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The Impacts of ALMA Primary Variables on Profitability An Empirical Study of Indonesian Banking

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ABSTRACT

This study aims to determine the impact of liquidity on BEP and ROE in Indonesian banking industry. The supporting theory in this study is ALMA theory. Based on annual data for the period 2001-2014 and following purposive sampling technique, the acquired amount of sample study is 97 banks. The data is analyzed using panel data regression of GMM Arrelano Bond, as a novelty in data processing, therefore the speed of adjustment can be known. The ALMA variables such as LAR, capital, leverage, operating expenses, interest income, and CAR sensitivity have a significant effect on BEP and ROE. Meanwhile LDR, NPL, the FBI have no impact on profitability. The implication of this study is the fact that banking performance in Indonesia can be leveled up through the reduction in mortgage interest rates and increment of credit volume and FBI.

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INTRODUCTION

Indonesian Statistic Banking reported that during the period of 2001-2014 the ALMA indicators of Indonesian banking is in the proper conditions. This can be seen from the dynamic development of asset-liability structure and the integrated banking earnings structure in the behavior and performance of the banking management of which is growing rapidly. The national banking assets showed the total assets increased significantly over the period

of 2001-2014. In 2001, the amount of total assets reached 1,099,699 billion, then it rose to 1,469,827 billion (2005). In 2010, the amount of total assets increased to 3,008,853 billion and by the end of 2014 it finally reached 5,615,149 billion.

Furthermore, in terms of its asset structure, LAR ratio (loan to asset ratio) that describes the proportion of the volume of bank credit in the assets, which only reached 28.7% (2001), then it

increased to 47.3% in 2005. In 2010, LAR ratio is at 56.9%, and at the end of 2014 it rose again to 62.8%. This indicates that the performance of banks is in the form of lending increased both in nominal and proportional, although it still needs to be improved. The non-credit productive assets proportion has a decline. In 2001, the value of non-credit productive assets reached 66.57% (from the value of total assets in current year). In 2005, it fell to 43.82%, then in 2010 it dropped again to 34.96% until at the end of 2014 it fell further to 26.32%. This indicator gives information of the allocation of financial resources from non-credits productive assets to loan.

Unexpectedly, the growth of non-productive assets had an increment. The proportion of non-productive assets in 2001 was only 4.69%, and it became 8.85% in 2005, while in 2010 declined again to 8.18%. Finally, in the end of 2014, it increased to 10.88%. This indicates in the assets growth, the national banking still needs the portfolio assets to be optimized.

From the financial structure, it can be seen the TETA (the proportion of total equity in bank assets) ratio had an increment. In 2001, TETA reached 5.06% while in 2005 it increased again to 6.79%. In 2010, TETA reached 10.91%. In the end of 2014, it finally increased again to 12.86%. Then, from the point of view of funding activity, there is an increment in nominal. However, from the DTA (deposit proportion in assets) point of view, there is a decline. In 2001, DTA was at 87.06%. In 2005, it dropped to 79.33%. In 2010, DTA reached 75.59%. Finally, in the end of 2014, TA increased to 70.23%. Meanwhile, DP2TA (proportion of second party fund of assets) had an increment. In 2001, DP2TA was at 7.87%. In 2005, it reached 13.87%. However, in 2010 it declined slightly to 13.49%. Finally, in the end of 2014, it increased again to 16.91%. This financial structure of bank condition gives the information that Indonesian banking has a good achievement of its performance in distributing the fund from surplus unit. The management of Indonesian banking also has a good achievement

of its solvability.

Based on the profit and loss of national banking, the total revenue (operational income) has an increment. In 2001, the total revenue was only at 152.435 billion, then in 2005 it increased to 177.377 billion. In 2010, it reached 350.873 billion and in the end of 2014 it increased to 716.452 billion. Based on the structure, the interest income still dominated the total revenue. In 2001, the II/REV ratio (proportion of interest income of total revenue) reached 84.2%. In 2005, it dropped to 75.27%. In 2010, it decreased again to 71.69%. The other proportion of total revenue is fee based income. This indicates that Indonesian banking still depends on the primary income, which is operating income. Meanwhile fee based income still has the small role in Indonesian banking.

The structure of profit shows the proportion of interest expense, overhead cost, and operating profit which are calculated by the total revenue. In 2001, IE/Rev (proportion of interest expense of total revenue) is at 59.36%, while the NIE/Rev (proportion of non-interest expense of total revenue) is at 39.11%. The other is operating profit which was at 1.49%. In 2005 the IE/Rev dropped to 35.27% while NIE/Rev also increased to 53.04%, then the operating profit increased to 11.68%. In 2010, the IE/Rev dropped again to 29%, while NIE/Rev increased again to 57.22%, then operating profit increased to 13.77%. In the end of 2014, IE/Rev increased to 41.01%, NIE/Rev dropped to 38.92%, operating profit increased to 20.05%. This indicates that management of banking industry can increase profit margin by utilizing the efficiency of operational expense.

To maintain and protect Indonesian banking industry, Bank Indonesia as the central bank and the supervisor has the policy of banking industry future development which is stated in API (Indonesian Banking Architecture). The API program is based on the vision to reach a healthy banking system, powerful, and efficient in order to

create the financial system stability and to help the national economic growth.

Nowadays, Bank Indonesia use two approaches of supervision, which are compliance based supervision and risk based supervision (RBS). The existence of the RBS approach does not mean ruling out based compliance approach, it tends to focus on enhancing surveillance systems therefore it can improve the efficiency and effectiveness of banking supervision.

The management of assets and liability (ALMA) is the banking control system which aims to reach one of banking objectives which is creating stability of financial system. ALMA also becomes the main focus in every banking management. Even Bank for International Settlement (BIS) has adopted ALMA principles into CAMELS (Capital Adequacy, Assets Quality, Management Quality, Earnings, Liquidity, Sensitivity to Market Risks). CAMELS is already used on international banking industry in controlling banking system. It focuses on management control of capital, assets, profitability, liquidity, and sensitivity in facing the market volatility.

If a bank does not concern about ALMA principles in its operational activity, then it is expected to have a bad performance. Applying ALMA principles in operational banking makes management can anticipate the volatility changes of level of market interest, structure of funding sources, increment of capital requirements, tighter competition, the development of information systems, the increasing role of banks, the availability of funds in the money market, changes in the composition of bank assets, the increment of performance, and increment of overhead costs.

The objective of ALMA is to make the portfolio consistent, coordinated, and integrated from the side of assets and liability in order to maximize profit so the management decisions of assets and liabilities can be integrated.

The ALMA dilemma or the main problem of banking management in ALMA implementation is how to solve the dilemma between liquidity and safety along with the ability of bank to increase profit. It is called liquidity safety versus earnings which is related to trust. A bank can be operated from the trust of citizen, the bigger the trust the bigger the existence of bank in the industry.

The trade-off between liquidity with profitability is based on the argument than investment in short-term funding gives the opposite effect to liquidity and profitability. Even though the investment in liquid assets can increase the liquidity, but it can not generate the profit as much as the investment in fixed assets. Then, even though the funding which comes from the liquid liabilities is cheap and more promising from the profit, but it has a higher risk. Based on this condition, the implementation of ALMA becomes a significant thing in banking operational management. If a bank does not concern on the trust development and always tends to reach higher profit, then the bank is in the state of wrong governance.

The wrong banking liquidity management will make a liquidity crisis. The signs of that condition is the percentage of LDR reach 100%, becomes a money centre bank, compliance to reserve provision (should be greater), excessive credit expansion, the weakening of the management of secondary reserve, and evergreen loan.

The liquidity risk is not only impacting the performance, but also affects the reputation (Jenkinson, 2008). A bank can lost the trust from depositors of the fund is not distributed on time. The bad liquidity position can make the regulators have sanctions. Therefore, the management should maintain the liquidity position to be in the right track. Akhtar (2007) stated that the liquidity risk has became the main focus and challenge for the modern bank. The tight competitiveness in attracting depositors, the product variances using technologies, those thing change the structure of

funding management based on the risk. Crowe (2009) stated the bank which has the good assets quality, strong income and adequate capital, may fails if it can not maintain the liquidity.

The danger of this mismanagement is the liquidity crisis. It a reputation that was built since many years prior can suddenly crumble only in a day simply because the bank is unable to meet the obligations in the maturity day. Why does this happen? Because liquidity is the trust. Liquidity management is the most fundamental thing for the banks, but top management often forgets about it because the always tends to make a large profit for the short term.

From the empirical data and observations on the condition of the banking ALMA Indonesia and relevant empirical studies on bank liquidity conditions and implications, this research constructs three questions of the research, which are (1) how is the developments of asset-liability structure of Indonesian banking during the period of 2001-2014; (2) how is the development of the condition of the revenue structure and profit structure of Indonesian banking during the period 2001-2014; (3) What is the impact of liquidity and other ALMA variables on profitability achievement of individual banks?

ALMA Theory

Siamat (2006) defines ALMA as the coordination of mutual relations conducted in an integrated manner between the two sides of bank balance sheets and the decisions based on short-term plans. Raflus (1996) defines ALMA as a process of planning and supervision of banking operations were carried out in a coordinated manner and consequently to always pay attention to the factors that affect bank operations both from external and structural factors of internal bank.

From both these definitions, it can be interpreted broadly that ALMA is an asset management policy of the bank to consider the condition of liabilities,

and vice versa. Policy making and management strategies from one side of element bank balance sheets will affect the other side. The decisions concerning the management of the bank's assets and liabilities will lead to overall framework of the interests of both sides of the balance sheet management portfolio to achieve maximum revenue to always consider acceptable risk (risk versus return optimality). In this case, the risk faced is the interest rate risk, credit risk, and liquidity risk. Interest risk will affect the net interest spread. Banks needs to organize assets and liabilities based on the level of purposes.

Strategies in facing the assets sensitivity and liabilities on interest rate can be done by increasing the current interest rate, therefore the main priority is floating rate assets. By contrast, in the liabilities side, the main priority is the fixed rate liabilities. When the interest rate reaches the peak, the main priority is the fixed rate assets. By the time the interest rate tends to decrease, then the main priority is fixed rate assets and floating rate liabilities. When current interest rate is at low position then the fixed rate liabilities position becomes the priority.

In the banking theory, ALMA is the essence of banking management. ALMA is a series of actions and procedures designed to control financial position. Issues of safety and health is an important part of this definition. Thus, the purpose of ALMA is to maintain the health of the banks which can be measured by CAMEL and anticipate to external changes relating to inflation and interest rates as well as changes in the currency exchange rate (Ali, 2004). In addition, ALMA is directed to a bank for obtaining the optimal net income for the bank. With a proper control over the assets and liabilities of the bank, it is expected to earn revenues from such activities. This statement is in line with the statement of Antonio (2001) that the focus of management of assets and liabilities is to coordinate portfolio asset-liability of banks in order to maximize profits and it can be distributed

to the shareholders in the long term by considering the liquidity needs and carefulness caution.

Goedken (2012) stated ALMA is an important part and one of the «Top Three» in the process of financial management. Top Three consists of long-term planning, ALMA, and budgeting. ALMA is needed in setting goals, policies, measurement systems, and the development of the bank's strategy. The success of management will be determined by the management discretion in managing portfolio from assets side in order to generate optimal interest income.

Back to the basic understanding of banking which states the bank was essentially an intermediary between depositors and investors. The public savings accumulated in the bank will only be useful if it is invested. Customers want to save their money in the bank because he believed that the bank can choose an attractive investment alternative. In this case the role of the concepts and principles of economic and financial management managerial is important to help corporate in decision-making. The process of selecting investments must be done carefully. An error in the selection consequences will make investment bank can not meet its obligations to customers. Therefore, in general, banks coordinate these functions through asset-liability management committee or ALCO.

ALMA in the version of CAMEL

Bank Indonesia in accordance with PBI No. 6/10/PBI/2004 concerning the Rating System for Commercial Banks, the relevant bank for internal purposes and Bank Indonesia for the purposes of assessing the supervision of the Bank that are not publicized to the general public. The health of banks is the result of an assessment of the various aspects affecting the condition or performance of a bank through an assessment of quantitative and qualitative assessment of the capital factor, asset quality, management, earnings, liquidity and sensitivity to market risk (CAMELS).

Capital aspect. The assessment of the capital factor referred to include an assessment of these components: (a) Sufficiency, composition, and projections (future trends), capital and the ability to deal with troubled assets. (b) The ability of banks to meet the need for additional capital from earnings, the bank's capital plan to support business growth, access to sources of capital, and financial performance of shareholders to increase the bank's capital.

Assets quality. The assessment of asset quality factor as referred to include an assessment of these components: (a) Quality of productive assets, concentrations of credit risk exposure, the development of earning assets, and the adequacy of the allowance for earning assets ; (b) The adequacy of policies and procedures, the review system (review) internal, system documentation, and performance of handling earning assets.

Management. The assessment of the factors referred to management includes assessment of these components: (a) The quality of general management and risk management; (b) Bank compliance with applicable provisions and commitments to Bank Indonesia or other parties.

Earning (Profitability). The assessment of earning factors include an assessment of these components: (a) The achievement of return on assets (ROTA), return on equity (ROE), net interest margin (NIM), and the level of efficiency of the Bank; (b) The development of operating profit, income diversification, application of accounting principles in the recognition of revenues and expenses, and operating profit prospects.

Liquidity. The assessment of the liquidity factors include an assessment of these components: (a) Ratio of assets/liquid liabilities, the potential of maturity mismatch, the condition of the Loan to Deposit Ratio (LDR), cash flow projections, and the concentration of funding; (b) The adequacy of policy and liquidity management (assets and

liabilities management /ALMA), access to funding sources and funding stability.

Sensitivity to market risk. The assessment of sensitivity to market risk factors include an assessment of these components (a) The ability of bank capital to cover potential losses as a result of fluctuations (adverse movement) interest rate and exchange rate (b) the adequacy of market risk management.

Bank Liquidity

Liquidity of the bank is the bank's ability to meet its obligations, especially short-term funding obligations. In terms of assets, liquidity is the ability to change the entire assets into cash, whereas in terms of liabilities, liquidity is the ability of banks meet funding needs through increment of liability portfolio.

In the short term, the tool to measure liquidity is statutory reserve requirement, current accounts in BI (Bank Indonesia) or liabilities to third parties of two weeks in advance, and basic surplus or current assets minus current liabilities. While in the for the long term, liquidity measurement tool is usually the liquidity ratios: new purchased funds required/ total funding requirements, Liquidity Index = Total weighted liabilities / total weighted assets, Loan to deposit ratio (LDR) = loans / Deposits. Liquidity management strategy: skill managers and MIS (management information system).

Profitability

The types of profitability ratios are usually GPM (Gross Profit Margin); NPM (Net Profit Margin), ROI (Return on Investment), ROE (Return on Equity), EPS (Earning per Share), and BEP (Basic Earning Power). Among all the profitability ratio which is pure profitability is basic earning power. This ratio shows the ability of the company's profitability measured by the number of operating earnings before deducting interest and taxes to total assets. The larger the ratio indicates the better efficiency. Brigham and Houston (2010) states that RE shows

the basic ability to generate operating profit of the total assets of the company, this figure is useful in comparing companies with different tax situations. The assessment approach to quantitative and qualitative factors bank profitability can be done through an assessment of the components of Return on Assets (ROTA), Return on Equity (ROE), Net Interest Margin (NIM) or Net Operating Margin (NOM), and Operating Cost compared to Operating Income (CIR).

Dendawijaya (2009) stated ROTA is used to measure the ability of the bank's management to obtain an overall profit of the total assets owned. Bank Indonesia (BI) assesses the achievement bank ROTA into 5 ratings. Rating 1: criteria: $ROTA > 1.5\%$; Rank 2: $1.25\% < ROTA \leq 1.5\%$; Rank 3: $0.5\% < ROTA \leq 1.25\%$; Rank 4: $0\% < ROTA \leq 0.5\%$; Rank 5: $ROTA \leq 0\%$; (Source: Circular Letter No. 6/23 / DPNP 2004).

Walsh (2004) stated ROE measures the absolute returns that will be given to the bank's shareholders. The company's performance (ROE) will bring great success for the company that caused the stock price and make the company can easily attract new funding.

In this study, the banking profit is proxied by two profitability ratios, which are BEP and ROE. Return On Equity (ROE) is a financial ratio used to measure performance because it describes the yield received by the owners of the activity of banking operations (Cole, 1972; Kalluci, 2011; Koch & MacDonald, 2009). The achievement of this ROE is composed by other factors that influence it, so that a ROE decomposition will be done.

Gitman (2009) stated the advantage of Du Pont System is enabling companies to break down ROE into profit on the sale of components (Net Profit Margin), the efficiency of the use of components of assets (Total Asset Turnover), and the use of financial leverage components (Financial Leverage Multiplier). Net Profit Margin (NPM) is

used to show the net profit on the sale. Total Asset Turnover (TATO) is used to indicate the level of effectiveness of the company in the use of the entire assets of the company in generating specific sales. Financial Leverage Multiplier (FLM) is used to measure the use of debt and equity to fund the assets owned by the company. The use of Du Pont System is able to provide an overall picture of the performance of a company and allow determine possible improvements.

The Previous Researches

Alper and Anbar (2011) examined the determinants of bank specifications and macroeconomic conditions affecting the profitability of commercial banks. The dependent variable used is the ROTA and ROE, while independent variables covering Liquidity, Size (Assets), Capital Adequacy, Asset Quality (LA, LFA), Deposits, Income Expenditure Structure (NIM, NII), Economic Activity, Inflation, Interest rate. The study's findings indicate that the Size and NII have a positive significant relationship with ROTA. While assets quality (earning assets) has a significant and negative relationship with ROTA.

Javaid, et al., (2011) examined the internal factors that affect the bank's profitability. The dependent variable used is ROTA while the independent variables used were TL/TA, Size (Assets), Capital (TE/TA), and TD/TA. The samples are 10 banks in the period of 2004-2008. The analysis tool used is POLS (Pooled Ordinary Least Square). The results showed that size has a significant and negative effect on ROTA. Then, capital and Portfolio Composition have a significant and positive effect on ROTA. While the TL/TA does not affect ROTA.

Khravish (2011) examined the factors affecting the performance of banks by using ROTA and ROE as dependent variable. The independent variables used are TL/TA, Size, Capital (TE/TA), NIM, GDPGR, INF, Exchange Rate (ER), L/TA. The model using Multiple Linear Regression. The results show that the Size, TL/TA, Capital, NIM, ERS have a

significant positive relationship towards ROTA; whereas GDPGR and inflation have a significant and negative relation to ROTA. Size, L/TA, NIM, TL/TA, ER have a significant and positive effect on ROE, while GDPGR and inflation have negative and significant effect on ROE.

Ali and Akhtar (2011) examined the impact of bank specifications indicator and macroeconomic factors on profitability. The dependent variable used are the ROTA and ROE, while independent variables include the CR (Credit Risk), Capital, AM (Asset Management), Size, Operating Efficiency, Portfolio Composition (TD / TA), GDP, CPI (Consumer Price Inflation). The study's findings indicate that Size, ROA, and Portfolio Composition have positive (but not significantly) on ROTA. Asset Management and GDP have a significant and positive relationship with ROTA. Capital, Credit Risk, and CPI have a significant and negative relationship with ROTA. Size and Credit Risk have a negative effect (but not significantly) effect ROE. Meanwhile Capital and Portfolio Composition have positive (but not significantly) affect ROE. CIR has a significant and negative relationship on ROE, while asset management and GDP have a significant and positive effect on ROE.

Ayaydin and Karakaya (2014) and Sukma (2013) found out that DPK has a significant and negative relationship on profitability. The other research also examined the implication of LDR on profitability. Aremu et al., (2013), Rachmawati and Herath (2013) also found that the variable LDR partially does not significant to the profitability of banks.

Research on the influence of capital adequacy ratio on profitability also showed different results. Eng (2013), and Aremu et al., (2013) found that the CAR does not significantly affect bank profits. While the findings of Parera et al. (2013), showed CAR has significant and positive effect on the profitability of banks in the countries of South Asia. The study is in line with Davydenko (2010). Then, the research Lee and Hsieh (2013) and Ayaydin

and Karakaya (2014) found a significant negative relationship between CAR and profitability.

Rahman et al., (2012) examined the determinants of profitability using total loans to total assets, Size (Asset), Capital (Total equity to total assets), Portfolio Composition (total deposits to total assets) as the variable independents. The analysis technique is regression analysis. The result showed size has negative and significant effect on ROTA, while capital and portfolio have positive and significant effect on ROTA. Then, TL/TA does not have significant effect on ROTA.

Syafri (2012) examined the factors that affect the profitability of Indonesian banking. The dependent variable used is ROTA and independent variables are L/TA, Size (Size banks), Capital (TE/TA), Credit Risk (LLP/TL), NII, Operational Efficiency (ROA), Inflation, GR (Economic Growth). The model used is the fixed effect regression model. The results showed a profit of banks affected by loans, total equity, inflation, and efficiency (CIR). Loan and Capital have a significant positive relationship towards ROTA, while CIR and inflation significantly affects ROTA. For the size of banks and the credit risk is also significant to ROTA but it is contrast with the theory. The economic growth is not significant and NII affects profitability.

Conceptual Framework and Research Hypothesis

Conceptual Framework

To illustrate the conceptual framework of the link between liquidity and bank profitability see and refer to Figure 1. The figure is built based on principles of thought which is the essence of banking concept of ALMA, CAMELS and the findings of previous relevant research.

From this conceptual framework, it can be seen that profitability would be proxied by BEP and ROE which are the impact of the behavior of bank management to assets, liabilities, liquidity, and control of revenue- cost banking..

Research Hypothesis

The basic concept of relationship between variables ALMA with profitability is the ALMA theory itself. The behavior of ALMA aims to optimize the profit of banks, considering the trade-off between risk and return. The development of hypotheses based on consideration of the results of previous studies.

METHODS

Data and Research Variabel

Type of Research

This study is applied for the purpose of this applied research because the research that has been

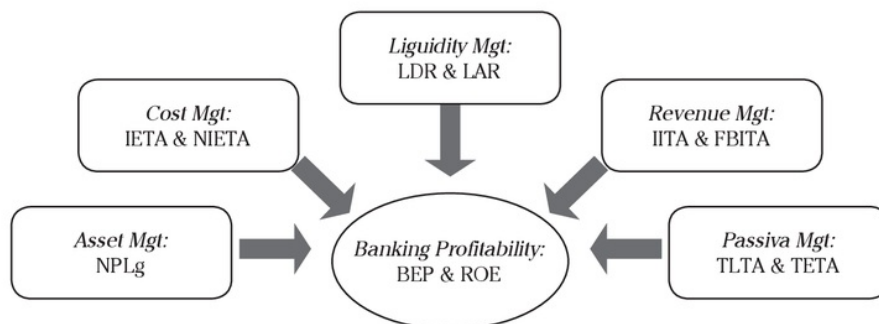


Figure 1. Determinant Concepts of Profitability Based on ALMA

Table 1. Resume of Research Hypothesis

	Hypothesis	References
H1	<i>LDR (Loan to Deposit Ratio)</i> has positive effect on profitability	Victor <i>et al.</i> , (2013)
H2	<i>LAR (Loan to Asset Ratio)</i> has positive effect on profitability	Bourke(1989); Primasari (2013)
H3	<i>DTA (Deposit to Total Asset)</i> has positive effect on profitability	Rahman, (2012) and Javaid. <i>et al.</i> , (2011))
H4	<i>NPL (Non Performing loan)</i> has positive negative effect on profitability	Jumono S, et. al (2015)
H5	<i>TETA (Equity to Asset Ratio)</i> has positive effect on profitability	Rahman, <i>et al.</i> , 2012); Javaid, <i>et al.</i> , (2011)
H6	<i>FBI/TA (Fee based Income/Total Asset Ratio)</i> has positive effect on profitability	Sufian and Chong (2008) ;
H7	<i>II/TA (Interest Income to Asset Ratio)</i> has positive effect on profitability	Davies (2011); Mujeri (2008)
H8	<i>OCTA (Overhead Cost/Assets)</i> has negative effect on profitability	Guru <i>at., al</i> (2003) Sufian (2011)
H9	<i>IETA (Interest Expenses/Assets)</i> has negative effect on profitability	Paul and Lee (2012); Flamini (2012)

there before and then developed theoretically. This study also an explanatory research because it aims to explain the causal relationship between variables by testing the hypothesis (Cooper and Emory, 2004).

Research Object

The object examined in study is the banking industry in Indonesia. The subjects were individual banks in the category of commercial banks throughout Indonesia. The material under study is the focus of market information and financial information included on the balance sheet and comprehensive income of the company. Aspects studied include the development of the credit and deposit market structure, behavior ALMA, and the performance of the banking industry in Indonesia. Data used in this study is mostly secondary data from published financial statements of the bank information sourced from BI (Bank Indonesia), the World Bank, BPS, and the Indonesian Banking Statistics (IBS) for the period 2001 to 2014. The

data collection was done by documentation of secondary data from market information and the financial statements of the banking industry and banking statistics of Indonesia.

Sampling Technique

The population of this study includes commercial banks which operate in Indonesia in the year of 2001-2014. The sampling technique is non-random sampling with the method of purposive sampling. The main criteria of sampling officially listed in BI (Bank Indonesia) and the financial statements are complete from 2001 to 2014. The other criteria are the bank does not merger with the other bank, the bank is not Islamic banking (dual banking can be included), the bank has not a doubtful data.

Specification Model

To make the relationship pattern between market concentration with profitability, the econometrics of ROE model is shown as below:

$$\begin{aligned}
 ROE_{it} = & \lambda_0 + \lambda_1 ROE_{i,t-1} + \lambda_2 LDR_{it} + \lambda_3 LAR_{it} \\
 & + \lambda_4 NPLg_{it} + \lambda_5 TETA_{it} + \lambda_6 DTA_{it} + \lambda_7 IETA_{it} \\
 & + \lambda_8 OCTA_{it} + \lambda_9 IITA_{it} + \lambda_{10} FBITA_{it} \\
 & + \lambda_{11} Sensitivity_{it} + e_{it} \quad (1)
 \end{aligned}$$

To make the relationship pattern between market concentration with profitability, the econometrics of BEP model is shown as below:

$$\begin{aligned}
 BEP_{it} = & \beta_0 + \beta_1 BEP_{i,t-1} + \beta_2 LDR_{it} + \beta_3 LAR_{it} + \beta_4 NPLg_{it} \\
 & + \beta_5 TETA_{it} + \beta_6 DTA_{it} + \beta_7 IETA_{it} + \beta_8 OCTA_{it} \\
 & + \beta_9 IITA_{it} + \beta_{10} FBITA_{it} + \beta_{11} Sensitivity_{it} + e_{it} \quad (2)
 \end{aligned}$$

where the symbol *i* indicates individual banks, while *t* is the year; BEP = Basic Earning Power; ROE = return on equity; LAR = portion of bank loans in assets; DTA = portion of TPF (third party fund) in individual asset bank LDR = Loan to Deposit Ratio; Capital adequacy = TE/TA ratio; Non Performing Loans (gross) = NPL; IITA = the

percentage of bank interest income of the bank's assets; FBITA = the percentage of fee based income of the bank assets; IETA = percentage of bank interest expenses of the bank's assets; OCTA = percentage Overhead Cost/Asset; Sensitivity = The excess of CAR which is above 8%;

Research Variables

Operational definitions of the variables in the study are based on the definition of the concept that has been modified on the objective circumstances that have been commonly used in previous studies and adapted to Indonesian banking conditions.

RESULTS AND DISCUSSION

Description of ALMA in Banking Industry

Earning Assets

Assets quality specifies the quality of assets in connection with the credit risk faced by banks as a result of lending and investments in different

Table 2. Operational Definition Variables, Definitions, and Measurements

Variables		Definitions/ Measurement/Formula	Notation	Expectation	
DEPENDENT VARIABLE	Profit (t)	• Profit _(t)	v Operating Income / Assets (%)	BEP _{it}	
			v Net Income / Equity (%)	ROE _{it}	
	Profit (t-1)	• Profit _(t-1)	v Operating Income /Assets of the prior period (% ,lag1)	BEP _{it-1}	+
			v Net Income / Equity of the prior (% ,lag1)	ROE _{it-1}	+
		• Liquidity	v Loan to Deposit Ratio (%)	LDR	+
		• Proportion of Credit	v loan/Total Asset (%)	LAR	+
		• Proportion of Deposits	v Deposit/Total Asset (%)	DTA	+
		• Assets Quality	v Non Performing loan (%)	NPL	-
		• Capital	v Equity/ Asset (%)	TETA	-
		• Diversication Income	v Fee based Income/Asset (%)	FBITA	+
		• Interest Income	v Interest Income /Asset (%)	IITA	+
		• Non Interest Expenses	v Overhead cost /Assets (%)	OCTA	-
		• Interest Expenses	v Interest Expenses /Assets (%)	IETA	-
		• Sensitivity	v Excess CAR = CAR-8%	Sensitivity	+

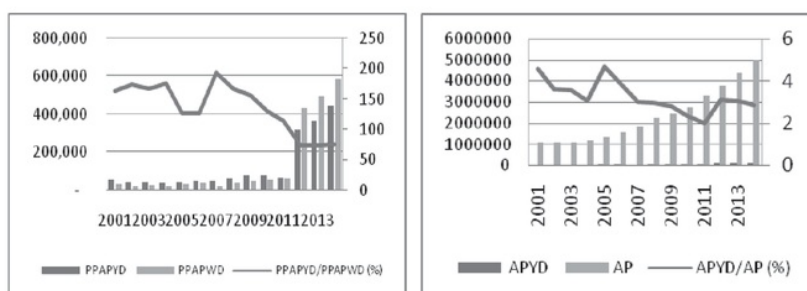


Figure 2. The Development of Assets Quality in Indonesian Banking
 Source: Indonesian Banking Statistic

portfolios. Assets Quality can be measured by PAWR/MPAWR. PAWR is Productive Asset Write-off Reserve, while MPAWR is Mandatory Productive Asset Write-off Reserve.

The Allowance for Earning Assets formed by banks (MPAWR) on Earning Assets which shall be established by bank is an indicator of the readiness of the banks in the face of a credit problem. The CEA (Classified Earning Assets) are either already earning assets and that are potentially unproductive or resulting the losses. CEA/EA Ratios among others calculated by comparing CEA to EA, expressed in percentage during the period 2001-2014 showed a decline. The ratio of CEA/EA looks smaller and it does not exceed 5%. The decline of CEA proves that quality management assets per banking increased quality (see Figure 2 on the right).

The assets quality in terms of reserves dropped to the limit of 100%. Considering the Figure 2 on the left, the ratio of PAWR/MPAWR in the period of 2001-2014 showed a downward trend. The ratio of PAWR/MPAWR Indonesian banks is above 100% in the period of 2001-2010, which means that the allocation of funds into PAWR exaggerated than they should. After the period of 2011-2014, the ratio of PAWR/MPAWR dropped at 50% which means the allocation of funds into PAWR less than it should be.

The non-performing loans (NPL) represent the percentage of loans that can not meet principal and interest payments or credits that do not generate revenue for the bank. NPL in the bank reflects the bank's ability to manage credit and risk management in the lending process. Bank Indonesia expects NPL has a value maximum of 5% for each commercial bank, while the ratio of PAWR against MPAWR must be greater than 100 %.

Capital and Funding

Liability management of banks aimed at minimizing the cost of interest on the funds raised. In practical, liability management is a process where the banks are trying to develop sources of non-traditional funds through borrowing in the money market or by issuing debt instruments to be used profitably primarily to meet the demand for credit.

Indonesia's banking capital management during the period of 2001-2014 in terms of CAR seems very high, well above the minimum of 8%. Although the trend dropped, but the smallest percentage of CAR is still amounted to 16% (twice a healthier bank capital minimum limit of 8%). Then, TETA showed an upward trend over the period of 2001-2014. It is followed by the increment in banking assets, so that the solvency of the bank increased along with the development of the banking market (see Figure 3).

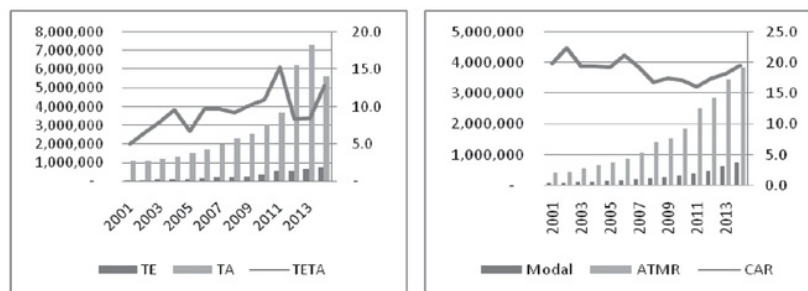


Figure 3. The Development of Capital Structure in Indonesian Banking

Source: Indonesian Banking Statistic

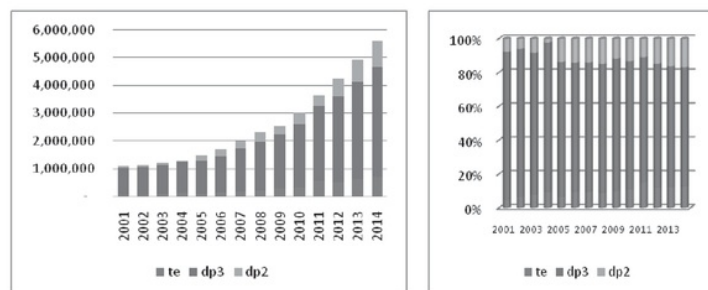


Figure 4. The Development of Financial Structure in Indonesian Banking

Source: Indonesian Banking Statistic

The efforts to raise funds in order to meet the operational needs of the bank, through third party fund (the public fund), the second party (financial markets) or from the first (owner through the capital market). Fund raising activity by Indonesian banks during the period of 2001-2014 showed no conformity. It means the deposits grows along the banking assets (see Figure 4).

Liquidity Management

Bank liquidity is the bank's ability to meet its obligations, particularly the obligations of short term funds. From the assets point of view, liquidity is the ability to change the entire assets into cash, whereas in terms of liabilities, liquidity is the ability of banks meet funding needs through increased liability portfolio.

The development of bank liquidity in Indonesia during 2001-2014 using LDR and LAR showed an upward trend. The LDR increased because the credit growth is greater than growth in deposits. The high LDR coefficient indicates the increment of mediated functions in terms of mobilizing public funds. The higher the LDR means the faster public funds turnover.

Liquidity in terms of LAR describes how large the portion of bank credit as part of banking assets. The higher the coefficient LAR means the greater the proportion of loans granted to the public (calculated on assets in the year concerned.) The coefficient LAR increased sharply from 28% towards 55% (2001-2010), then it dropped again to 48% in 2011. In 2012, it increased again to 62 %.

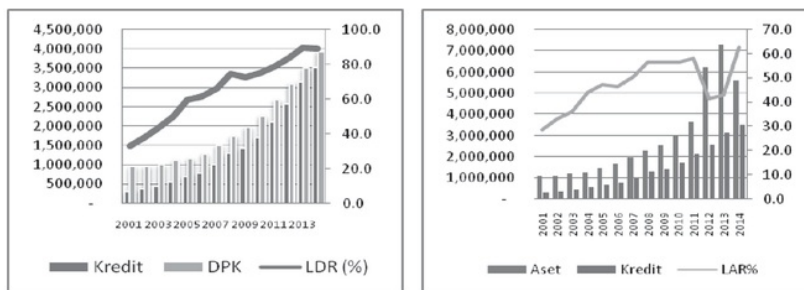


Figure 5. Liquidity Structure of Indonesian Banking

Source: Indonesian Banking Statistic

Rentability

The assessment approach with quantitative and qualitative factors of bank profitability can be done through Return on Total Assets (ROTA), Return on Equity (ROE), Net Interest Margin (NIM) or Net Operating Margin (NOM), and Operating Costs compared to Operating Income (CIR).

ROTA is used to measure the ability of the bank's management in obtaining compared to total assets (Dendawijaya, 2009). Profitability with rank 1 has a criteria $ROTA > 1.5\%$; Rating 2 criteria $1.25\% < ROTA \leq 1.5\%$; Rank 3, criterion $0.5\% < ROTA \leq 1.25\%$; Rating 4 criteria $0\% < ROTA \leq 0.5\%$; Rank 5, ROTA criteria of $\leq 0\%$ (Source: Circular Letter No. 6/23/DPNP 2004).

ROE indicates the bank's ability to generate net income from the equity. The increment in this ratio means that there is an increase in net profit of the bank concerned and the subsequent rise will increase stock prices of banks (Dendawijaya, 2009).

The achievement of ROTA during the period of 2001-2014 generally reaches ranking 1. The ROTA average showed the growth is more than 1.5%. The enhancement happens because the operating profit growth is bigger than growth of banking assets. Furthermore, the increment of ROA also happens because of the efficiency of CIR.

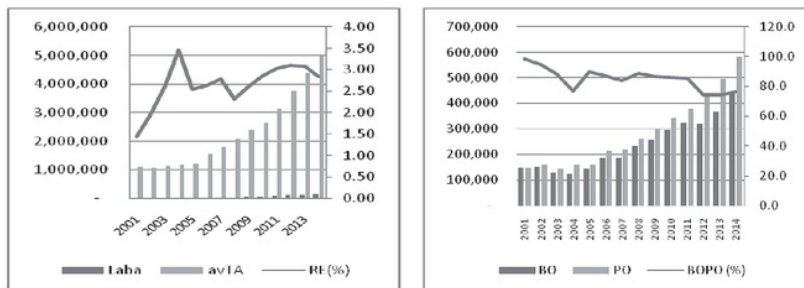


Figure 6. Profit Structure of Indonesian Banking

Source: Indonesian Banking Statistic

Inferential Approach

The results of the analysis of bank ALMA variables influence the market against 97 individual bank as selected sample has been presented in Table 3. The analysis of the dynamic model of GMM Arellano-Bond both in terms of the credit market channel analysis and the market channel deposits have been eligible unbiased, has valid instrument, and consistency.

The validity of the instruments. Sargan test statistic value is at 78.171 with the probability of 0.441 on BEP channel, while in the ROE channel the ROE value of Sargan test statistic is at 85.483 with probability equals to 0.238. The probability is not significantly better at 99% confidence level ($\alpha = 0.01$); 95% ($\alpha = 0.05$); and 90% ($\alpha = 0.10$). This indicates that the model has no correlation between the residue and the over-identifying restrictions, valid instrument. The estimator consistency is shown by the results of Arellano-Bond (AB) test by looking at the statistical significance of the coefficient of AR1 and AR2. The BEP channel analysis is shown at the statistics AR1 value of -3.455 with p-value = 0.001 (significant at $\alpha = 1\%$); AR2 statistical value of -1.567; with the p-value = 0.117; (not significant). While on ROE channel, the statistical value AR1 is at -2.623 with p-value = 0.009; (significant at $\alpha = 1\%$). AR2 statistical value is at 0.255; with a p-value = 0.799; (not significant). No significant statistical value AR2 indicates a lack of second order serial correlation in the residuals of distinction specification, so that the estimators is consistent.

The analysis of dynamic panel must unbiased. This can be seen in the coefficient of parameter estimates were in the range OLS and the FEM. The coefficient of L1.BEP in the estimation using GMM-FD Arellano-Bond showed a value of 0.149; it is located in lag coefficients from OLS estimate (0.362) and FEM (0.111), the estimate is not biased. L1.ROE coefficient of 0.126; it is located in the lag coefficients from OLS estimate (0.176) and FEM (0.094); which means the estimator is not biased. The study of the relationship between the

management of capital, asset quality, liquidity, and expense management effectiveness of banking operations with bank profitability achievements need to be run so that the effectiveness of the management of the banking industry can be maintained. The banking behavior analysis based on CAMEL version ALMA models in this study is done to determine the significant factors of the dynamics of economic profitability (BEP) and profitability of equity (ROE). The global view of the results of the panel regression analysis of dynamic data using a sample of 2001- 2014 and using the bank as much as 97 banks in Indonesia globally shows that the impact behavior of bank management (proxied by the variable ALMA) to the achievement of profitability is significant.

Speed of adjustment. The speed of adjustment coefficient is between 0 and 1. The zero coefficient indicates the market is in the competitive condition, while the 1 coefficient indicates the market is concentrated and the banker effort to maintain the abnormal profit. However, if the coefficient is zero, it indicates the convergence of abnormal profit from time to time (Turgullu, 2010). Speed of adjustment in this research can be seen from the impact of profit of the prior period is significantly positive on profits in the current year. This is proven in the coefficient L1 or (lag1) of BEP and ROE which has positive value, where the total of each coefficient is 0.149 (significant at $\alpha = 1\%$); and 0.126 (significant at $\alpha = 10\%$). So, from the coefficient of BEP.L1 and ROE.L1, it can be seen that the Indonesian banking market is in competitive condition.

The other important meaning of BEP.L1 and ROE.L1 coefficient is the information about the existence of convergence. In the channel of BEP credit, the convergence level is 0.851 (from 1 - 0.149) which indicates the speed of adjustment of each bank to reach steady profit us 85.1% per year. The time which is needed to cover half life of convergence is about one year and 1.78 months. Meanwhile, in the channel of ROE, the

Table 3. The Implication of ALMA Variables on Banking Profitability

Independent Variables	Dependent Variables			
	BEP		ROE	
	Coef.	P>z	Coef.	P>z
$L_1(BEP,ROE)$	0.149	0.007	0.126	0.063
LDR	-0.003	0.370	-0.041	0.217
LAR	0.017	0.096	-0.095	0.303
NPL _g	-0.021	0.222	-0.448	0.244
TETA	0.040	0.058	0.179	0.087
DTA	-0.009	0.079	0.043	0.015
IETA	-0.421	0.000	-1.434	0.002
OCTA	-0.277	0.001	-0.633	0.008
IITA	0.536	0.000	1.141	0.001
FBITA	0.010	0.215	-0.017	0.266
sensitivity	0.000	0.965	-0.134	0.005
_cons	-0.677	0.296	19.063	0.001
	Wald chi2(5)	Prob > chi2	Wald chi2(5)	Prob > chi2
Validity Test	91.420	0.000	63.750	0.000
Un-Biased Test	Coef.	P>z	Coef.	P>z
L1.FE	0.111	0.000	0.094	0.000
L1.Abond	0.149	0.007	0.126	0.063
L1.RE	0.362	0.000	0.176	0.000
Consistency Test	Order z	Prob > z	Order z	Prob > z
AR ₁	-3.455	0.001	-2.623	0.009
AR ₂	-1.567	0.117	0.255	0.799
	chi2(77)	Prob > chi2	chi2(77)	Prob > chi2
Sargan Test	78.171	0.441	85.483	0.238

Source: data process

convergence level is 0.874 (from 1- 0.126) which indicates the speed of adjustment of each bank to reach steady profit us 87.4% per year. The time which is needed to cover half life of convergence is about one year and 1.512 months.

Management of banking liquidity has a significant positive effect on profitability. This was proven by the BEP which is affected by LAR, where the coefficients LAR has positive value at 0.017 (significant at $\alpha = 10\%$). The greater the portion of the credit in bank assets, BEP and ROE will increase significantly. ROE on the path coefficient

LAR = -0095 (not significant). This study supports the findings Syafri (2012) and Khrawish (2011) LAR has a significant positive relationship towards ROTA.

Loan to Asset Ratio (LAR) is the ratio used to measure the level of bank liquidity that shows the bank's ability to meet the demand for credit by using the total assets owned by banks. The higher this ratio, the level of internal liquidity getting smaller because of the amount of assets allocated to finance the larger credit (Dendawijaya, 2003).

Then LAR ratio used to measure the bank's ability to meet the demand for credit through guarantees a number of assets owned by the bank (Taswan, 2006). This ratio shows how much bank loans compared to the size of the total assets of the bank. The relationship between credit risk and LAR is not unidirectional because the larger loans, the lower the credit risk that may be encountered because of loans funded by assets.

Victor et, al.,(2013) found out that LDR has positive effect on bank profits. While the research conducted Eng (2013), Parera et. al., (2013) found out the LDR) partially has negative influence on the profitability.

In the channel of BEP, the LDR coefficient is at -0003 (not significant) and in the channel of ROE, the LDR coefficient is at 0.041 (not significant). LDR as a proxy of bank liquidity. In general, the higher the LDR number means the higher ROTA. However, in this study, the opposite happens. The LDR changes generally do not significantly affect the ROTA. LDR coefficient has significant and negative effect on the ROTA, it only occurs in special lines of credit markets on banks market leader. It means the major banks in Indonesia increase in credit expansion actually reduce ROTA. The fact is contrary to the theory.

Banking asset management is proxied by the NPL ratio to describe the quality of productive assets, the smaller the number NPL means the better banking assets. The results of the analysis showed that the quality of the assets does not significantly affect profitability. This occurs in the analysis channel of BEP where the NPL coefficient is at -0.021 (not significant) and the ROE channel of NPL coefficient is at -0.448 (not significant). In the previous study from Jumono, et al., (2016) found out the non performing loan (NPL) has a significant negative relationship towards ROE.

NPL as the proxy of the quality of productive assets does not affect the ROTA. The right condition is

where the condition of NPL and ROTA has the inverse relationship, the smaller the NPL will make ROTA increases.

Funding and management of bank capital has a significant impact on profitability. This occurs on both BEP channel and ROE channel. The DTA ratio coefficient is at -0.009 (significant at $\alpha=10\%$) on BEP, while on ROE channel the DTA coefficient = 0.043 (significant at $\alpha=5\%$).

DTA is one of liquidity ratios but including also the liability. Deposit is an important factor in bank financing because banks can raise funds. Therefore, DTA has an influence on profitability (Gul et al., 2011). In the study from Rahman, et al., (2012) and Javaid et al., (2011) found out the Portfolio Composition (DAR) has a significant positive relationship towards ROTA.

In the analysis in BEP channel, the coefficient ratio of TETA is at 0.040 (significant at $\alpha=10\%$), while on ROE channel the coefficient of TETA is at 0.179 (significant at $\alpha=10\%$). CAR as a proxy of bank capital adequacy has a significant negative effect on ROTA. It means the higher the value of CAR, a bank then the impact is the acquisition of ROTA tends to get smaller. This is understandable because the higher CAR it means banks are increasingly deprived of the opportunity to obtain the return of the excesses of the CAR.

Cost control management. The efficient management of operating expenses has a significant negative effect on profitability. This is proven by the ratio of IETA and OCTA coefficients that have negative value on BEP channel and ROE channel. On BEP channel, the IETA coefficient is at -0.421 (significant at $\alpha = 1\%$); while the OCTA coefficient is at -0.277 (significant at $\alpha = 1\%$), while on ROE channel the IETA coefficient is at -0.1434 (significant at $\alpha=1\%$); and OCTA coefficient = - 0.633 (significant at $\alpha=1\%$). That is, the load control management effective operational costs affect operating income as yields on bank assets

(BEP = basic earning power); and net income as the yield on equity capital (ROE) of banks.

Asset utilization (bank assets turnover) has significant and positive effect on profitability. To find out more details about the assets turnover, it is proxied by the ratio of IITA and FBITA, whereas the sum of those ratio equals to revenue/total assets. From this analysis, it is know that fee based income does not significant towards interest income, while fee-based income does not significant on profit. This is proven on IITA ratio with the coefficient which is positive on the channel BEP and ROE.

On the path analysis of BEP, the IITA coefficient is at 0.536 (significant at $\alpha = 1\%$); while on ROE channel the IITA coefficient is at 1.141 (significant at $\alpha = 1\%$). The study's finding is consistent with research Priyatmoko (2012) which concluded that interest income has a significant influence on the profitability of banks. Williams (2008) stated that the banks which are less dependent on the FBI (fee based income) generally have a better quality management because it focuses on the customer's bank and the use of high technology relies on the FBI. The FBI enhancement associated with worsening risk-return trade off and variability of earnings increases.

In connection with this research which shows that the turnover of assets by the FBI does not significant on profit, it is proven by FBITA coefficient that does not significantly affect the BEP and ROE. It means, to improve FBI, the operational bank of ICT-based science and technology needs to be improved in order to raise the effectiveness and efficiency. The study's finding is contrary to Priyatmoko (2012) which concluded that the variable non-interest income/FBI has a significant positive impact on bank profits.

Taswan (2006) stated the fee based income (FBI) as follows: "The management of the bank in conducting its activities also should maintain the balance always required maintenance of liquidity

needs a reasonable profitability and adequate capital in accordance with the planting. This is necessary because bank also should commit other services that generate fee-based income."

Risk management. The level of sensitivity to shocks banking market has a significant and negative impact on ROE (but does not effect on BEP). This sensitivity variable is proxied by the excess of CAR from minimum limit is healthy, which is 8%. The higher CAR means the banks are resistant to the market shock.

If there is a loss, CAR will be treated as the protection of the bank. The results of the analysis shows that the sensitivity (excess of CAR) of Indonesian banking has a significant and negative effect on ROE.

This is understandable because the high proportion of bank capital will also increase the solvency of the banks, but on the other hand it will loss the opportunity to make productive money to be planted in the capital. Excessive capital so that it will lower the ROE as own capital productivity.

MANAGERIAL IMPLICATIONS

The implication of this research is the performance improvement to maximize value of Indonesian banking can be done by declining the credits interest, increasing credits volume, and increasing deposits and fee based income.

The internal banking management should always make product differentiation and controlling operating expenses cost. This is the key to make banking grows along with market growth.

The decrease of credits interest along with credits volume will increase interest income. Credits expansion by declining credits interest will improve the intermediation function of banking. This can be done because LDR and LAR still can be improved and this will create a symbiosis mutualism between bank and people so that interest income will grow faster.

The income diversification through improving FBI (fee based income) can increase operating income. The current event still shows that fee based income proportion is smaller than II (interest income). In the future, the interest will decrease due to the competition so that fee based income should be improved to face the tight competition.

The structure of profit can be improved by controlling overhead cost along with the increment of net interest income and considering the fee based income. While the funding management through deposits will improve the ability of credits expansion which is the core business of banking.

CONCLUSION

The analysis and discussion proves that liquidity has a positive impact on profitability of banks. Furthermore it can be said that ALMA has significant effect on profitability .

Liquidity management affect the profitability of banks through the percentage share of credit in the amount of assets is significantly positive. But the

asset management banking is shown by a decrease in the NPL and it does not significantly affect the increase in profitability of banks.

Management of capital and bank financing bank managed to increase profits significantly. The level of capital increases bank profits with a positive and significant relationship, but the increase in a liability of banks which has lower economic profitability of banks and increase the profitability of its own capital.

The management control of the bank's revenue and cost has a significant impact on bank profits. Interest expense and non-controlling interest (overhead) managed to increase the profit, while controlling revenue through interest income are also able increasing profit, but revenue from the FBI have not significantly increase the profitability of banks. Risk management through excess equity (the excess of the required bank capital) a significant and negative impact on ROE, but it has no significant impact on the BEP. ■

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