ANALYSIS INFLUENCE OF CORE CAPITAL, LOAN TO DEPOSIT RATIO, AND CAPITAL ADEQUACY RATIO ON BANK'S PROFITABILITY
(A case study at PT Bank Mandiri Tbk. Indonesia)

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ABSTRACT

This study aims to analyze the influence of core capital, loan to deposit ratio, and capital adequacy ratio on Bank Mandiri’s profitability, partially and simultaneously. The data used are secondary data from financial statements of Bank Mandiri, which are published monthly by Bank Indonesia. The samples in this study were drawn from a population that is part of the data series of financial statements of Bank Mandiri. The data was analyzed by using classical test assumptions, t Test, and f Test, coefficient of multiple determination test (R^2), and multiple linear regression. The results show that partially, the core capital and LDR variables have no influence on the ROA of Bank Mandiri. While the CAR variable has significant negative influence on the ROA of Bank Mandiri. Simultaneously, the core capital, LDR, and CAR have significant influence on the ROA of Bank Mandiri. The contribution of all independent variables on the dependent variable by 23 percent and the rest is influenced by other variables that were not included in this study.

Key words: core capital, loan to deposit ratio, capital adequacy ratio, return on assets.

1. Introduction

Based on Bank Indonesia regulation (2005), core capital is the capital which is paid and additional capital (disclosed reserved) in relation to minimum capital requirement for commercial banks. There are four reasons of regulator increasing, imposing, and emphasizing the importance of capital adequacy for banks. Those reasons are: 1) capital can absorb unexpected losses; 2) capital protects unsecured creditors in case of insolvency and liquidity; 3) capital protects the funds of deposit guarantee institution and tax payers; 4) capital allows the banks to accelerate the flows of investements for purposes of service.

The largest bank income is interest income from lending. This has led many banks competing to increase the lending that will impact on the development of the capital. The capital increase can maintain the existence of the banks. However, lending is not the only factor that affect the development of capital. Bank charges can also adversely affect the development of capital.
Soundness of banks that has impact on the performance of the banks can be seen from Loan to Deposit Ratio (LDR) and Capital Adequacy Ratio (CAR). LDR is the ratio used to assess the liquidity of a bank by dividing the amount of credit granted by banks against third party funds. Banks that have high LDR will have low ability of bank liquidity. Furthermore, it is possible for the banks to face greater problems. The loans given do not include loans for other banks. Moreover, funds which are given into third party, are in the forms of demand deposits, savings, savings deposits, and certificates of deposits. On the other hand, CAR is a ratio that shows how large the total assets of banks that contain elements of risks (credit, equity, securities, claims on other banks). Such assets are also financed by capital, besides financed by funds from sources of funds that come from outside banks (Yuliani, 2007:25).

The ratio used to measure the performance of profitability is Return On Asset (ROA). This ratio is used to measure the ability of bank management in getting profit (profit before tax) resulting from the average total assets of the bank. The larger a bank has the ROA, the greater the bank achieves profit's profit. It means that the possibility of a bank in troubled condition becomes smaller (Yuliani, 2007:24).

Based on the above background, this study aims to analyze the influence of the amount of core capital, LDR, and CAR partially or simultaneously on bank profitability at PT Bank Mandiri (Persero).

2. Literature Review

Bank Capital

Pakmei (1993:29) distinguished bank capital into two: 1) capital used by the banks that are established and located in Indonesia; 2) capital used by the banks that are located abroad. Capital for a bank that was established and located in Indonesia consists of core capital and supplementary capital, while the capital of banks located outside the country is a net fund of headquarters and branch offices outside Indonesia (Siamat, 2004:104). Meanwhile, according to the regulations of Bank Indonesia No.7 (2005), core capital is capital paid and additional capital reserves (disclosed reserved) as referred to in Bank Indonesia concerning the minimum capital requirement for commercial banks.
According to Siamat (2004:99) capital is an important factor to develop a bank because the use of bank capital is intended to meet all the needs to support the banks operations. The amount of bank capital is considered inadequate if it does not meet these purposes. In practice, the determination of reasonableness of the amount of capital a bank needs is a fairly complex task because it must consider the following factors: 1) the quality and integrity of management; 2) liquidity; 3) the quality of assets; 4) retained earnings; 5) the imposition of fees; 6) the structure of the source of funds; 7) the quality of operating procedures; 8) the provisions of the minimum capital; 9) policies of capital accumulation and distribution of dividends.

There are some reasons of banks deciding the amount of capital they need. Muljono (1986:66) explains that capital is requires as: 1) measurement of the ability of banks to absorb losses that can not be avoided; 2) sources of funds needed to finance its business activities to a certain extent; 3) measuring instrument of the size of the bank or property owned by the share holders; 4) benchmark the bank management to work with high efficiency, as desired by the owners of bank capital.

Siamat (2004:99) also argued that the capital of bank at least has three main functions. Those three functions are as the operational functions, protection functions, security and regulatory functions. The overall function of the bank capital is described as follows: 1) provide protections to customers, 2) prevent collapse of the bank; 3) meet the needs of office buildings and inventory; 4) comply with minimum capital; 5) increase public confidence; 6) cover bank losses of productive assets; 7) indicates bank poverty; 8) improve the operational efficiency of banks.

According to Widjanarto (1994:141), capital consists of paid-up capital, capital contribution, the reserves formed from profit after tax, and profit after tax earned. Here is an explanation of each of the core capital components: 1) paid-up capital is capital that has been effectively paid by the owner; 2) in capital is the excess of capital contributions received by the bank as a result of the stock price exceeds the nominal value; 3) the contribution of capital is capital stock recovered from donations, including the difference between the value recorded on the price, when the stock was sold; 4) general reserve is formed from the allowance reserve retained earnings or net profit after tax, and approved by general
meeting of shareholders or meeting of members based on the provisions of the establishment or the statute of each bank; 5) backup purposes is the profit after tax is set aside for specific purposes. It also has been approved by the general meeting of shareholders or meeting of members; 6) retained earnings is balanced of net profit after taxes which is decided not to be shared by the general meeting of shareholders or meeting of members; 7) last year profit is the net profit after tax of last year, whose use has not been established by the general meeting of shareholders or meeting of members.; 8) current year's profit is profit earned in the current accounting year after deducting the estimated tax payable.

Bank Soundness

According to Loen and Ericson (2007:106) the rating of banks conducted by Bank Indonesia as mandated by law No.7 of 1992, about Banking and Article 29 of Law No.10 of 1998 on Banking. The contents of the law are as follows: (1) guidance and supervision of banks conducted by Bank Indonesia, (2) Bank Indonesia shall stipulate provisions on the health of banks, (3) banks are required to maintain the health of the banks. Under the law, Bank Indonesia provides implementation guidance in the form of a letter No.26/5/BPPP Circular dated May 29, 1993 on the procedures governing the rating of the bank, known by the method of CAMEL (capital, assets, management, earnings, liquidity).

Soundness of banks that have an impact on the performance of the bank can be seen from the LDR (loan to deposit ratio) and CAR (Capital Adequacy Ratio). Whereas, the ratio used to measure the performance of profitability is ROA (Return On Asset). The explanations and calculation of the LDR, CAR and ROA are as follows:

1. Loan to Deposit Ratio (LDR)

   According to Riyadi (2006:165) LDR is the ratio between total loans and total third party funds (DPK). Meanwhile, Bank Indonesia regulation No. 12 of 2010 states the LDR is the ratio of loans to third parties in rupiah and foreign currency, excluding loans to other banks, to fund a third party that includes
demand deposits, savings, and deposits in rupiah and foreign currency, excluding interbank funds.

LDR calculation formula:

\[
LDR = \frac{\text{Total credit granted}}{\text{Total third party funds}} \times 100\% \quad \text{(1)}
\]

This ratio is used to demonstrate the vulnerability indicators and the ability of a bank. Bank Indonesia determined that the credit rate for LDR ratio of 110 percent or more is 0 (zero). In this condition, the bank considered unhealthy in its bank liquidity. As for the LDR ratio below 110 percent credit rated 100, means that bank liquidity is considered healthy. While based on the latest regulations of Bank Indonesia Number: 12/19/PBI/2010 said lower limit of the LDR target by 78 percent and the upper limit of LDR at 100 percent.

2. Capital Adequacy Ratio (CAR))

Capital Adequacy Ratio (CAR) is a ratio which shows how large the total assets of banks that contain elements of risk (credit, equity, securities, claims on other banks) which co-financed by own capital in addition to obtaining funds from sources outside the bank (Yuliani, 2007:25).

CAR calculation formula:

\[
CAR = \frac{\text{Bank Capital}}{\text{Total of ATMR}} \times 100\% \quad \text{(2)}
\]

According to Loen and Ericson (2007:107) sound bank must have a minimum CAR of 8 percent. Point awarded to the achievement of this CAR are as follows: 1) the CAR of 8 percent that meet the given predicate with a healthy credit scored 81. Each increase of 0.1 percent from a CAR of 8 percent, the credit value will be added to a maximum of 100; 2) the CAR of less than 8 percent to 7.9 percent given predicate unwell with a value of 65 credits. Each fall
of 0.1 percent from 7.9 percent fulfillment of CAR is reduced by 1 with minimum value 0; 3) credit scores are obtained immediately multiplied by a weighting of 25 percent are treated for CAR components.

3. Return On Assets (ROA)

Return On Assets (ROA) is a ratio used to measure the ability of bank management in getting profit (profit before tax) resulting from the average total assets of the bank concerned. The larger the ROA is, the greater the bank's profit level achieved, so that the possibility of a bank in troubled condition becomes smaller (Yuliani, 2007:24). ROA calculation formula:

\[
\text{ROA} = \frac{\text{Profit before tax}}{\text{Total assets}} \times 100\% \quad \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (3)
\]

Credit point value for ROA by 100 percent or more, given the credit value of 0 (zero). For every increase of 0.005 percent added 1 credit score with a maximum of 100 (Loen and Ericson, 2007:109).

Related Studies

Harahap (2006) examined the influence of core capital, credit growth, CAR, LDR, and NPL on the profitability of the commercial banks. The samples in his study were commercial banks in Indonesia. He used ROA as the dependent variable. The results showed that the core capital and LDR have no significant effect on ROA. While credit growth, CAR, and NPLs have significant effect on ROA.

Yuliani (2007) used ROA as a measure of banking profitability in her study entitled "The relationship between operational efficiency and profitability performance in Banking sector that go public in JSX. The data of this study came from financial statements in 2004 – 2006. The study revealed that partially, BOPO and CAR significantly influenced ROA. On the other hand, MSDN and LDR did not significantly influence ROA.
Siagian and Yasin (2009) conducted a study to test the influence of non-performing loan (NPL), the level of capital adequacy, liquidity levels, and quality of productive (KAP) towards the level of profitability of banks listed on the Indonesia Stock Exchange in 2006-2008. The results partially showed that NPL, CAR, and QR did not significantly influence ROA. LDR and KAP also did not influence ROA. Simultaneously, NPL, CAR, LDR, QR, and KAP had significance influence on ROA.

**Framework**

In this study, there are 3 variables which are predicted have influence on ROA. The variables are used as dependent and independent variables. Those variables are core capital, LDR, and CAR. The framework of this study can be described as follows:

![Framework Diagram]

Sources: Researchers (2011)

**Hypotheses Formulation**

Based on theoretical studies and the results of several previous studies, the hypothesis of this study are as follows:

- **H_{01}:** There is no influence of core capital on profitability of Bank Mandiri.
- **H_{11}:** There is influence of core capital on profitability of Bank Mandiri.
- **H_{02}:** There is no influence of LDR on profitability of Bank Mandiri.
- **H_{12}:** There is influence of LDR on profitability of Bank Mandiri.
- **H_{03}:** There is no influence of CAR on profitability of Bank Mandiri.
Ha3: There is influence of CAR on profitability of Bank Mandiri.

Ho4: There is no influence of core capital, LDR, and CAR on profitability of Bank Mandiri.

Ha4: There is influence of core capital, LDR, and CAR on profitability of Bank Mandiri.

3. Methodology

This study is descriptive quantitative research, which includes the collection of data for testing hypotheses or answering questions about the current status of research subjects. The population used in this study is the financial statements of Bank Mandiri. The sample in this study were drawn by purposive sampling technique that is a sampling method based on certain criteria or considerations. This kind of sample are considered based on the purpose of research. Defined criteria for sampling in this study were: 1) the financial statements taken from Bank Mandiri, 2) the financial statements taken from the period of January 2008-March 2011; 3) The financial statements are drawn from the Bank's core capital includes data, loan to deposit ratio (LDR), capital adequacy ratio (CAR), and return on assets (ROA).

The data used in this study is secondary data. It is taken from the data of financial statements of Bank Mandiri, which is published monthly by Bank Indonesia. Independent variables used in this study is core capital, LDR, and CAR. While the dependent variable used is the ROA. Operational variables used in this study can be seen in Table 1.

<table>
<thead>
<tr>
<th>No.</th>
<th>Variable</th>
<th>Abreviation</th>
<th>Concept of Variables</th>
<th>Size</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Core Capital</td>
<td>MIT</td>
<td>Paid-in capital and additional capital reserves (disclosed reserved).</td>
<td>Rupiah</td>
<td>Ratio</td>
</tr>
<tr>
<td>2.</td>
<td>Loan to Deposit Ratio</td>
<td>LDR</td>
<td>Ratio of loans provided to the third parties in rupiah or foreign currencies.</td>
<td>Percentage</td>
<td>Ratio</td>
</tr>
<tr>
<td>3.</td>
<td>Capital Adequacy Ratio</td>
<td>CAR</td>
<td>Ratio of credit with the comparation between banks capital and the total of ATMR.</td>
<td>Percentage</td>
<td>Ratio</td>
</tr>
<tr>
<td>4.</td>
<td>Return on assets</td>
<td>ROA</td>
<td>This ratio is used to measure the ability of</td>
<td>Percentage</td>
<td>Ratio</td>
</tr>
</tbody>
</table>
4. Hypothesis Testing

The first thing done to analyze the data is testing it using classical assumption. As it is eligible to be processed, the data is analyzed partially and simultaneously. Partial hypothesis testing is done by t test. While simultaneously hypothesis testing is done by f test.

**Partial Hypothesis Testing (t test)**

T test performed to test the effect of independent variables on the dependent variable partially.

**Table 2. t test result**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>.009</td>
<td>.027</td>
<td>.343</td>
<td>.734</td>
</tr>
<tr>
<td>Core Capital (X1)</td>
<td>-.003</td>
<td>.018</td>
<td>-.029</td>
<td>-.494</td>
</tr>
<tr>
<td>LDR (X2)</td>
<td>.041</td>
<td>.035</td>
<td>.195</td>
<td>.248</td>
</tr>
<tr>
<td>CAR (X3)</td>
<td>-.127</td>
<td>.051</td>
<td>-.421</td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: ROA (Y)

Source: processed data (2011)

The result of t test with the level of significance of 5 percent, df (degree of freedom) = n – k – 1 or 39 – 3 – 1 = 35. To test the core capital variable, generated t table value of 2.0301. It shows t count (-0.194) < t table (2.0301) with a significance level of 0.847 > 0.05. It explains that the H1 rejected, which means that the core capital variables had no significant effect on the variable of return on assets (ROA) of Bank Mandiri.

From the test of LDR variable, t table generated for 2.0301. It shows that t count (1.175) < t table (2.0301) with standard error 0.248 > 0.05. It shows that H2 is also rejected. It means that the variable of loan to deposit ratio (LDR) has no significant effect on the variable of return on assets (ROA) of Bank Mandiri. Meanwhile, the testing of CAR variable resulted on the value of table for 2.0301. It shows that t count (2.447) > t table
(2.031). With the standard error 0.018 < 0.05 then Hₐ₃ accepted, which means that the variable capital adequacy ratio (CAR) have a significant negative effect on the variable return on assets (ROA) of Bank Mandiri.

**Simultaneous Hypothosis Testing**

F test basically indicates whether all the independent variables included in the model have an influence the dependent variable simultaneously.

**Tabel 3. Result of f test**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.001</td>
<td>3</td>
<td>.000</td>
<td>4.774</td>
<td>.007a</td>
</tr>
<tr>
<td>Residual</td>
<td>.002</td>
<td>35</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.002</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), CAR (X3), Modal Inti (X1), LDR (X2)
b. Dependent Variable: ROA (Y)
Source: Data output SPSS 17 for Windows.

Based on F test, F count is bigger than F table (4.774 > 2.87). It indicates that H₀₄ is rejected. Moreover, it can be said that the core capital, Loan to deposit ratio (LDR), and capital adequacy ratio (CAR) simultaneously influence ROA.

**Coefficient of Determination**

Analysis of the coefficient of determination in this study is used to see how big the core capital variables, LDR, and the CAR effect on ROA variables. It is as a percentage.

**Table 4. Coefficient of Determination**

<table>
<thead>
<tr>
<th>Model Summaryb</th>
<th>Model Summaryb</th>
<th>Model Summaryb</th>
<th>Model Summaryb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>R</td>
<td>R Square</td>
<td>Adjusted R Square</td>
</tr>
<tr>
<td>-------</td>
<td>----</td>
<td>----------</td>
<td>-------------------</td>
</tr>
<tr>
<td>1</td>
<td>.539a</td>
<td>.290</td>
<td>.230</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), CAR (X3), Modal Inti (X1), LDR (X2)
b. Dependent Variable: ROA (Y)
Source: Data output SPSS 17 for Windows.

From table 4, it can be seen that the amount of adjusted R square is 0.230 or 23 percent. This indicates that 23 percent of the variance of return on assets (ROA) can be explained by core capital, loan to deposit ratio (LDR), and capital adequacy ratio (CAR). While the remaining 77 percent is explained by the causes or other variables not included in this study.

Discussion on the Result of The Study

Table 5 is the comparison on the results of previous studies.

Table 5. Comparison of the Result of Previous Studies

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harahap (2006)</td>
<td>ROA</td>
<td>Core Capital</td>
<td>Does not influence positively</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pertumbuhan Kredit</td>
<td>Positively Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAR</td>
<td>Positively Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LDR</td>
<td>Does not influence positively</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NPL</td>
<td>Negatively Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simultan</td>
<td>Significant</td>
</tr>
<tr>
<td>Yuliani (2007)</td>
<td>ROA</td>
<td>MSDN</td>
<td>Does not influence positively</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BOPO</td>
<td>Negatively Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAR</td>
<td>Positively Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LDR</td>
<td>Does not influence positively</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simultan</td>
<td>Significant</td>
</tr>
<tr>
<td>Siagian dan Yasin (2008)</td>
<td>ROA</td>
<td>NPL</td>
<td>Negatively Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAR</td>
<td>Positively Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LDR</td>
<td>Does not influence positively</td>
</tr>
<tr>
<td></td>
<td></td>
<td>QR</td>
<td>Positively Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KAP</td>
<td>Does not influence negatively</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simultan</td>
<td>Significant</td>
</tr>
<tr>
<td>Riwayati, Fitriani, Prihatini &amp; Zisky (2011)</td>
<td>ROA</td>
<td>Core capital</td>
<td>Does not influence negatively</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LDR</td>
<td>Does not influence positively</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAR</td>
<td>Negatively Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simultan</td>
<td>Significant</td>
</tr>
</tbody>
</table>

Source: Researchers (2011)

5. Conclusion and Recommendation

Partially, core capital and LDR do not have significant influence on ROA of PT Bank Mandiri. Meanwhile, CAR partially has a significant negative influence on ROA of PT Bank
Mandiri. Moreover, simultaneously the three independent variables in this research ((core capital, LDR, and CAR) have a significant influence on the ROA of PT Bank Mandiri. The contribution of those three independent variables on the ROA of PT Bank Mandiri is 23.0 percent. The rest 77.0 percent is influenced by variables which are not discussed in this research.

Based on the result of the study, researchers suggest next study at the same field to consider other variables besides core capital, LDR, and CAR. There are some variables that have not been included in this study, such as Non-Performing Loan (NPL), Net Interest Margin (NIM), operating expenses and operating income (BOPO), inflation, exchange rate, money supply, and so on.

REFERENCES


