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Profit Structure of Indonesian Banking Industry
(An Empirical Study Based on Du Pont Model)

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Abstract

The aim of the currect research is to determine the factors affecting profitability which is represented by BEP (basic earning power) and ROE (return on equity) by using Du Pont model approach. Based on the annual data of 2001-2014 with purposive sampling technique, the chosen are 97 banks. The inferential analysis uses regression Arrellano Bond GMM from data panel. The result shows that BEP is affected by operational efficiency and interest income. Meanwhile, operational efficiency, interest income, capital, and financial leverage affect ROE. Therefore, in order to improve the efficiency of operating income and asset turnover, the promotion of FBI (fee based income) and deposits are the key factors for the success of banking management.

Key Words: *Du Pont, basic earning power, return on equity, interest income, interest expense, and leverage.*

1. Introduction

The report of Indonesian Banking Statistics in the period of 2001-2014 showed that ROTA (return on total assets) of the banking industry in Indonesia was above 1.5%. The average value of ROTA during the period amounted to 2.433% per year. The fluctuations of ROTA showed a minimum value at 1.43% (2001) and a maximum of 3.23% (2004). During the global financial crisis in the period of 2008-2011, there was a decline of ROTA from 2.51% (2007) to 2.08% (2008), which rose to 2.44% (2009), and finally rose again to 2.53% in 2010. From 2011 to 2014, the ROTA of banking industry reached 2.8% (in 2012) and finally at 2.79% (in 2014).

The dynamic growth of ROTA is related to management control in operating expenses which showed the bank efficiency. It is empirically proven from the decline of Cost Income Ratio. The increase in operating cost of operating income is higher than the growth of banking operating expense. This occurs because the rate of growth in operating income is greater than the growth of operating expenses (see Figure 1).

Figure 1: ROTA and CIR of Indonesian Banking Industry
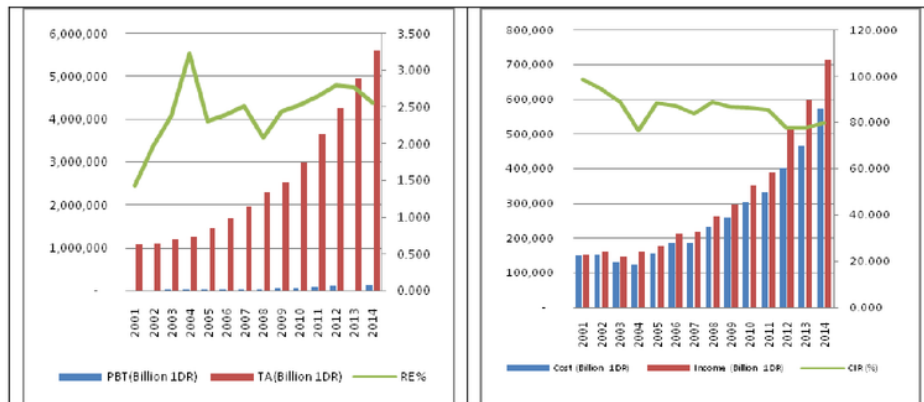
Data Source: Indonesian Banking Statistics

Based on the balance sheet, the total assets during 2001-2014 increases from 1.099.699 billion rupiah to 5.615.150 billion rupiah. The average level of total assets growth per year was at 13,5% with the maximum value at 21,40% (in 2011) and the minimum value at 1,14% (in 2002). Meanwhile, from the capital aspect, the total equity increased significantly from 55.656 billion rupiah (in 2011) to 722.183 billion rupiah (in 2014) with the average value of growth at 23,97% with the maximum value at 69,94% (in 2011) and the minimum value at -18,29% (in 2005).

Based on the income statement, it can be seen that the operating income reached 152.435 billion rupiah in 2001, and increased to 722.183 billion rupiah in 2014. The average level of growth per year was at 13,5% with the maximum value at 32,26% (in 2011) and the minimum

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value at 1,14% (in 2002). Meanwhile, the operating profit reached 2.273 billion rupiah (in 2001), and increased to 143.761 billion rupiah (in 2014). The average level of growth per year was at 54,39% with the maximum value at 298,68% (in 2012) and minimum value at 44,61% (in 2005). Then, based on the quantitative data, the data of operating profit margin, net profit margin, assets utilizations, and equity multiplier are known which means we can compute the basic earning power and return on equity. Those profitability indicators are really important and useful to stakeholders for information to make fundamental analysis especially in financial planning and controlling.

In this research, the profitability of Indonesian banking industry will be analyzed based on Du Pont model. Profitability will be measured by economics rentability and owned-capital rentability. The economics rentability will be represented by basic earning power which is decomposed into two finance ratios namely OPM (operating profit margin) and TATO (total assets turn over), whereas operating profit margin is a ratio between net operating profit divided by total revenue, while the total assets turnover is calculated by dividing total revenue with total assets.

Return on equity is divided into three financial ratios, which are net profit margin, assets turnover, and financial leverage multiplier. Net profit margin is a ratio between earning after tax divided by total revenue, and total assets turnover is calculated by divided total revenue and total assets, while financial leverage multiplier is a ratio between total assets and total equity. Based on this Du Pont model, we will get the determinants of basic earning power and return of equity of Indonesian banking. The management will get an accurate information about the strongest and weakest factors influencing BEP and ROE, therefore they can improve the profitability effectively based on the strongest and weakest factors influencing it.

Harahap (2011) stated that the advantage of profitability analysis based on Du Pont includes (1) the techniques of financial analysis is comprehensive so that management can determine the efficiency level of assets utilization (2) it can be used to measure the profitability of each product produced by the company (3) the financial analysis uses an integrative approach and use financial statements as element analysis.

The level of bank's health in Indonesia is regulated by the central bank (Bank Indonesia) in Bank Indonesia Regulation Number 13/1/PBI/2011 effective on January 1, 2012. One of the indicators used to measure performance is the bank's profitability. Article 8 paragraph 4 states that the determination of earnings factor ratings (earnings) is based on a comprehensive analysis of the indicators of profitability by taking into account the significance of each indicator and consider other issues that affect the profitability.

Keown (2011) stated that Du Pont analysis is commonly used to analyze financial performance by aggregating the balance sheet and income statement into two steps to

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determine the rate of return of capital of the company owner which is ROE. The comparison of the performance of the companies can be seen by investigating ROE in the period. Gitman (2010) stated the advantage of Du Pont System is enabling the company to decompose ROE into NPM, TATO and FLM.

Based on the phenomenon and the basic concepts of profitability stated above, the profitability of Indonesian banks have not been calculated clearly, especially when it is viewed from the basic earning power (BEP) and return on equity (ROE). The dynamics of profitability in terms of BEP and banking ROE Indonesia during 2001-2014 have not detected clearly whether banking profitability is more influenced by the effectiveness of asset turnover, leverage or cost factor of revenue management. In addition, it is also necessary to know how the asset-liability structure and the structure of banking profitability are useful to determine the Indonesia banking industry.

Therefore, this study is conducted to analyze the influence of efficiency and leverage on the banking profitability. The main objective of this research is to find the new information about profitability determinants by using Du Pont theory. Additionally, this research also describes the comparison of net interest income (NII) and overhead cost (OC) as the additional objective. Therefore, this research is expected to find the factors influencing profitability in order to support decision making.

2. Literature Review

### 2.1 Theory of Profitability and Calculations

Profit is defined as the amount available for capital or ownership position after payment used by the company. This is the view of business people who generally refer to the accounting income or business income. Meanwhile, the economists define income as the rest of the revenue (R) minus C (explicit and implicit costs) as a cost of doing business. The normal rate of return on capital is the minimum rate of return necessary to attract and retain the investment for a particular use. The opportunity cost of the owner of the company is determined based on the value that can be received in an investment alternative. Profit concept is often referred to as economic profits to distinguish it from the concept of business profits. Lipsey (2010) explained the difference in earnings of economists and accounting profit, as shown in Figure 2.

Profitability calculation of Du Pont System was first invented by F. Donaldson Brown (from Du Pont Corporation) to perform financial analysis on General Motors. Excellence DuPont Analysis System is comprehensive because it covers the company's level of efficiency in the use of its assets and can measure the rate of profit on the sale of products produced by the company. Supporters of the theory of profitability such as Gunderson, Detre,

and Boehlje (2005) states that: "Du Pont Financial Analysis Model is a rather straightforward method for assessing the factors that influence a firm's financial performance".

Figure 2: The Different Views of Economists and Businessman in Calculating Profit (left); and BEP Calculation Du Pont approach

Source: Lipsey, 2010, Economic Elementary	Source : Du Pont, modified
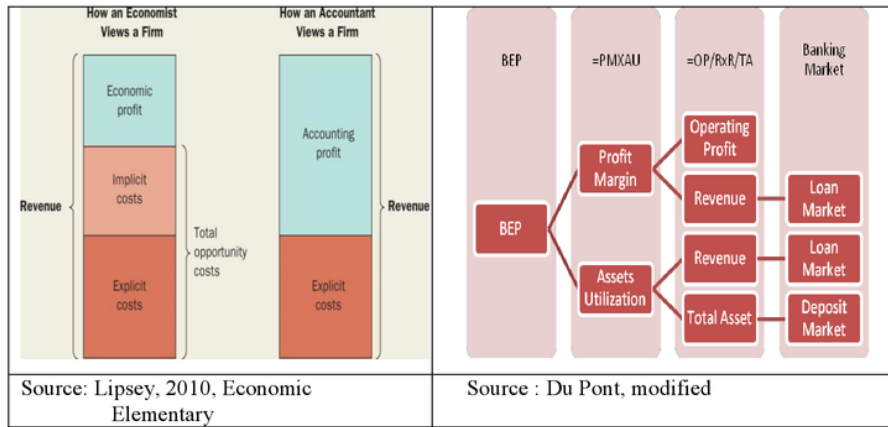
In this study, the calculation of BEP (basic earning power) is shown in Figure 2 (right). BEP is the result from multiplying PM (profit margin) and AU (asset utilization). Mathematically, it is written as BEP = OPM x AU; whereas PM = OP/R; AU = R/TA; therefore BEP = OP/R x R/TA. The final formula would be BEP = OP/TA. Then, PM (profit margin) is calculated by dividing the OP (Operating Profit) with R (Revenue). The OP is the difference between R to C, whereas C is the number of IE and OC. IE = Interest Expenses (interest expense); OC = Overhead Cost Bank. R/R = II/R + FBI/R, where II = Interest Income; FBI = Fee Based Income (non-interest income). AU = REVTA = yield. The TA = Total Assets bank consists of EA (earning assets) and non EA (Non Earning Assets). Most EA usually is more dominated by the credit portion (Loan/TA). The II and FBI are obtained by each bank of the credit markets (credit market) and market asset (asset markets) banks, while OC is often called overhead cost; IE is the Interest expenses because the bank must pay interest on deposits of the amount of deposits entrusted to the bank.

To calculate ROE using Du Pont model, the two factors and three factors used are shown below (Brigham and Houston, J. F. (2010):

Table 1: Calculation Model of ROE (Du Pont Version)

Calculation of ROE (3 Factors Model)	Calculation of ROE (2 Factors Model)
ROE = NPM x AU x FLM NPM = PAT/ R; AU=R/TA ROE = PAT/R x R/TA x TA/TE ROE = PAT/TA x TA/TE ROE = PAT/TE	ROE = ROA x FLM ROA = NPM x AU; PAT/TA xR/TA ROE = PAT/TA x TA/TE ROE = PAT/TA x TA/TE ROE = PAT/TE

2.2 The Relationship between Profitability and Value of Firm

The relationship between value of frm and profits by Salvatore (2009) can be expressed mathematically. The company's value is expressed as the present value or cash flow of a company that is expected to be received in the future. The present value is the expected profit in the future. Mathematically written as follows:

$$PV = \frac{\pi_1}{(1+r)^1} + \frac{\pi_2}{(1+r)^2} + \dots\dots \frac{\pi_n}{(1+r)^n} \quad \dots\dots\dots\dots\dots\dots\dots\dots(1)$$

$$PV = \sum_{t=1}^{n} \frac{\pi_n}{(1+r)^n}$$

Whereas PV is the present value of all expected future profits are expected to be received in the future. pn is the expected profit at year n (the expected profit in year n, and t is equal to 1.2 , 3, ... up to n, so that the value of the company can also be written as follows:

$$\text{Value of the firm} = PV = \sum_{t=1}^{n} \frac{R_t - C_t}{(1+r)^t} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$$

Whereas R = P x Q; R = Total Revenue; P = Price/unit; Q = Quantity; C = TFC + VQ; C = Total Cost; TFC = Total Fixed Cost; V= Variable Cost/Unit; Q = Quantity of sales / production; r = Cost of Capital; t = period and n = number of periods.

The companies face the obstacles that arise due to the limited availability of essential inputs. For example, a company can't obtain all the raw materials as much as it needed. This constraint narrows the company's movement to achieve the company's goal (maximize value of the firm). This problem is referred as the constraint optimization.

2.3 Previous Researches

Almazari (2012) examined the financial performance of the Jordanian Arab Bank of the 2000-2009 period by using Du Pont System. The research findings indicated the Jordanian Arab Bank's financial performance is relatively stable by using financial performance indicator of TATO and NPM. The FLM during 2006-2009 declined which indicates the Jordanian Arab Bank's assets is increasingly dominated by equity or less dependent on public deposits in the growth of its assets.

Buch, Eickmeier, and Prieto (2010) stated the macro economic factors have an important impact on the performance and the level of banking risks, but the degree of implication is determined by internal conditions of banking, such factors business model and size of the capitalization of the bank; Delis (2005) stated banking performance is influenced by macroeconomic and banking internal factors determined by management of the bank. Performance measurement assisted with financial ratios, in particular the profitability ratio (earnings) which measures the wealth maximization (Koch & Scott, 2009).

In this study, the profitability will be measured by using Du Pont System to assess the achievement of profitability of the banking industry in Indonesia. Bringham and Houston

(2010) stated that RE shows the basic ability to generate operating profit of the total assets of the firm, this figure is useful in comparing companies with different tax situations. One of profitability ratios which reflect a pure profitability is BEP (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, the better the efficiency of the firm.

Walsh (2009) measured the absolute returns that will be given to the bank's shareholders. A good ROE fundamentally brings success for the company and resulting a rise in stock prices, it will make companies easily attract new funding. Robert Ang (2010) showed the higher the ROE the more efficiently the company uses its own capital to generate net income.

Bachruddin (2006), Cole (1972), Kalluci (2011), Koch and Scott (2009) stated ROE is a financial ratio used to measure performance because it describes the yield received by the owners of the activity of banking operations. Bank Indonesia uses ROA as profitability analysis tools that are relevant for prioritizing asset originating from the community (Meythi in Linda, 2011). Machfoedz (1999) stated the main factors affecting the profitability of the bank is management. Defri (2012) stated the management of a bank include capital management, general management, profitability management, and liquidity management, which in turn will influence and lead to the profit of bank.

2.4 Conceptual Framework

The conceptual framework is a profitability analysis model of Du Pont which is used to calculate economics profitability which is proxied by bank BEP is the result of multiplication between the AU and the OPM. Asset utilization (AU) of banks are generally proxied by the ratio of this REVTA be broken down into a ratio IITA with a ratio of FBITA. The goal is to make it clear whether assets turnover is actually derived from interest income turnover (IITA ratio) or fee-based income turnover (FBITA ratio).

Figure 3: The Concept of Profitability Determinants Based on Du Pont Model
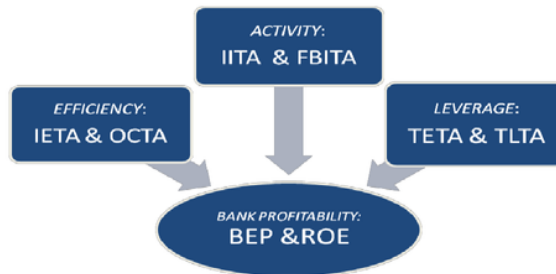
The efficiency of banking operations that generally proxied by CIR ratio (cost to income ratio) will be broken down to IETA ratio by OCTA ratio. The goal is to make it clear whether the efficiency of banking operations is actually derived from interest expense (IETA ratio) or overhead cost (OCTA ratio). Efficiency ratio and asset turnover will be used as variables

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affecting the BEP. The leverage banking generally proxied by the ratio of FLM, it basically describes the structure of these liabilities that will be broken down into ratio of TLTA with the ratio of TETA. The goal is to make it clear whether the efficiency of banking operations is actually derived from liabilities (TLTA ratio) or capital (TETA ratio). Efficiency ratio and asset turnover and leverage will be variables that affect ROE.

2.5 Hypotheses

The efficiency of the operating expenses management occurs when the bank's revenue growth is greater than the operational cost of development bank. It is characterized by CIR (cost to income ratio) which declines. The influence of CIR on profitability normally will be negative. Kosmidou (2008) conducted a research in Greece that found out the ratio of CIR has a negative effect on profitability. The research findings Zhou and Wong (2008) and Tarawneh (2006) reinforced by Mathuva (2009) also found that the efficiency of banks is measured by CIR (cost to income ratio) has significant negative effect on the banking profitability in Kenya.

Research in Indonesian bank were conducted by Arimi and Mahfud (2012) and Primasari (2013), who showed the same findings that the CIR (better known as ROA) was also a significant negative effect on profitability. In this study, CIR will be clarified with IETA ratio (the proportion of interest expenses on bank assets) and OCTA ratio (the proportion of overhead cost in bank assets) with the following hypotheses:

Hypothesis 1: IETA ratio has a negative effect on bank profitability (the efficiency of interest expense on bank assets significantly increases profitability).

Hypothesis 2: OCTA has a negative effect on bank profitability. OCTA ratio (the efficiency of overhead cost on bank assets significantly increases profitability).

2.5.1 The Effect of Assets Turnover on Profitability

The effect of assets turnover on profitability normally will be positive. The asset utilization of banking will be significant on bank profits if the development of REVTA ratio is faster than the bank's profitability ratios. The results of the use of all bank assets in the form of R (Revenue) which consists of the bank II (interest income) and the FBI (fee based income). Therefore, to clarify the ratio of bank activities, asset turnover ratio of II (interest income), namely IITA ratio and the ratio of assets turnover of FBI (fee based income) which is FBITA ratio.

In general, the effect on the profitability of the bank's asset turnover is positive. The greater the ratio REVTA (ceteris paribus) the profitability of banks will rise. Ayaydin and Karakaya (2014) found a significant positive correlation between the ratio of IITA with volatility of ROE in Turkey banking. Primary (2010) concluded that the partial interest income (interest income) on foreign private bank in Indonesia has a significant influence on

the ROTA. Meanwhile, the bank's fee-based income of owned-stated banks have no significant effect, but foreign private banks have a significant effect. The test showed further that the foreign private bank interest income is more influential than the fee-based income.

In this study, the efficiency of bank activity is punctuated by ratio of IITA (the proportion of interest income on bank assets) and FBITA ratio (the proportion of non-interest income in bank assets) with the hypothesis statement as follows:

Hypothesis 3: Ratio of IITA has a positive effect on profitability. The increase of efficiency on interest income of bank assets significantly increases profitability

Hypothesis 4: Ratio of FBITA as a positive effect on profitability. The increase of efficiency of fee based income on bank assets significantly increases profitability.

2.5.2 The Effect of Leverage on Profitability

The leverage of bank will have a positive and significant effect on profitability which is indicated by the development of TLTA ratio which is greater than the ratio of bank profitability development because the bank liabilities consists of TL and TE whereas TL (total liability) bank is the amount of DP3 and DP2. Meanwhile, TE is total equity. To clarify the role of liabilities structure on the achievement of profitability, we will use two proxies which are bank leverage ratio (TLTA ratio) and the capital adequacy ratio (TETA ratio).

Kosmidou (2008) and Aysan & Chan (2008) found that the capital adequacy ratio (TETA) ratio of banks has a positive effect on financial performance. Javaid, et al, (2011) examined the internal factors that affect the bank's profitability. His finding stated the Capital and Portfolio Composition has a significant positive relationship towards ROTA. While the TLTA does not have a significant relationship to ROTA. While research of Khrawish (2011) Size, Loan/TA, NIM and TLTA significantly positively related to the ROE. In this study, bank leverage ratio is proxied by TLTA (the proportion of total liabilities in bank assets) and the ratio of TETA (the proportion of equity in total bank assets) with the hypothesis statement as follows:

Hypothesis 5: TLTA has a positive effect on profitability. Financial leverage has a significant influence in increasing profitability.

Hypothesis 6: TETA has a positive effect on profitability. The increasing of bank capital bank has a positive and significant influence on profitability.

3. Methodology

This type of study is applied research because the objective of this research is to apply the previous research and improve it theoretically. This research is also an explanatory research because it aims to explain the causal relationship between variables by testing the hypothesis (Cooper and Schindler, 2003). The object of research is banking market industry in Indonesia because Indonesian banking has an interesting phenomenon. Based on the report of World

Bank during 2001-2014, Indonesian banking industry has the highest ROTA and LDR in Asia-Pacific banks. Therefore, this good performance of Indonesian banking needs to be researched. The subjects are individual banks in the category of commercial banks in Indonesia. The research materials of this study are market information and financial information included on the balance sheet and comprehensive income of the company. The studied aspects are the development of the credit and the deposit market; and banking performance.

The data used are secondary data from published financial statements of the bank information of BI (Bank of Indonesia), the World Bank, and the Indonesian Banking Statistics in the period of 2001-2014. The data was collected by secondary data documentation and reporting of market information financial banking industry and banking statistics Indonesia. The population in this study is all the banks which operates in Indonesia from 2001 to 2014. Based on the initial observations, there is a decline in the number of banks out of 145 banks (2001) to 119 banks (2014). The samples technique in this study uses non-random sampling selection technique with purposive sampling. The criteria of purposive sampling of this research are (1) banks are not merge with other banks, (2) banks are not pure sharia, however dual banking is allowed n this research, (3) banks have complete data, (4) banks do not have doubtful data, (5) banks should have complete data from 2001-2014.

3.1 Model Specification

This dynamic relationship is shown by the existence of lag of variable depedents between regressor variables. Baltagi (2005) stated the relationship between economics variables has dynamic characteristic. The advantage of dynamic panel data is that there is dynamic of adjustement analysis

To make the achievement of profitability relationship patterns with performance of the bank's management on BEP analysis, this research uses econometric model of DPD (dynamic panel data) because this analysis tool can show the coefficient of speed of adjustment which explain the influence between prior year profitability and current year profitability. The formula is stated as below:

$$bep_{it} = \lambda_0 + \lambda_1 bep_{i,t-1} + \lambda_2 iita_{it} + \lambda_3 fbita_{it} + \lambda_4 ieta_{it} + \lambda_5 octa_{it} + e_{it} \quad \ldots\ldots\ldots\ldots (3)$$

In the analysis of ROE, the econometric model is:

$$roe_{it} = \eta_0 + \eta_1 roe_{i,t-1} + \eta_2 iita_{it} + \eta_3 fbita_{it} + \eta_4 ieta_{it} + \lambda_5 octa_{it} + \eta_6 tlta + \lambda_7 teta_{it} + e_{it} \quad \ldots\ldots(4)$$

where i is the symbol of individual banks, while t is the year; BEP = basic earning power; ROE = return on equity; IITA = ratio of interest income to assets; IETA = interest expenses/assets; OCTA = overhead cost/assets, then capital adequacy = TETA = equity to assets; and leverage = TLTA = liability to asset.

According to Firdaus (2012), the most important criteria used to find the best GMM dynamic model is it not biased. If BEP Lag1, ROE.Lag$_1$ GMM estimators is in between OLS and FE, OLS < GMM < FE); Sargan test is valid if the instrument can not reject the null hypothesis; and it is consistent if statistical tests show the null hypothesis is rejected AR$_1$, meanwhile the statistics of AR$_2$ shows the null hypothesis can be rejected).

3.2 Research Variables

Operational definitions of the variables in the study are based on the definition of the concept that has been modified on the basis of objective circumstances that have been commonly used in previous studies, it is already adapted to the banking conditions in Indonesia.

Table 2: Determinant Banking Profitability, Definition, Notation and Impact Expectation					
Variable			**Definition/ Formula**	**Notation**	**Impact**
DEPENDENT VARIABLE Profit (t)		Profit $_{(i,t)}$	Operating Profit /asset (%)	BEP$_{i,t}$	+
			Net Profit/ Equity (%)	ROE$_{i,t}$	+
DETERMINAN PROFITABILITY	Banking Management Performa	Profit (t-1)	Profit $_{(i,t-1)}$	Operating Profit /asset (%)$_{(lag1)}$	BEP$_{i,t-1}$	+
			Net Profit/ Equity (%) $_{(lag1)}$	ROE$_{i,t-1}$	+
		AU (Asset Utilization)	Interest Income/ asset (%)	IITA$_{i,t}$	+
			Fee Based Inc/asset (%)	FBITA$_{i,t}$	
		Efficiency	Interest Expenses/Asset %)	IETA$_{i,t}$	—
			Overhead/Asset (%)	OCTA$_{i,t}$	
		Leverage	Liability/Asset (%)	TLTA$_{i,t}$	+
		Capital	Equity/Asset (%)	TETA$_{i,t}$	+

As indicated in introduction, we have two major research questions. One of them is to find out whether the inception of index futures trading has destabilized the underlying stock index or not. We will examine the volatility of the underlying index before and after the introduction of futures in order to answer the first question.

4. Results and Discussion

4.1 Descriptive Analysis of Indonesian Banking Industry

4.1.1 Assets Structure

The data of nationwide banking assets over the period of 2001-2014 shows that the development of the Indonesian banking industry had a significant increase from 1.099.699 billion rupiah (2001) to 5.61515 billion rupiah (2014).

Figure 4: Structure and Assets Compositions
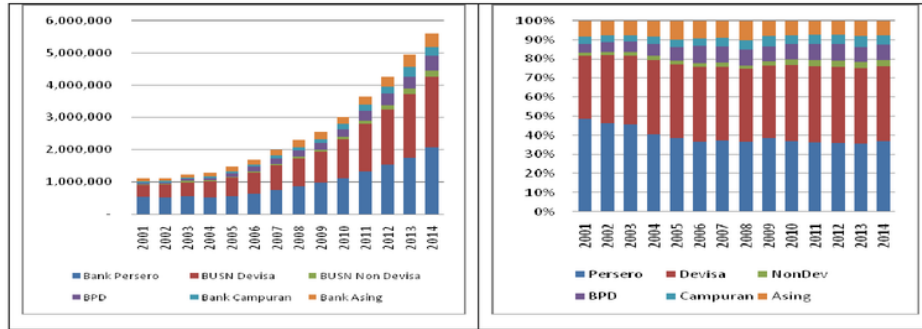
Data source: Indonesian Banking Statistics

The average banking assets also rose by 14.92 percent. Although nominally an entire group of banks assets increased proportionally, but it still dominated by the largest group of foreign exchange banks and owned-stated banks by 80 percent. The regional banks, non-foreign exchange banks, and joint venture banks only authorized about 20 percent (see Figure 4).

Figure 5: Structure and Assets Composition
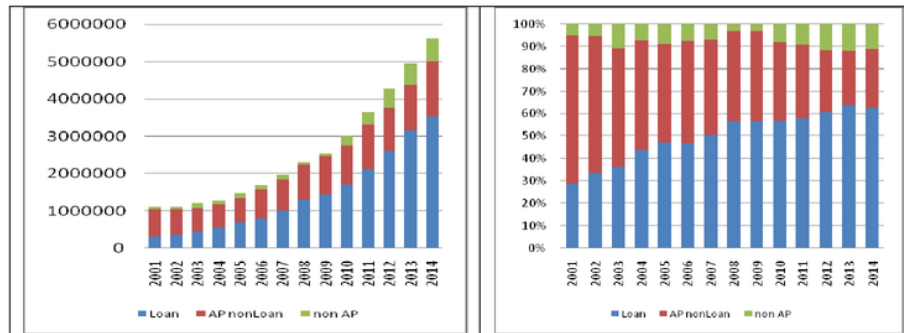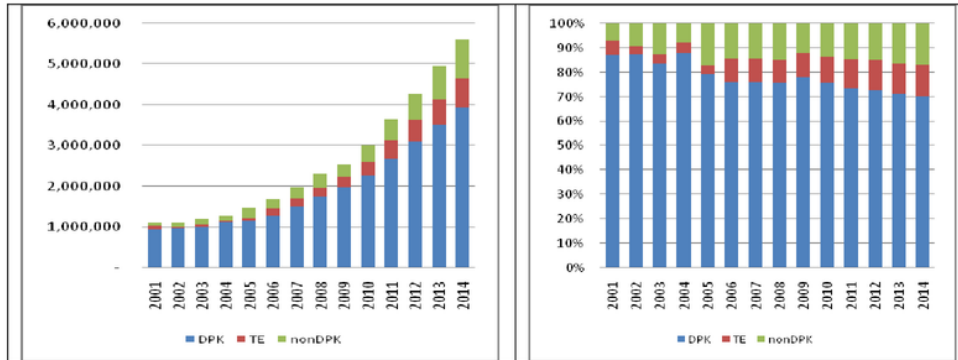

Data source: Indonesian Banking Statistics

From the earning assets, the assets structure generally has an increment along with the increase of total assets even though its composition changed. During 2001-2014, the non earning assets had an increment. The domination of earning assets shifted from non credits into credits (see Figure 5).

4.1.2 Financial Structure

The liabilities of the bank is seen fom the banking funding sources, which is represented by third-party funds (DP3), have increased in nominal terms along with the development of assets. The proportion of the national banking deposits fell from 89 percent (2001) to 70 percent (2014). On the other hand the proportion of banks' capital also increases. This indicates a strong increment of solvency in banking. Meanwhile, the DP3 (liabilities to Central Bank, liabilities to other banks, securities issued, borrowings, liabilities Spot and

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Derivatives, Other Liabilities includes Acceptances and Bills Securities sold under repurchase agreements) and Deposit Guarantee has a greater increase than the bank's capital.

Figure 6: Financial Structure and Composition of Indonesian Banking Profit Structure

Data source: Indonesian Banking Statistics

Revenue of the bank's operations is described through the structure and composition of the bank's revenue during the period 2001 to 2014. It increased on the average of 13 percent. Generally, the revenue is still dominated by II (interest income) by 80 percent, the rest composition is FBI (fee-based income). Although it is dominated by interest income, but proportionally FBI increased from 16 percent (2001) to 21 percent (2014).

Figure 7: Structure and Composition of Revenue (*Interest Income* and *Fee Based Income*)
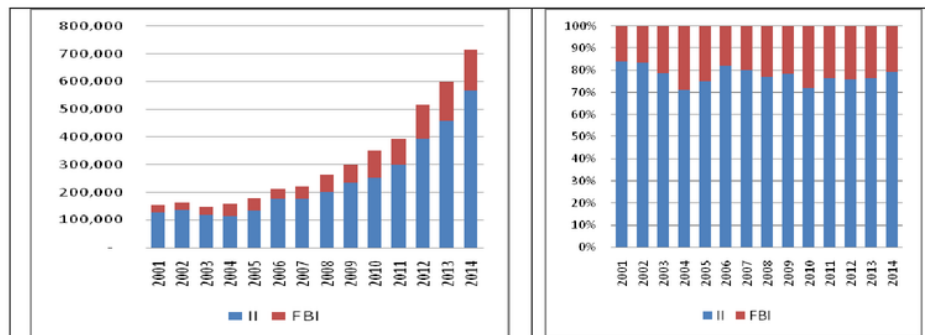
Data source: Indonesian Banking Statistics

Based on cost and profit, the revenue significantly increases both nominally and proportionally. This is related to the upward trend of OPM (operating profit margin) which is 1.5 per cent (2001) to 20.07 per cent (2014). So, that means the increase in the efficiency of operational cost significantly. Judging from the cost structure proportionally, operating expenses is dominated by a overhead cost than interest expense. Interest expense proportionately decreased from 59 percent (2001) to 41 percent (2014). While the overhead cost even more dominates operating expenses which is amounted to 46.1 percent of revenue.

Figure 8: Structure and Composition of Revenue Based on Cost and Profit
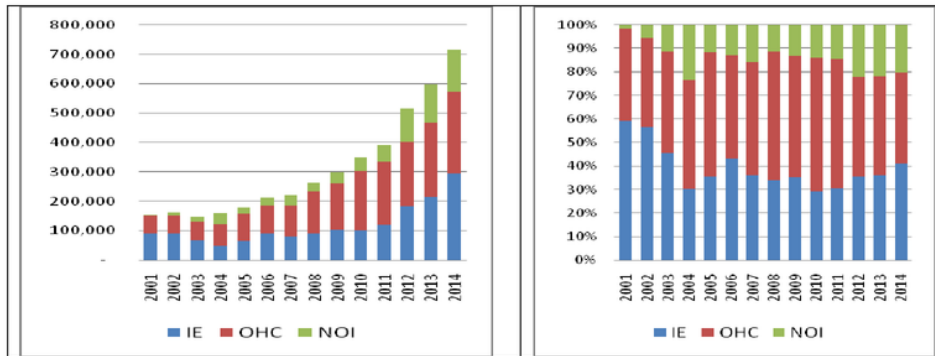
Data source: Indonesian Banking Statistics

The structure of the bank operating profit is described by a ratio or the difference between NII (net interest income) with OC (overhead cost) plus the amount of FBI. If the FBI is zero while operating profit is positive, it means the operating profit of the bank is only played by NII. The revenue is more sourced by primary income which is interest income. Thus, the power level of banking profit structure is visible from how big the NII's ability to cover the OC. If the NII minus OC is positive, it means the structure of bank earning is strong.

Figure 9: Profit Structure of Indonesian Banking Industry
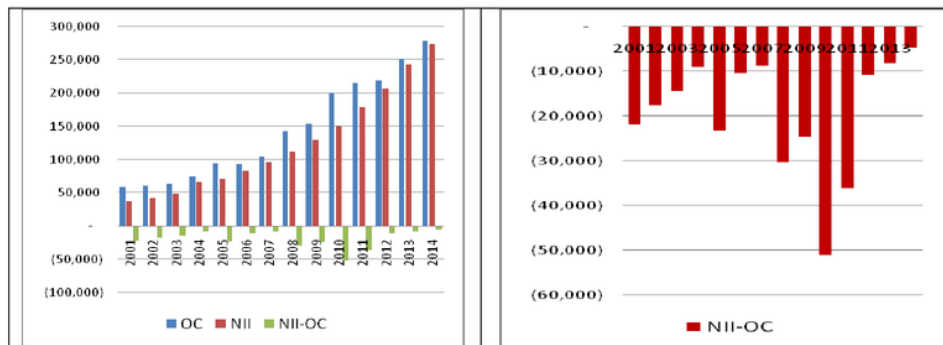
Data source: Indonesian Banking Statistics

An analyst should understand that operating profit is more dominated by the FBI or NII. The future banking competition will be stronger, therefore the implication of NII acquisition will be increasingly depleted, resulting in increased efficiency of bank management of overhead cost is absolutely necessary without ignoring the FBI to improve performance with innovative bank products that already exist.

Figure 9 shows the development of NII and OC achievement during the period of 2001-2014. It can be seen that OC is greater than NII so that the difference of NII (NII-OC) is negative. Nominally, the largest difference occurred in 2010 which was amounted to 50 987 billion rupiah. There was management efforts to minimize the gap of NII-OC from 2011 to

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2014. Management of the banking industry desired to improve the performance achievements of bank profitability.

4.1.3 Profitability Analysis (Du Pont Approach)

BEP, ROA, and ROE moved in the same direction. BEP has the sharpest fluctuation, followed by ROA and ROE. This is because BEP is only influenced by OPM and AU. BEP depends on the movement of operational efficiency of bank financing and bank asset turnover. AU has a smooth decline due to the increase of revenue which is relatively balanced with the bank, while the cost-effectiveness of operating expenses have a direct impact on the OPM.

The dynamics of ROA is seen between ROE and BEP. This is because ROA is only influenced by NPM and AU variables. ROA depends on the efficiency of the movement of operating expenses, non-operational burdens, and the velocity of bank assets. AU banking is at steady decline, it means an increase is followed by a relatively balanced asset bank revenue, while NPM is influenced by the effectiveness of operating expenses and non-operational expense.

Figure 10: The Dynamic of Bank Profitability (Du Pont Approach)
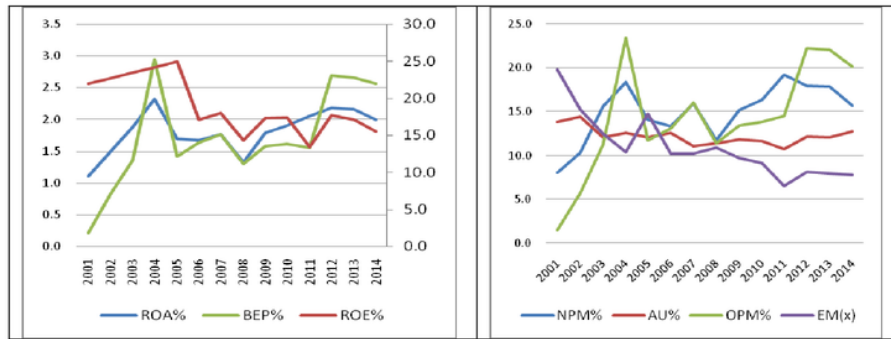
Data source: Indonesian Banking Statistics

ROE has declined mainly before the year of 2008. This is because ROE is only influenced by NPM, AU and FLM. ROE depends on the efficiency movement of operating expenses, non-operational expenses, asset turnover, and leverage. AU has a steady decline, it means its increase is followed by a relatively balanced asset bank revenue, while NPM is influenced by the effectiveness of operating expenses and non-operational expenses. FLM decreased, meaning the proportion of the bank's equity capital rose, while the proportion of liabilities also decreased.

The most striking aspect of the results is the change in the causality relation between the two markets after the break in September 2008. It is found that prior to break point, spot market seems to have a causal effect on futures market. However, after the break, dynamics change and futures market becomes a significant leading factor in spot market. Block-

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exogeneity test results show the strong unidirectional causal relationship from futures to spot market in the post break period.

4.2 Determinant of Profitability in Indonesian Banking Industry

According to the results, the implication of efficiency and leverage on profitability (by using sample of 97 individual banks based on data from the years 2001-2014 (see table 3) and using analytical tools of DPD Arrelanno Bond) has presented in Table 4. This analysis uses two channels, which are BEP channel and ROE channel. The regression panel model has a requirement, which is the validity of instrument, consistent, and unbiased.

The analytical result of the impact of efficiency and leverage on profitability (by using sample of 97 individual banks based on data from the years 2001-2014 and using analytical tools of DPD Arrelanno Bond) is presented in Table 4. This analysis uses two channels, which are BEP channel and ROE channel. The regression panel model has a requirement, which is the validity of instrument, consistent, and unbiased.

Table 3: Recapitulaton of Research Sample

	Number of Bank
Banks listed in Bank Indonesia durng 2001-2014 (Population)	145
Pure Sharia	10
Merger	13
Incomplete data	13
Doubtful data	1
Inactive	8
Data only appear in the end of period	1
There is no information	2
Chosen samples	97

The validity of instrument is shown by Sargan test. The statistic value of Sargan test is 81.394 with a probability at 0.106 (on BEP channel). Meanwhile, in the ROE channel, the statistic value of Sargan test is 87.106 with probability equal to 0.202. The probability is not significant at 99 percent confidence level ($\alpha = 0.01$); 95 percent ($\alpha = 0.05$); and at 90 percent ($\alpha = 0.10$). This test shows the model has no correlation between the residue and the over-identifying restrictions, and the instrument is valid.

The estimator consistency is shown by the results of Arellano-Bond test by looking at the statistical significance of the coefficient of AR_1 and AR_2. On BEP channel analysis, the statistics of AR_1 value is at -3.436 with p-value equals to 0.001 (significant at $\alpha = 1\%$). Meanwhile, the statistical value of AR_2 is at -1.607 with p-value equals to 0.108. (not significant). On ROE channel, the statistical value of AR_1 is at -2.380 with p-value equals to 0.017; (significant at $\alpha = 1\%$). Meanwhile the statistical value of AR_2 is at 0.399 with p-value equals to 0.690 (not significant). The insignificancy of statistical value of AR_2 indicates the lack of second order serial correlation in the residuals of distinction specification, therefore the estimators is consistent.

The analysis of perfect dynamic panel must be unbiased. This indicator can be seen in the coefficient of parameter estimates which in the range between OLS and FE. The $BEP.L_1$ coefficient in the estimation using GMM-FD Arrelanno-Bond showed a value of 0.172; which is between the lag coefficients from OLS estimate (0.396) and FE (0.143), this means the estimator is not biased. Meanwhile the $ROE.L_1$ coefficient shows a value at 0.140; which is between lag coefficients from OLS estimate (0.195) and FE (0,105); this means the estimator is not biased.

The general view of the results of the analysis which is shown in Table 4 indicates that profitability is significantly portrayed by efficiency, assets utility, and bank leverage although not all variables are significant if it is analyzed by per variable. The coefficient of all profitability determinants have a significant influence, which has the same expectation based on Du Pont model. However, there is only FBI/TA which is not significant on BEP and ROE. This means there needs to be innovation of banking products which can increase FBI.

Table 4: The Effect of Efficiency, Assets Turnover, and Leverage on Banking Profitability

Independent	Dependent Variables			
Variables	BEP		ROE	
	Coef.	P>z	Coef.	P>z
L_1 (lag$_1$)	0.172	0.002	0.140	0.071
IITA	0.514	0.000	0.982	0.003
FBITA	0.010	0.254	0.003	0.800
IETA	-0.407	0.001	-1.339	0.002
OCTA	-0.251	0.000	-0.583	0.012
TLTA			1.068	0.084
TETA			1.140	0.073
Cons	-0.071	0.889	-95.173	0.126
	chi^2(5)	Prob > chi^2	chi^2(5)	Prob > chi^2
Wald Test	57.350	0.000	22.72	0.0019
	Coef.	P>z	Coef.	P>z
L1.FE	0.143	0.000	0.105	0.000
L1.Abond	0.172	0.002	0.140	0.071
L1.OLS	0.396	0.000	0.195	0.000
	Order z	Prob > z	Order z	Prob > z
AR$_1$	-3.436	0.001	-2.380	0.017
AR$_2$	-1.607	0.108	0.399	0.690
	chi^2(77)	Prob > chi^2	chi^2(77)	Prob > chi^2
Sargan test	81.394	0.108	87.106	0.202

Source: data processed

Partially, it is proved that BEP and ROE at the previous period have significant and positive effect on profitability in the current year. This is shown by the coefficient of L_{-1} or (lag$_1$) BEP and ROE which as positive value respectively at 0.172 (significant at $\alpha = 1\%$); and 0.140 (significant at $\alpha = 10\%$). It also indicates there is a convergence of profitability in the Indonesian banking industry and the development of market conditions. Then, there will be a

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descriptive GMM-Arellano Bond analysis related to research objective, literature review, and implication as the base of research suggestions.

4.2.1 The Implication of Interest Expense on Bank Profitability

Theoretically, the influence of managing interest expense is negative. This means the bank is more efficient in managing interest expense which is indicated by the decrease in II/TA, the more the banking profitability increases.

The profitability of a company will be determined by its operational efficiency (Yuliani, 2007), in this case the profitability is measured by ROTA which shows how efficient profit can be made from the assets used or owned by the company. Syauta and Widjaja (2009) stated that the lower ROTA indicates a low corporate earnings against a number of its assets. So, the inefficient companies using of its assets may decrease ROTA as a result of these inefficiencies. This can result in lack of interest of investors to invest in the company.

In this study, the efficiency of the management of the interest expense has significant effect on profitability which is shown by IETA coefficient on BEP and ROE channels. In BEP channel, the coefficient of IETA equals to -0.407 (significant at $\alpha = 1\%$) meanwhile in ROE channel the IETA coefficient equals to -0.1339 (significant at $\alpha = 1\%$). The proportion of interest expense is computed from the banking assets contributed which are operating profit and net income increased equity value of assets and banking. The efficiency of the bank's interest expense significantly enhances shareholder value. This finding is consistent with the logic of the rationale for the hypothesis. The lower the interest expense, the greater the profit banks. This finding is consistent with research of Cecaria (2013) which stated that IETA has an effect on performance. The implication is the banking profitability should be maintained by paying more attention to management pricing especially in financial structure portfolio in order to make an optimal cost of funds.

The empirical evidence shows the profitability of banks in Switzerland is mainly explained by operational efficiencies, credit growth, cost of funding, and business models (Dietrich & Wanzenried, 2011). The efficient banks are more profitable than the banks which are less efficient. The credit growth has positive effect on profitability, while equity to total assets, cost of funds, and loan loss provision during the crisis has a negative effect on bank profitability.

4.2.2 The Implication of Assets Utilization on Banking Profitability

Theoretically, the influence of assets utilization (REVTA) on banking profitability is positive. This means the increase in assets turnover, which is indicated by the increase in REVTA ratio, will also make the banking profitability increase. Assets utilization is depended on fee based income (FBI) and interest income (II) because operating revenue is the total of FBI and II. Therefore, assets utilization is represented by IITA and FBITA ratio.

The asset utilization has a significant and positive effect on profitability. This is shown by IITA coefficient which is positive both on BEP and ROE channels. On BEP channel, IITA coefficient equals to 0.514 (significant at α=1%). Meanwhile on ROE channel, the IITA coefficient equals to 0.982 (significant at α=1%). The study findings are consistent with research Priyatmoko (2012) which concluded that interest income has a significant effect on the ROTA.

The existence of a dominant influence of the interest income against the actual ROTA is affected by the condition of banks in Indonesia is still dependent on credit and the amount of credit interest. Besides, the Indonesian banking industry does not really follow the development of technology in banking operations. It was found by De Young and Bektas (2004) in Williams (2008) who found out that banks are less dependent on the FBI generally show has better quality management. The FBI enhancement is related with the worsening risk-return trade off and the increase of earnings variability.

In the study, it is proved that coefficient of FBI/TA does not significantly affect profitability. The assets utilization to earn interest income effectively boost the development of the value of the assets and equity of the company, meanwhile the positive influence of FBI needs to be improved in order to maximize the value of the company. The study's finding is inconsistent with Jumo (Jumono, 2015) (Jumono, 2015) (Jumono, 2015)no (2015), Priyatmoko (2012), and Sadiyah (2014) who concluded that FBI significantly affects ROTA (return on total assets). The implication is the banking profitability should be maintained by paying more attention to management pricing especially in financial structure portfolio in order to make an optimal FBI (fee based income).

4.2.3 The Implication of Overhead Cost on Banking Profitability

Theoretically, the influence of overhead cost on profitability is negative. This means the decrease of OCTA ratio will make the profitability decrease. The ratio of OCTA shows the effectiveness and efficiency of management of overhead costs. The more effective cost management (indicated by the low of OCTA) will have an impact on increasing the ROTA. This means the effective management of bank financing, the greater profit of the bank both in terms of nominal and real.

The management efficiency of operating expense in non-interest area apparently has significant effect on profitability. This is shown by the OCTA coefficient which is negative both on BEP channel and ROE channel. In BEP channel, the OCTA coefficient equals to 0.140 (significant at α = 1%). Meanwhile in ROE channel, the OCTA coefficient equals to -0.583 (significant at α = 5%). The efficiency of non-interest expense increases the value of the company. This finding is consistent with the findings from Sufian and Chong (2010), Ramadan, Kilani and Kaddumi (2011) which showed a negative effect (significant) on the

financing of overhead cost on ROTA. It means the effectiveness of financial management of overhead costs has a positive impact on the profitability. The implication is the banking profitability should be maintained by paying more attention to management overhead cost in order to make an efficiency based on ICT (information comunication and technology) to support company operational because ICT will create a larger market share.

4.2.4 The Implication of Leverage on Banking Profitability

Theoretically, the influence if leverage (TLTA) on profitability is positive. This means the more proportion of deposits in banking assets will also make the profitability increases because the high deposits will also increase the banking ability in distributing credits.

The leverage has a significant and positive effect on banking profitability. This is shown on ROE channel which is TLTA coefficient equals to 1.068 (significant at α = 10%), and the coefficient of TETA equals to 1.140 (significant at α = 10%. This means the financial structure and the capital structure of banks are able to increase the company's value through the ROE. This finding is consistent with the results of Kosmiduo (2008) and Aysan & Ceyhan (2008) who concluded the capital adequacy ratio (TETA ratio) has a positive effect on performance.

Javaid, et al. (2011) examined the internal factors that affect bank's profitability, they concluded the Capital and Portfolio Composition have a significant but has a positive effect on ROTA. Meanwhile, ratio of TLTA has no significant effect on ROTA. Then, the research of Khrawish (2011) stated that Size, Loan/TA, NIM, TLTA, and ERS have a positive significant effect on ROE. The implication is the trust and liquidity will increase because the of the good credits distribution. This will also make the profitability increase.

5. Conclusions and Recommendations

We can conclude there is a convergence of profitability in Indonesian banking industry. The operational efficiency, asset utilization, and financial leverage are able to increase the value of the company. The operational management efficiency through the control of interest expense and non interest expense has a significant effect on BEP and ROE. Interest income has a significant effect on achieving BEP and ROE, however the FBI does not have a significant effect on them. The liabilities management generally increase the profitability, while the leverage and bank capital in conditions of high solvency have a significant effect in improving the BEP and the ROE.

The implication is the increase in FBI and third party fund will be able to improve the efficiency of the bank's financial performance. Bank will be able to increase operating revenue through the improvement of FBI management. In addition, by doing the promotion of third-party funds which is balanced by the increase in the solvency of the bank's capital, bank can maintain its stability. On the other hand, the cost of funds will tend to be more efficient.

References

Almazari A. A, 2012, Financial Performance Analysis of the Jordanian Arab Bank by Using the DuPont System of Financial Analysis. *International Journal of Economics and Finance*, 4, 86-94.

Ang, R., 2010, *Buku Pintar Pasar Modal Indonesia*. Media Soft Indonesia.

Arimi M., 2012, Analyze of influence factors banking profitability: study of public banking listed at Indonesian Stock Exchange during 2007-2010. *Thesis*. Semarang (ID): Universitas Diponegoro.

Ayaydin, H. and Karakaya, A., 2014, The Effect of Bank Capital on Profitability and Risk in Turkish Banking. *International Journal of Business and Social Science*, Vol.5 No.1: 252-271.

Aysan, A. F., and Ceyhan, S. P., 2008, Globalization of Turkey's Banking Sector: Determinants of Foreign Bank Penetration in Turkey. The *International Research Journal of Finance and Economics*, 15, 90-102

Bachruddin, 2006, Pengukuran tingkat efisiensi bank syariah dan bank konvensional di Indonesia dengan Formula David Cole'S ROE For Bank. *Jurnal Siasat Bisnis*, 11 (1).

Baltagi BH. 2005. *Econometric Analysis of Panel Data. Third Edition*. New Jersey: John Wiley and Sons Inc.

Brigham, E. F., and Houston, J. F., 2010, *Fundamentals of financial management, concise 12th Edition*, Harcourt Publishers.

Buch, C. M., Eickmeier, S., Prieto, E., 2010, Macroeconomic Factors and Micro-Level Bank Risk. *Discussion Paper Series 1: Economic Studies*, Vol. 1 (20).

Cole D. W., 1972, Return on equity model for banks. *The Bankers Magazine*: 40–47.

Cooper, D.R. and Schindler, P.S., 2003, *Business research methods (8th edition)*. Boston: McGraw-Hill.

De Young, R. Hunter, W, and Udell, G., 2004, The past, present and probable future for community banks. *Journal of Financial Services Research*, 25: 85-133.

Defri, 2012, Pengaruh Capital Adequacy Ratio (CAR), Likuiditas dan Efisiensi Operasional Terhadap Profitabilitas Perusahaan Perbankan yang Terdaftar di BEI. *Jurnal Manajemen*, Vol. 01 (01)

Delis M. and Staikouras, C., 2006, Determinants of Banking Profitability in the South Eastern European Region. *Bank of Greece Working Paper* 06/47.online at htty://mpr Accounting and Taxation, 4(3), 38 – 43.

Dietrich, A. and Wanzenried, G., 2011, Determinants of bank profitability before and during the crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money*. 21(3), 307–327.

Dietrich, J. K., 1996, *Financial services and financial institutions*. Prentice Hall.

Firdaus, M.,2012, *Ekonometrika Suatu Pendekatan Aplikatif. Bumi Aksara*. Jakarta

Gitman L. J., 2010, *Principles of Managerial Finance*. 12th ed. New York (US): Prentice Hall.

Gunderson M, Detre J, Boehlje M., 2005, *Sales/marketing insights: Marketing's role in managing assets*.

Harahap, S. S., 2008, *Analisis Kritis Atas Laporan Keuangan*. Jakarta: Raja Grafindo Persada.

Javaid, S., Jamil, A., Zaman, K., and Gafoor, A., 2011, Determinants of Bank Profitability in Pakistan: Internal Factor Analysis. Mediterranean Journal of Social Sciences, Vol.2 No.1.

Jumono, S., et al. 2016. The Effect of Loan Market Concentration on Banking Rentability: A Study of Indonesian Commercial Banking, Dynamics Panel Data Regression Approach. *International Journal of Economics and Financial Issues* (6.1), pp 207-213.

Jumono, S., et al. 2015. The Impacts of ALMA Primary Variables on Profitability An Empirical Study of Indonesian Banking (13-32). *International Research Journal of Business*. 8 (1): 13-32

Kalluci, I., 2011, Analysis of The Abanian Banking System In a Risk Performance. *Athena (GR): Bank of Greece*.

Koch, T. W., Scott, M., 2009, Bank *Management. Singapore (SG): Thomson South Westren*, Thomson Asia Pte Ltd.

Keown, A., Martin, J., and Perry, J., 2011, *Foundations of Finance. 7th edition*. London: Pearson PLC.

Khrawish, H. A., 2011, Determinants of commercial banks performance: evidence from Jordan. *International Research Journal of Finance and Economics*. 81

Kosmidou, K, et al., 2002, Determinants of Profitability of Domestic UK Commercial Banks: Panel Evidence From The Period 1995-2002. *Money Macro and Finance (MMF) Research Group Conference*, Vol. 45.

Kosmidou, K., 2008, The Determinants of Banks Profits in Greece During The Period of EU Financial Integration. *Managerial Finance*, Vol. 34(3).

Mathuva D. M., 2009, Capital adequacy, cost income ratio and the performance of commercial banks: the Kenyan scenario. *Inernational Journal Application of Economics and Finance*, 3(2), 35–47.

Meythi T. K., Linda R., 2011, Pengaruh likuiditas dan profitabilitas terhadap harga saham perusahaan manufaktur yang terdaftar di BEI, *Jurnal Bisnis dan Manajemen dan Ekonomi*. 10 (2) : 2671-2684.

Machfoedz, M.,1999, *Akuntansi Manajemen 2, Edisi 3*. BPFE, Yogyakarta

Primasari M. F., 2013, Pengaruh karakteristik bank dan resiko keuangan terhadap profitabilitas (studi kasus pada bank umum yang berkinerja positif di Indonesia periode 2007-2011). *Thesis*. Semarang (ID): UNDIP.

Priyatmoko W. D., 2014,Pengaruh pendapatan bunga kredit dan non bunga (fee based income) terhadap kinerja keuangan bank (return on asset). *Jurnal Ilmiah*, pp 8-10.

Ramadan I. Z., Qais A. K., and Thair A. K., 2011, Determinant of bank profitability: evidence from Jordan. *International Journal of Academic Research*. 3(4) : 180-191.

Lipsey, R. G. and Ragan C. T., 2010, *Microeconomics*, New York: Mc.Graw-Hill Companies, Inc.

Salvatore, D., 2014, *Managerial Economics in a Global Economy*. New York: Mc.Graw-Hill Companies, Inc

Salvatore, D., 2012. *Schaum's Outline of Microeconomics, Fourth Edtion*. New York: Mc.Graw-Hill Companies, Inc

Syauta, R. C., Widjaja, I., 2009, Analisis pengaruh rasio ROA, LDR, NIM dan NPL terhadap abnormal return saham perbankan di Indonesia pada periode sekitar pengumuman Subprime Mortgage. *Journal of Applied Finance and Accounting*, 1 (2) : 351-367

Sufian F, Razali R., and Chong., 2008, Determinants of bank proitability in a developing economy: empirical evidence from the Philippines. *Asian Academy of Management Journal of Accounting and Finance*, 4 (2).

Tarawneh, M., 2006, A comparison of financial performance in the banking sector: Some Evidence from Omani Commercial Banks. *International Research Journal of Finance and Economics*, (1) : 101-110

Walsh, C., 2009, Key Management Ratios: The clearest guide to the critical numbers that drive your business. *Financial Times Series, 4th edition*. United Kingdom FT Press

William, H. S., 1990, *The Economics of Industrial Organization*. London (GB): Prentice-Hall.

Yuliani, 2007, Hubungan efisiensi operasional dengan profitabilitas pada sektor perbankan yang go publik di Bursa Efek Jakarta, *Jurnal Manajemen dan Bisnis*. 5 (10).

Zhou, Kaigou, Wong, Michael C. S., 2008, The determinants of net interest margins of commercial banks in Mainland China. *Journal of Emerging Markets Finance and Trade*. 44 (5): 41-53.

93123_ID_1111_JEIEFB_SaptoJumono_MFArroziAdhikara_Cha.