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ERROR CORRECTION MODEL OF WEIGHTED FINANCIAL RATIOS BANK FOREIGN EXCHANGE PERIOD 1998-2014

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ABSTRACT

This study aims to see how the average balance in the bank's financial ratios are: CAR, ROA, LDR, NPLs by using error correction model in some financial ratios that exist, the 10 foreign exchange banks in Indonesia. The ten banks including Bank BRI, Mandiri, BNI, BCA, DANAMON, PANIN, CIMB, BII, GEM, and BTN.

The data used in this study consists of four financial ratios of foreign banks during the financial reporting period 1998-2014. This study uses data analysis of data stationarity test, cointegration and Error Correction Model (ECM). From the research that has been implemented, it can be concluded that the data used in the study only 3 variables are stationary one another variable is not stationary. For the results of test cointegration models seen that the data cointegrated in the long term and significant with ECM models.

Keywords: CAR, ROA, NPL, LDR, Exchange Bank, stationarity test, cointegration test, ECM.

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I. BACKGROUND

Understanding financial ratios are financial analysis tools are most commonly used. Financial ratios connect to various estimates contained in the financial statements so that the financial condition and results of operations of an enterprise can be interpreted. According Simamora (2000) "ratio is a guideline which is useful in evaluating the company's financial position and operations and make comparisons with results from previous years or firms other companies".

Financial ratios indicate a systematic relationship in the form of a comparison between the estimates of the financial statements. In order for the calculation of financial ratios can be interpreted, estimates compared should lead to important economic relationship. Examples of comparisons that can not be interpreted is the ratio between the load supplies with the stock price due to the load equipment has nothing to do with factors that affect the company's stock price.

To be able to interpret the results of the calculation of financial ratios, it is necessary to benchmark. There are two methods of comparing financial ratios of the company according to Shamsuddin (2000), namely :

Cross-sectional approach

Cross-sectional approach is a way to evaluate by comparing the ratios between one company with similar company at the same time.

Time series analysis

Time series analysis is done by comparing the company's financial ratios from one period to another. Financial ratios are the main tool for financial analysis and has several uses. According Keomn, Scott, Martin and Petty (2005) "financial ratios can be used to determine the level of liquidity of the company, whether management is effective in generating operating earnings on the assets owned by the company, how the company is funded, whether ordinary shareholders receive returns sufficient",

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Volume 2, Issue 6, November 2015

There are several things that must be considered in using financial ratios as an analytical tool. These things will help the analyst in interpreting the results of the calculation of financial ratios to produce more accurate conclusions.

Some things to consider in using financial ratios as an analytical tool, as stated in Shamsuddin (2000):

1. A ratio alone can not be used to assess the overall operation has been carried out. To assess the state of the company's overall number of ratios should be assessed together. If it were only one aspect of who wants to be judged, then one or two will suffice ratio used

2. Benchmarking and need to be of a similar company and at the same time. It is not appropriate to compare the company's financial ratios A in 19X0 with the company's financial ratios B in 19X1

3. Should the calculation of financial ratios based on data audited financial statements (examined). Unaudited financial statements are still doubtful, so that calculated ratios are also less accurate

4. It is important to note that the reporting or accounting that are used should be the same.

Benefits of financial ratio analysis is very important. Financial ratios can be used to evaluate the company's financial condition and performance. By comparing financial ratios of the company from year to year can be studied composition and changes can be determined whether there is an increase or decrease in the condition and performance of the company during that time.

In addition, by comparing financial ratios for similar companies or against industry averages can help identify any irregularities.

Financial ratio analysis is generally used by the three main groups of users of financial statements that the company's managers, credit analysts and equity analysts.

The usefulness of financial ratios for the three main groups according to Brigham and Houston (2006) is as follows:

1. Managers, which apply ratios to help analyze, control, and then increase the

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Volume 2, Issue 6, November 2015

company's operations

2. Analysts credit, including bank loan officer and analyst bond ratings, which analyze ratios to help determine a company's ability to pay its debts

3. The stock analysts, who are interested in efficiency, risk, and growth prospects of the company.

From the above presentation, the authors draw the basic problems defined in this study as follows:

1. Is Variable Data Bank foreign exchange financial ratios are in use among the CAR, NPL, LDR, ROA for the period 1998-2014 is stationary and cointegrated?

2. Is Variable Data Bank foreign exchange financial ratios are in use among the CAR, NPL, LDR, ROA for the period 1998-2014 have balance within a period of study in doing it?

II. LITERATURE REVIEW

Several researchers have conducted research on Analysis of CAR (Capital Adequacy Ratio), NPL (Non Performing Loan), ROA (ratio of operational costs to operating income), ROA (Return on Assets) and NIM (Net Interest Margin) on LDR (Loan To Deposit Ratio). Nandadipa (2010) concluded that simultaneous independent variables; CAR, NPL, inflation, growth in deposits and Exchange Rate by F test, a significant effect on LDR. Results partially by t test, variable; CAR, NPL, Inflation, Exchange Rate Growth in deposits and a significant negative effect on LDR with a significance level of 0.000; 0,049; 0,005; and 0,030, while the variable deposit growth and no significant positive effect on LDR.

Research conducted by Pramod (2006) examined the effects of capital, liquidity

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Volume 2, Issue 6, November 2015

and efficiency of the provision of credit and the object under study is PT Bank Rakyat Indonesia (Persero) Tbk. , year 2001-2005 observations with good results CAR, GWM, BOPO partially negative effect on lending and that all three variables simultaneously both CAR, GWM, and ROA have a negative and significant impact on LDR.

Nasiruddin (2005) in his research on the effect of CAR, NPL, and the interest rate on bank credit to the LDR BPR in the working area of Bank Indonesia office in Semarang. Results from these studies indicate that demonstrated that CAR and signigikan positive effect on LDR, while NPL significant negative effect on LDR. Satriwati (2004) concluded that the variable CAR, ROA, ROA, and LDR simultaneously significantly affect the performance of the bank, but only partially BOPO variables that do not significantly affect the performance of the bank. The most dominant and is ROA.

Almalia (2005) investigated the factors that affect bankruptcy and financial difficulties. Variables used in this study is the CAR, APB, NPL, PPAPAP, ROA, NIM and ROA. The method used is multiple linear regression equation. The results indicate that CAR and ROA significantly to predict the condition of bankruptcy and financial performance on the banking sector. Lestari, et al (2007), examined the effect of inflation, the exchange rate against the US dollar and the SBI interest rate on bank financial ratio (ROA, ROE, LDR) year period from 2002 to 2006 observations specific to their effects on LDR, variable inflation, Value Rupiah against the US Dollar and SBI not significant effect on LDR.

Akhtar, et al (2011) examined the importance of company size, Networking Capital, Return on Equity, Capital Adequacy and Return on Assets (ROA), the Risk Management of liquidity in conventional banks and Islamic Pakistan found that CAR and ROA significantly positive affect bank liquidity , whereas ROE does not negatively affect the bank's liquidity significantly.

International Journal of Business Quantitative Economics and Applied Management Research

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Volume 2, Issue 6, November 2015

Islam, et al (2007) found that the ratio of profitability to have a greater impact on liquidity. For both banks, KPIs such as EPS, P / E ratio, ROE, ROA have an influential role in determining the level of liquidity.

III. RESEARCH METHOD

Data and Time Research

This study uses data average financial ratios CAR, ROA, LDR, NPLs from the period 1998-2014 in 10 foreign exchange banks in Indonesia. The ten banks including Bank BRI, Mandiri, BNI, BCA, DANAMON, PANIN, CIMB, BII, GEM, and BTN. The research was conducted by the author at the time of the beginning of October 2015-November 2015.

Research Approach and Scope of Research

In this study, researchers used a descriptive quantitative research approach, which aims to describe, record analysis, and interpret the conditions that are going on. So research with descriptive analysis can be obtained information about the current state of what is happening as well as the links between existing variables. The scope of the research around the conventional commercial banks and Islamic banks and Islamic units included in the statistical reports of Indonesian banks.

Population Data and Data Collection Methods

This study uses secondary data source of the financial statements of banks listed on the Indonesia Stock Exchange. Time series data (over time) used in the study include annual data began the period 1998 to 2014 period from foreign banks in Indonesia. The authors use the data population because of foreign banks in foreign banks is one of the banks in Indonesia which has the biggest asset.

Data Analysis Methods

The analytical method used in this research study to test the hypothesis that by

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Volume 2, Issue 6, November 2015

using Error Correction Model (ECM). Error Correction Model (ECM) is a model for correcting the regression equation between the variables that individually are not stationary in order to return to its equilibrium value in the long term (Ajija, et al, 2011).

The main requirement is the presence of ECM models use long-term relationship between the variables that are not stationary or also known as cointegration relationship. On the cointegration relationship is expected to be a mechanism that can restore the long-term variables at the point of equilibrium (Ariefianto, 2012).

To test whether there is a relationship cointegration, cointegration can be done by testing the residual approach. This residual testing to see if u from the regression equation is I (0). Then test the unit root in the residuals with Dickey Fuller test. Testing framework with critical values Johansen cointegration test.

The first stage Johansen method is to make sure all variables are I (1) and to test the shape of the Johansen cointegration assumed. The second phase is done by using the residual obtained from the first phase to be estimated in the error correction model (Ariefianto, 2012).

IV. RESULTS AND DISCUSSION

Stationary test

Stationary test is very important for the analysis of time series data, because the consequences if the data is not stationary, the spurious regression phenomenon (spurios regression). Of the stationary test result data by methods Augment Dickey Fuller (ADF) note that the five variables used in this study is not significant at degree level and should be re-tested stationary with the second test at the maximum degree of constan with 3 lags.

International Journal of Business Quantitative Economics and Applied Management Research

ISSN: 2349-5677
Volume 2, Issue 6, November 2015

Table 1: Results of Stationarity Test (Unit Root Test)

Variabel	Level	Prob.	ADF-test	Conclusion
CAR	Constan	0.6231	-1.239059	Not Stasionary
LDR	Constan	0.0246	-3.501942	Not Stasionary
NPL	Constan	0.6056	-1.278454	Not Stasionary
ROA	Constan	0.0032	-4.739584	Stasionary

Source: Results of Treatment EViews 8.0 (2015).

From the test results data at constant stationary, all the variables used in the study is not stationary at constan level. It can be seen from the ADF test probability value of each variable is greater than 0:05 and 0:10 ($\alpha = 5\%$ and $\alpha = 10\%$).

Cointegration test

Cointegration test is necessary to see there a long-term relationship between the NPL / NPF and four independent variables (GDP, CPI, BIR, and EXCHANGE) was conducted by Johansen cointegration test. Cointegration Tests performed on four variables are in use. Looks like in the table below:

Table 2: Results of Stationarity Test RESID02 Model NPL

Date: 11/15/15 Time: 07:23

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.993286	138.5298	47.85613	0.0000
At most 1 *	0.934706	63.47641	29.79707	0.0000
At most 2 *	0.553647	22.54364	15.49471	0.0037
At most 3 *	0.501556	10.44396	3.841466	0.0012

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Volume 2, Issue 6, November 2015

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Results of Treatment EViews 8.0 (2015).

Cointegration, earned value prob t-statistic of RESID02 at 0.0011 and 0.0037> 0.05, the results of probability and tarce test indicates that the four variables in meticulous data cointegrated at a rate of 5%, then Ho is rejected and declared RESID02 cointegrated, This means that there is cointegration or long-term relationship between the dependent variable and the independent variable on the model of the NPL.

Estimation Error Correction Model (ECM)

After conducting cointegration test and finds that there are cointegration or long-term relationship between the dependent and independent variables in the model NPL and NPF, then continue on its estimate on ECM. From the test results obtained by the regression equation ECM models and estimated as follows:

Table 4: Results of ECM Model CAR

Dependent Variable: D(CAR)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LDR)	0.707031	0.274774	2.573132	0.0244
D(NPL)	3.285054	1.331763	2.466696	0.0297
D(ROA)	1.315736	0.325004	4.048374	0.0016
C	0.907822	2.551208	0.355840	0.7281
R-squared	0.596957	Mean dependent var		3.690728

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Volume 2, Issue 6, November 2015

Adjusted R-squared	0.496197	S.D. dependent var	13.49055
S.E. of regression	9.575471	Akaike info criterion	7.568604
Sum squared resid	1100.276	Schwarz criterion	7.761752
Log likelihood	-56.54883	Hannan-Quinn criter.	7.578495
F-statistic	5.924512	Durbin-Watson stat	2.254856
Prob(F-statistic)	0.010163		

Source: Results of Treatment EViews 8.0 (2015).

In the estimation of ECM known that simultaneously the three independent variables that affect the dependent variable the NPL. This can be demonstrated with a probability value of the F-statistic of 0.010> 0.05 (α = 0.05). Can also be said that the variable LDR, NPLs, ROA affect the CAR together, with the first difference models.

From the test results obtained CAR ECM on the model and estimated regression equation as follows:

Substituted Coefficients:

==========

D(CAR) = 0.707030932181*D(LDR) + 3.28505390914*D(NPL) + 1.31573616878*D(ROA) + 0.907821504637

ECT coefficient value of the absolute value is less than one, is positive and significant coefficient indicates that ECT is less valid. The magnitude of the error correction of -0.9078 indicates that the mismatch between long-term and short-term that can be corrected in the first quarter amounted to 90%.

V. CONCLUSION

From the research that has been done shows how the four variables that are made in the measuring instrument research data is not stationary and cointegrated in the

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long term, while the model with ECM seen that the four variables used significantly by level significance alpha in use 5% , It concludes that the model that is in use is valid.

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Volume 2, Issue 6, November 2015

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