SUMMARY

SETIAWAN ABADI. Sensitivity Analysis of Indonesian Banking Sectoral NPL toward Macroeconomic Factors Changes. Supervised by NOER AZAM ACHSANI and DWI RACHMINA.

Banking sector in Indonesia has an important role as pillar of national economic growth through intermediation function. The growth supported by bank lending activity which disbursed in ten economic sectors, such as agriculture, mining, industrial, electrical, construction, trade, transportation, and services. However, bank’s businesses inhered with risks, and the main one is credit risk. NPL ratio reflects the Bank’s credit risk. The higher credit risk faced by the Banks, the higher the NPL ratio they have. NPL movement can be determined by internal factors, such as internal policy, people, etc and external factors for instance macroeconomic variables changes, such as interest rate, exchange rate, Consumer Price Index (CPI), etc.

This study focused on NPL sensitivity analysis triggered by macroeconomic changes, both in the aggregate level and per economic sectors, as well as to see which macroeconomic variables were significant to influence the NPL. Macroeconomic variables that been used in this study were BI rate, CPI, nominal exchange rate (USD/IDR), import, broad money supply (M2), and the Industrial Production Index (IPX), sources from BI and BPS. This study used monthly data from January 2003 to December 2013.

NPL sensitivity analysis in this study is using Vector Auto Regression (VAR) / Vector Error Correction Model (VECM). The VAR/VECM will include the analysis of granger causality, Impulse Response Function (IRF) and Forecast Error Variance Decomposition (FEVD). IRF is used to analyze the relation between NPL and macroeconomic variables and assess the sensitivity of each model NPL meanwhile FEVD is used to analyze the dominance of macroeconomic variables that affect the level of NPLs both in aggregate and per economic sector.

The results from pre-model testing showed that all models eligible for analysis using VECM (there were found some cointegration equation or long-term relationship between NPL and macroeconomic variables) and quite stable based on 1-month lag with R-square range of 10 to 55%. From the result, it was found that there were interdependent granger cause relationship between NPL and interest rates in particular for Agriculture, Mining, Electricity, Business services and Others sectors. In addition, there were interdependent granger cause relationship between NPLs in the Manufacturing sector with the Industrial Production Index (IPX) and also NPL in Agriculture sector with imports.

Based on the NPL VECM models, it was found that the BI rate shown positive relationship with the NPL in all economic sectors, which indicates that both variables are highly related. IPX, CPI and M2 are variables that generally shown positive relationship with the NPL, except in certain economic sectors. Results also showed negative relationship between NPL with exchange rates and import. Different results with the initial hypothesis were found in this study. There are two variables, which are IPX and exchange rate that shown opposite
association but still in line with some previous study. We may conclude that IPX were not a good variable to explain the movement of NPL either aggregate and per economic sector, except Social services and Manufacturing sectors. Exchange rate variable shown dualism result and it was confirms with some previous studies.

Several economic sectors showed a high degree of sensitivity to macroeconomic shocks. Mining sector is the sector that highly sensitive to interest rates shock, while Agriculture and Electricity, gas and water sectors were sensitive to interest rates and IPX. Social services was the sector that responsive to all macroeconomic variables that been used in this study, while the Business services and Others sector were not responsive due to macroeconomic shocks.

BI rate were the most contributed variables to NPLs movement, both in aggregate and as per economic sector. IPX and imports were variables that also contributed to the NPLs movement in some economic sector, meanwhile CPI shown insignificant contribution to NPLs movement both in aggregate and per economic sector.

In general, the results of this study have provided a brief overview of the relationship of macroeconomic variables shocks and NPL either in aggregate level or as per economic sector. These results were expected to be used as input for all stakeholders, especially related to the managerial implications for practitioners such as bankers, businessman, regulators or policy maker and other parties.

Recommendation that is given related to direction of the loan disbursement when there is an economic shock event happened. Some economic sectors that were responsive to macroeconomic shocks are limited or even avoided, while the economic sectors that were not responsive or sensitive to macroeconomic shock can be considered. Recommendation that is given related to the development for future study were using the latest definition of the economic sectors (18 economic sectors), specific credit scope, such as retail, mortgage, car loan or even specific segments such as credit card. This can be done to clarify the more specific relationship between the NPLs with macroeconomic variables, considering the characteristics of the segmentation from specific credit.

Keywords: NPL, VECM, sensitivity, economic sector, macroeconomic