multiple Linear Regression who has developed into a model specification that will serve as a research model such as the following models:

\[ Y = E0 + E2X2 + E1X1 + E3X3 + e \]

Description:

- \( Y \) = the interest rate deposits
- \( X1 \) = CAR (Capital Adequacy Ratio)
- \( X2 \) = ROA (Return On Assets)
- \( X3 \) = LDR (Loan to Deposit Ratio)
- \( e \) = factor bully
- \( E0 \) = Constant
- \( E1 \) = regression coefficient for the variable \( X1 \) (CAR)
- \( E2 \) = regression coefficient for the variable \( X2 \) (ROA)
- \( E3 \) = regression coefficient for variable \( X3 \) (LDR)

Regression equation should be BLUE (Best Linear Unbiased Estimated), means that decision-making through the F test and t test should not be biased. To make decisions BLUE (Best Linear Unbiased Estimated), it must meet four basic assumptions of good multiple linear regressions model, namely:

1. Data with normal distribution
2. There should be no heterokedastisitas
3. There should be no multikolonieritas
4. There should be no auto-correlation

By fulfilling these four basic assumptions, the regression equation obtained is BLUE (Best Linear Unbiased Estimated) in other words, the linear regression to predict well without bias.

RESEARCH FINDINGS

The influence of CAR, ROA and the LDR of Interest Rate Deposit Twelve Months Bank Persero in Indonesia

Sig.F values in table 1 are smaller than 0.05 (95% confidence level) of 0.014 indicates that the CAR, ROA and LDR jointly have a significant effect on interest rate deposits to twelve months in Indonesia Persero Bank. Adjusted R Square value of 0.612 with a predicted error rate of 1.09336 indicates that the level of deposit interest rates twelve months at the Bank of Indonesia Persero influenced by the CAR, ROA and LDR jointly for 61.2% while 38.8% influenced by other factors such as; liquidity of the economy, inflation, economic growth, the money supply (M2), the rate of inflation, Gross Domestic Product (GDP), SIBOR (Singapore Interbank Offered Rate), exchange rate U.S. dollar against the rupiah, the bank's liquidity and the interest rate of Bank Indonesia Certificates (SBI) as revealed by previous researcher.
### Table 1
**Summary of Multiple Linear Regression Results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression Coefficient</th>
<th>Standard Error</th>
<th>Probability t-test (sig)</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-1.172</td>
<td>2.825</td>
<td>0.640</td>
<td></td>
</tr>
<tr>
<td>X1</td>
<td>0.258</td>
<td>0.058</td>
<td>0.002</td>
<td>1.316</td>
</tr>
<tr>
<td>X2</td>
<td>0.722</td>
<td>0.642</td>
<td>0.353</td>
<td>1.766</td>
</tr>
<tr>
<td>X3</td>
<td>0.021</td>
<td>0.015</td>
<td>0.147</td>
<td>1.896</td>
</tr>
</tbody>
</table>

Adjusted $R^2$ : 0.612  
F : 6.782  
Durbin Watson : 0.988

Standard Error : 1.09336  
Sig. F : 0.014  
N : 12

Constant value of -1.172 in table 1 states that if no CAR (X1), ROA (X2) and LDR (X3) then the interest rate deposits twelve months (Y) is -1.172%. X1 regression coefficient 0.258 states that for any increase (because of the positive value) 1% CAR would increase the interest rate term deposit for twelve months, assuming 0.258% ROA and LDR permanent. X2 regression coefficient 0.722 states that for any increase (because of the positive value) 1% ROA will increase the interest rate term deposit for twelve months, assuming 0.722% CAR and LDR permanent. X3 regression coefficient of 0.022 states that any increase (for positive values) 1% LDR will increase the interest rate term deposit for twelve months with 0.022% and ROA CAR assumption remains.

The influence of independent variables are partly to dependent variables can be indentified by T-test results in table 2. Two of the three independent variables, X2 and X3, had no significant partial effect, while X1 significant. This means that any changes, the bank's CAR limited company must immediately make changes to the rate of time deposits compared to twelve month in the event of a change in ROA and LDR.

### Table 2
**Recapitulation-T Test Results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>T- Calculate</th>
<th>T-Table</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>4,458</td>
<td>1,860</td>
<td>Significant</td>
</tr>
<tr>
<td>X2</td>
<td>1,121</td>
<td>1,860</td>
<td>Not significant</td>
</tr>
<tr>
<td>X3</td>
<td>1,419</td>
<td>1,860</td>
<td>Not significant</td>
</tr>
</tbody>
</table>

To make decisions BLUE (Best Linear Unbiased Estimated) from multiple linear regression analysis is performed, it must meet four basic assumptions of good multiple linear regression model, that is data with normal distribution , there should be no heterokedastisitas, no multikolonieritas and no auto correlation.
Figure 1
Graphs of Normal PP Plot of Regression Standardized Residual

From figure 1 it can be seen that the distribution of data on the graph Normal PP Plot of Regression Standardized Residual located around the diagonal line or not dispersed far from the diagonal line indicating that data with normal distribution or nearly normal. Assumptions are met so that a good linear regression (BLUE).

Presence or absence of heterokedastisitas regression model can be seen in the graph Scatter plot. If the points in the graph does not spread to form a particular pattern (wavy, wide and narrow), and scattered both above and below the 0 (zero) on the Y axis does not occur heterokedastisitas. Scatter plot of the graph in figure 2, figure 3 and figure 4 can be seen that the points in the graph does not spread to form a particular pattern (wavy, wide, narrow), and scattered both above and below the 0 (zero) on the axis Y. Assumptions are met then a good linear regression (BLUE) second.

Figure 2 Scatter plot graph X1
Multikolonieritas occurs when there is correlation between independent variables, detection of multikolonieritas can be seen from the results through the value of collinearity Statistics VIF (Variance Inflation Factor) and Tolerance. If the VIF value is around one (1) and Tolerance value close to one (1), multikolonieritas will not happen. From table 3 it can be seen that the three independent variables have VIF values that are around one (1) and Tolerance value close to one (1). Assumptions are met third good linear regression (BLUE), which means no multikolonieritas.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>0.760</td>
<td>1.316</td>
</tr>
<tr>
<td>X2</td>
<td>0.566</td>
<td>1.766</td>
</tr>
<tr>
<td>X3</td>
<td>0.527</td>
<td>1.896</td>
</tr>
</tbody>
</table>

Auto-correlation occurs when there is a correlation between the error of period bullies t with the errors in the previous period bullies (t-1). Auto-correlation common in most of the linear regression of time series data based on time or periodically, such as monthly, yearly and so on. Presence and absence of auto-correlation can be seen from the large value of Durbin Watson. If the value of Durbin Watson is in the interval 1.65 to 2.35 will not happen auto-correlation. From table 1 it can be seen that the Durbin Watson value obtained was 0.988 (excluding the interval 1.65 to 2.35) indicate an auto-correlation. Because the data used are time series and auto-correlation common in linear regression time series data, so that auto-correlation will be ignored.

By fulfilling the three assumptions that good linear regression (BLUE) data has normal distribution, there should be no heterokedastisitas, there can be no ignoring multikolonieritas and auto-correlation, regression models used can be said to be used to predict the bound variable.
Research Summary

Sig.F value smaller than 0.05 (95% confidence level) of 0.014 indicates that the CAR, ROA and LDR jointly have a significant effect on interest rate deposits to twelve months in Indonesia Persero Bank. Adjusted R Square value of 0.612 with a predicted error rate of 1.09336 indicates that the level of deposit interest rates twelve months at the Bank of Indonesia Persero influenced by the CAR, ROA and LDR jointly for 61.2% while 38.8% influenced by other factors such as.

CAR only partially have a significant influence was not ROA and LDR was not significant. With the constants of -1.172 then if there is no CAR, ROA and the LDR value of interest rate deposits twelve months is -1.172%. CAR, ROA and LDR positive impact on interest rate deposits twelve months with the regression coefficient of each to CAR 0.258, 0.722 and 0.021 for ROA to LDR.

CONCLUSION

Together CAR, ROA, and the LDR has a significant influence (95% confidence level) on interest rate deposits to twelve months in Indonesia Persero Bank for 61.2% while 38.8% influenced by other factors. Partially CAR has significant influence (95% confidence level) on interest rate deposits to twelve months in Indonesia Persero Bank, while the ROA and partially LDR has no significant effect (95% confidence level) on interest rate deposits two Twelve months on the Bank Persero in Indonesia

SUGGESTIONS

Suggestions can be given are: First, the researchers hoped to further examine the influence of CAR, ROA and the LDR of the interest rate term deposit of one month, three months, six months and twenty-four months at the Bank of Indonesia Persero. Second, the researchers hoped to further examine other factors that influence interest rates on bank deposits in Indonesia Persero. Third, the researcher can further extend the period of observation and different types of banks such as Bank of Local Government, National Private Banks and Foreign Private Bank.

REFERENCES


Bank Indonesia, interest rates on time deposits twelve months in Indonesia Persero Bank, http://www.bi.go.id/biweb/Html/SekiTxt/ T3x232.txt.


Syakir, H. Priest, 1995, Factors affecting the determination of deposit rates at commercial banks and government banks, private national banks in Indonesia, unpublished PhD dissertation, University of Airlangga, Surabaya.

Tajul Khamlaty, 2000, Inflation and Solutions, PT Gramedia Pustaka Utama, Jakarta.

Research and Development Team Wahana Computer, 2006, Statistical Data Processing with SPSS 14, Salemba Infotek, Jakarta.