THE DETERMINANTS EFFICIENCY OF DOMESTIC AND FOREIGN BANK IN INDONESIA

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Abstract - *The aim of this research first, is to know the level of efficiency of domestic and foreign banks in Indonesia and second is to see whether the internal factors such as ROA, SIZE and CAR can give positive influence to the efficiency of banks in Indonesia or not. Because nowadays the condition of banking industry in Indonesia is very well develop with the important role of domestic and foreign banks that participate to improve the efficiency and effective performance of banking industry for the economic development in this nation. This research data is taken from 5 of each sample on domestic and foreign banks that exist in Indonesia in the period 2014-2016. So, to generating the result for this study, researcher is using Data Envelopment Analysis (DEA) method for first phase to get the result for efficiency level of domestic and foreign bank in Indonesia and also second phase using data panel regression method by EVIEWS software to get the result about the influences of the internal factor toward the efficiency of banking industry in Indonesia. The results of the study indicate that domestic banks in Indonesia are more efficient than foreign banks because the average level of efficiency close to the maximum value (E = 1) is from the domestic banks. The last result obtained from the data panel regression shows that ROA and CAR are not affect the efficiency while SIZE have a negative effect on bank efficiency in Indonesia.*

Keywords*: DEA, Bank Efficiency, domestic, foreign, Indonesia.*

I. INTRODUCTION

The banking industry is one of the factors of economic development in every nation as well as in the developing country as Indonesia. Commercial banks as the main component of banking system also have to be efficient otherwise they can create maladjustment in the process of economic development. Because banks are an intermediary institution for Indonesia, therefore banking institutions need better attention.

To assess the performance of banking industry is not only looking on the company's ability to manage it to become more profitable but also to look how the way these industries manage all the resources with effectively and efficiently. Any form of business course has a competitor as well as in the field of banking. With the inception of the globalization era of the bank in this country is required to continue and try to compete with foreign banks that operate in Indonesia. Domestic banks are trying hard to attract the sympathy of depositors to be interested in placing funds in domestic banks. Foreign banks also seek to attract the attention of the depositors in Indonesia, therefore, the domestic banks must be good at managing the strategies used compare with foreign banks in Indonesia. Most of foreign banks are applying a different system with the domestic banks. Foreign banks tend to be the priority banking, where customers are selected. External challenges are becoming increase significantly, especially, in the effect of the ASEAN Economic Community (AEC) in 2015. Every regional bank has challenge to compete with the foreign bank that already operate in Indonesia which is already has a relatively higher level of operational efficiency.

To conclude from some problems that explained above, the important thing is this study aims to determine the level of efficient and inefficient banking performance in Indonesia and to know what internal factors that affect the efficiency of banks industry in Indonesia. The measurement of efficiency can be analyzed more clearly by using by using non-parametric approach of Data Envelopment Analysis (DEA), so the researcher can know what the most dominant variables influence banking efficiency level in Indonesia. Internal factors that used as an independent variable is also used to measure the level of bank's health. Those variables are the profitability of bank that represented by *return on asset* (ROA), bank *size,* and capital represented by *Capital Adequacy Ratio* (CAR).

The output of this research is expected to provide theoretical implication in improving efficiency theory and financial performance for banking industry, to provide managerial implication regarding management policy in driving up higher efficiency and profitability performance mainly for domestic banks is to be useful for regulators to formulate policies to improve efficiency, bank's profitability and to prepare bank institutions in Indonesia to compete in AEC. Moreover, the research is also useful for the public to decide which bank they consider proper to save their excess fund and to be a source of financing.

II. LITERATURE REVIEW

Bank's role and Function

The word bank comes from Italian, means *table*. According to Act Number 10 of 1998 concerning Banking, the term bank is a business entity that collects funds from the public in the form of deposits and it can be distributed again to the community in the form of credit and or other forms in order to improve the standard of living of many people.

A bank as a financial intermediary means that the core function of a financial intermediary was traditionally discussed as securing funds from surplus units and transmitting to deficit units (Tobin 1963; Klein 1971; Fama 1980). For this, a bank intermediates funds from savers to investors and can also increasing economic efficiency by promoting a better allocation of resources (Levine, 1992).

A bank as money creator, the bank is distinguishing from other financial intermediaries in that it holds an important role as money creator in the economic system (Tobin 1963; Klein 1971; Towey 1974). The difference is visible on the balance sheet. As a financial intermediary, a bank's main assets are the obligations of borrowers, and a bank's main liabilities are the assets of the lenders.

Brief History of Indonesian Banking Market

In 1983, the early stages of banking deregulation began with the elimination of credit ceilings, the banks were free to set lending rates, savings and time deposits, and to stop granting Bank Indonesia Liquidity Credit (KLBI) to all banks except for certain types of credit related to cooperative and export development. In 1988, the government together with BI went further in the deregulation of banking by issuing the 1988 Banking Deregulation Policy Package (Pakto 88) which became the turning point of various policies of 1971-1972 banking control. The granting of a new business license for a new bank that had been terminated in 1971 was reopened by Pakto 88. Likewise, the opening permit of a branch office or establishment of the banks becomes more facilitated under the terms of light capital. Entering the 1990s, BI issued the February 1991 Policy Pack which contains provisions requiring banks to be cautious in their management. In the period 1992-1993, the national banking began to face the problem of rising bad loans that cause the burden of losses in banks and the impact of reluctance banks to expand credit.

Performance

Performance is defined as the ability possessed in applying a strategy for achieving results over a certain level of achievement. In the banking industry, performance is generally associated with competition, concentration, efficiency, productivity and the ability to generate profits, which we usually get with Return On Assets (ROA), Return On Equity (ROE), Net Interest Margin (NIM), Ratio Operational Costs and Operating Income (BOPO) (Bikker & Bos, 2008).

Efficiency

Efficiency in the banking world as one of the well-known performance parameters and widely used because it is considered as an answer to the difficulties to calculate the performance measures.

Efficiency in the banking system is closely linked to the efficiency of the banking market and the efficiency of the intermediation process as well as the efficiency in implementing monetary policy through regulation of bank loans (Matthews & Ismail, 2006).

Bank Efficiency Measurement

Measurement of banking efficiency can be done using various methods. It can be grouped into two main factors which are parametric and non-parametric methods. Both of these methods are aimed to estimate the frontiers representing best practices from a system. The frontiers estimated are used as a benchmark to compare a company to others. In parametric approach, measurement is conducted using stochastic econometric modeling and try to omit any effect of inefficiency. There are three econometric parametric approaches which are (*1*)

Stochastic Frontier Approach (SFA), 2) Thick Frontier Approach (TFA) and 3) Distribution-Free Approach (DFA). Meanwhile, non-parametric approach with Non-Parametric Linear Programming Approach conducts non-parametric using no stochastic approach and tends to "combine" disturbance and inefficiency. This argument is constructed based on findings and observations from the population and evaluated relative efficiency on the observed units. This approach is known as *Data Envelopment Analysis (DEA)*.

The measurement of bank efficiency consists of two approaches, namely production and intermediation. Production approach emphasized banks as a firm delivering services in the form of transactions, while in intermediation approach, banks assumed intermediating funds between savers and investors (Mostafa, 2011). Production approach assumed banks as the producers of loan and deposit for borrowers and depositors using a traditional factor of production, capital, land, and labor (Taufiq, Shamser, & Bader, 2009). Intermediation approach is more appropriate in evaluating banking sectors as bank collect funds and transforms them into loans and other earning assets (Mokhtar, Abdullah, & Alhabshi, 2008).

Hypothesis Development
a. The Domestic Bank Efficiency compare with the Foreign Bank Efficiency level in Indonesia
Based on some of the research evidence of efficiency, there are some researchers that explain that foreign bank is more efficicient than domestic bank, this research observed by Muda et al. (2013) that compare the domestic and foreign bank in Malaysia, they conclude that some significant factors for domestic banks are not relevant to foreign banks (they may be insignificant to foreign banks). (Sok-Gee, 2011) the research that he observed conclude that banking industry in China that compare the efficiency of domestic and foreign bank are relatively more efficient followed by state-owned banks (BUMN) and private domestic banks.

The researcher from Indonesia discussed also the comparison of performance on domestic bank, mixed-bank, foreign bank and the result is performance of foreign banks based on financial ratio proxies does not always outperform mixed banks and domestic banks, vice versa (Handayani, 2005).

So, based on some researches result from the other researcher above, the researcher generates the hypothesis as follows:
H1: The Efficiency of Domestic Bank is more efficient compared with Foreign Bank in Indonesia

b. The Influence of Return on Asset (ROA) toward bank's efficiency level in Indonesia
Return on Asset or better known as ROA is one of bank profitability ratio. ROA is said to be the ability of the capital invested in all of the company's assets to generate the profits (Hamdi & Lestari, 2010). In previous research, Fathony (2012) explains that efficient banks have higher ROA / ROE. So, it is proven that the higher level of profitability of a bank, the level of efficiency is also better or closer to 100% efficiency level.

In line with Firdaus & Hosen (2013) research which states that ROA as a proxy of profitability of a bank has a positive and significant influence because banks that generate greater profit rate are indicated as efficient banks.
So, researcher generate scond hypothesis as follows:
H2: There is positive impact of profitability toward bank efficiency level in Indonesia

c. The Influence of Bank SIZE (Asset) toward bank's efficiency level in Indonesia
Previous research explains that banks that have large sizes generally also have advantages than banks that have medium or small size. For example, such as large amounts of capital, better employment and reputation, and the ability to generate non-interest income from other sources, such as banking investment services, money transfer services, foreign exchange services and insurance services (Masita, 2014). The research that has been done by Rangan, et al. (1988) states that bank size has a positive influence on efficiency, which means that the bigger a bank, the more efficient this is due to the bank can maximize economies of scale.
So, the third hypothesis that researcher generate is:
H3: There is positive impact of Size of the bank toward bank efficiency level in Indonesia

d. The Influence of Capital Adequacy Ratio (CAR) toward bank's efficiency level in Indonesia
Bank health is measured using CAMELS ratio (Capital, Assets, management, earnings, and liquidity). One of the CAMELS' capital ratios (modeling) is an important factor for banks to run their operations. In the aspect of capital is not only necessary to create a healthy banking system but also necessary for banks to be more efficient. Widyatmoko (2014) explains that the soundness of a bank which is proxies with the capital aspect (CAR) has an influence on bank efficiency. The higher the CAR value the stronger the bank's ability to

bear the risk of any credit. The Capital Adequacy Ratio (CAR) is a measure of bank that can be measured through capital compared to risk-weighted assets (RWA).

So, researcher generates the last hypothesis as follows:

H4: There is positive impact of Capital Adequacy Ratio toward bank efficiency level in Indonesia

III.   RESEARCH DESIGN AND METHODS

Population in this research is conventional banks in Indonesia which consist of 120 banks. In this research, the researcher uses of two types of banks as a sample which are a domestic and foreign bank (from KCBA), and also sampling in this research is using purposive sampling technique. The criteria used as the basis for sample selection is Domestic and Foreign Bank operating in Indonesia and having a license to run its business in the period 2014 to 2016. The researcher took 5 random sample of domestic bank based on the bank that already go public and register their IPO in IDX in period 2014 until now and chooses 5 of a foreign bank based on the availability and completeness of the annual report and the banks that have input variables and complete output in the period 2014 to 2016.

- Domestic Bank (BNI, MANDIRI, BCA, BRI and CIMB NIAGA)
- Foreign Bank (STANDARD CHATERED BANK, BANK OF AMERICA, CITIBANK, BANK OF TOKYO, DEUTSCHE BANK).

Output Variables Definition

Credit is the distribution of funds or claims that agreed upon a few borrowings between banks and other parties that requires the debtor settle the debt at maturity with interest rate imposed. *Operating interest income* is defined as the interest income in Rupiah and foreign exchange from the investment of a bank upon citizen or non-citizen. *Non-interest income* is all income in Rupiah and foreign exchange obtained from non-interest operational activities, for instance, the increase in fair value of credit and securities, gains from sales of securities, and gains from the derivative transactions.

Input Variables Definition

Fixed Asset is an asset of a bank, actually long-term asset that is used to support bank's operating activities. *Labor cost* includes wages, salaries, and other allowances paid to management and employee. *Third party's fund* that consists of time deposit, savings that is collected funds from the public.

Return on Asset (ROA)

Profitability is a specific measurement of the bank performance, where the objective of management is to maximizing shareholder value (Adyani, 2011).

SIZE (Asset)

According to PBI No. 14/15/PBI/2012 dated 24 October 2012 on Asset Assessment of Commercial Banks, it is mentioned that asset consists of productive asset and non-productive asset.

Capital Adequacy Ratio (CAR)

According to PBI No.15/12/PBI/2013 dated 12 December 2013 CAR is the Minimum Required Capital of Commercial Banks. In order to create health banking system and be able to develop as well as competing for both domestically and internationally, banks need to improve the ability to mitigate risks caused by the crisis and/or high growth of banking's credit.

Data analysis Tools

The first stage of this research is to measure efficiency using DEA method which is to compare input and output variables using intermediation approach. Data will be analyzed on a time-series and cross-section basis using 3 input and output variables. Measurement efficiency using DEA is relative, meaning relative that depends on the best unit. The unit with the best efficiency will get 1,000 or 100%. While other units will give the variation of the level of efficiency is between 0 - 100% depending on the unit that have the best level of efficiency.

The aim of this technique is to measure how efficiently a bank uses resources in generating outputs. In addition, DEA can help to provide the targets that a bank must achieve in order to be more efficient. All data processing is done with DEAP 2.1 and WINDEAP software.

The second stage in this stage is explained and estimate about the impact of bank's internal factors such as ROA, SIZE and CAR that serve as independent variables to the dependent variable of efficiency (the result of DEA measurement or Efficiency result) using data panel regression processed by EVIEWS software, that the

step are choose first the best model between common effects, fixed effect or random effect model with the Chow Test, Hausman Test and Langgerman Test (if needed).

Define criteria for decision making for H1:

  If average of Eff-value is closer to 1 or 1 = domestic bank is more efficient than foreign bank

  If average of Eff-value is less than or far to 1 = domestic bank is inefficient than foreign bank

Define significant level (α) = 5%

Define criteria for decision making for H2-H4:

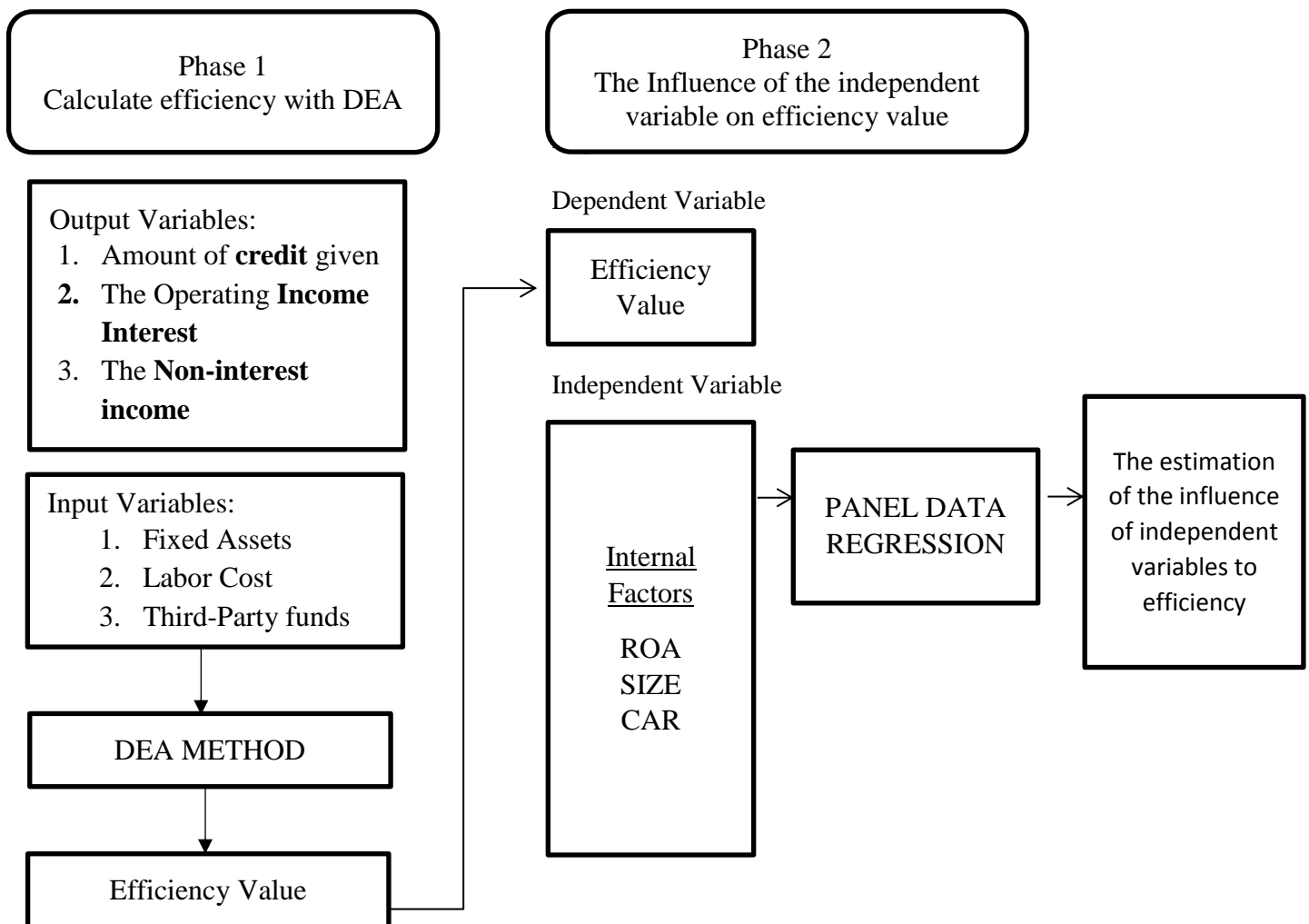 If P $\leq \alpha$ = H0 accepted, If P $> \alpha$ = H0 rejected

| Phase 1
Calculate efficiency with DEA | Phase 2
The Influence of the independent
variable on efficiency value |

Output Variables:
1. Amount of **credit** given
2. The Operating **Income Interest**
3. The **Non-interest income**

Dependent Variable

Efficiency Value

Input Variables:
1. Fixed Assets
2. Labor Cost
3. Third-Party funds

Independent Variable

Internal Factors

ROA
SIZE
CAR

DEA METHOD

PANEL DATA REGRESSION

The estimation of the influence of independent variables to efficiency

Efficiency Value

Figure 1: Research Framework

IV. FINDINGS AND DISCUSSION

Research Findings

A. The Efficiency Level of Domestic and Foreign Bank in Indonesia

  In finding the result, first stage is researcher using DEA analysis to get the result which domestic and foreign bank that already efficient in allocating the portion of input to generating some output. For the condition of the company the green range is 100%, the range for amber is 90% -99.99% and the range for red is 0% - 89.99%. *Green* means the project is safe and is on track to be achieved. For *amber* describe that company project may be at risk if the problem is not addressed and attention is needed here. And the last *red* means the project is at risk because it is far from the track to be achieved or out of scope. Here the immediate management action is required. So, based on some explanation before, the result that researcher get is explained in the table below.

Table 1: Comparison of Total Average Level on domestic and foreign bank efficiency in Indonesia

Bank's Name	Year			Average Level of Efficiency (Per Bank)	Total Average Level of Efficiency (Per Bank's Type)
	2014	2015	2016		
DOMESTIC					
BNI	1.000	0.971 (amber)	1.000	0.9903	0.9981
MANDIRI	1.000	1.000	1.000	1.000	
BCA	1.000	1.000	1.000	1.000	
BRI	1.000	1.000	1.000	1.000	
CIMB NIAGA	1.000	1.000	1.000	1.000	
Average Per Year	1.000	0.9942	1.000		
FOREIGN					
SCHATERED	1.000	1.000	0.57 (red)	0.857	0.8962
AMERICA	1.000	0.334 (red)	0.539 (red)	0.624	
CITIBANK	1.000	1.000	1.000	1.000	
TOKYO	1.000	1.000	1.000	1.000	
DEUTSCHE	1.000	1.000	1.000	1.000	
Average Per Year	1.000	0.867	0.8218		

Based on the table 4.2 describe that in year 2014 and 2016, all the domestic bank reach 100% efficiency or (E=1.00) and in green condition, means that those companies are efficient and can generating great performance in managing between their input and output. In year 2015, only four of the domestic bank (MANDIRI, BCA, BRI, and CIMB NIAGA) reach 100% efficiency or (E=1.000) and in green condition, means that those companies are efficient and can generating great performance in managing between their input and output, but for BNI is in amber condition which is the percentage of efficiency is reach 97% or E<1 means that BNI is in inefficient condition.

The average level of efficiency per domestic bank in period 2015 – 2016 above describe that just only BNI that have average level of efficiency below 1.000 which is 0.9903. But the rest of four banks have level of efficiency 1.000 means those banks already efficient. To conclude that overall average level of efficiency for domestic bank is 0.9981.

All the foreign bank can reach 100% efficiency or (E=1.000) and in green condition, means that those companies are efficient and can generating great performance in managing between their input and output in year 2014. But in year 2015 only one bank which is BANK OF AMERICA that can't reach 100% efficiency because the level of efficiency is 33% which is in red condition. In year 2016, only three of the foreign bank (CITIBANK, BANK OF TOKYO, and DEUTSCHE BANK) reach 100% efficiency or (E=1.000) and in green condition, means that those companies is efficient and can generating great performance in managing between their input and output, but two of foreign bank such as STANDARD CHATERED BANK and BANK OF AMERICA is in red condition because the percentage of efficiency is only 57% and 54% or E<1 means that those companies are in inefficient condition.

Based on the table above also describe that the average level of efficiency per year of foreign bank are stable on 2014 which can reach the average 1.000 per year, but in year 2015 and 2016 the average level of efficiency decreases significantly become 0.867 in 2015 and 0.8218 in 2016.

The average level of efficiency per foreign bank in period 2015 – 2016 above describe that there are two banks that have average level of efficiency below 1.000 which are STANDARD CHATERED BANK with 0.857 and BANK OF AMERICA with 0.642. But the rest of three banks have level of efficiency 1.000 means those banks already efficient. To conclude that overall average level of efficiency for foreign bank is 0.8962.

To conclude overall result on domestic and foreign bank level efficiency, the table also describe that the average level of efficiency per year of domestic bank are stable in year 2014 and 2016 which can reach the

average 1.000 per year, but in year 2015 the average level of efficiency slightly decreases become 0.9942. Based on the result above, in 2014 and 2016 all companies can maintain their performance in allocating between the input and output but in 2015 there is a company that can't survive and managing well their input and output proportion.

B. The impact of internal factors toward bank efficiency level in Indonesia

For the second phase, the researcher observed the internal factor such as ROA, SIZE and CAR that might be influence the efficiency by calculating the data panel regression using EVIEWS software. The result can researcher directly compares with the requirement or criteria for decision making for the hypothesis that if $P > \alpha$ = H0 accepted and $P \leq \alpha$ = H0 rejected, and also researcher observed the comparison of foreign and domestic bank efficiency by look the value, If average of efficiency-value is closer to 1 or 1 = domestic bank is more efficient than foreign bank and if average of efficiency-value is less than or far to 1 = domestic bank is inefficient than foreign bank

Model Selection

As the data are the panel data, researcher first must process 3 kinds of model, common effect, fixed effect and random effect in EVIEWS software. After this researcher must to specify the common effect estimation or fixed effects using Chow test, and also estimated using Hausman Test to compare between the fixed effect and random effect estimation.

a. Chow Test

Table 2: Result of Chow-Test

Redundant Fixed Effects Tests
Equation: FE
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.487141	(9,17)	0.0505
Cross-section Chi-square	25.204597	9	0.0028

Source: processed by EVIEWS 10 software

This test is to measure whether researcher chooses common effect model estimation or fixed effect model estimation.
H0: Common Effect
H1: Fixed Effect

Based on the Table 4.8, the probability value of cross-section Chi-square is 0.0028. It means that 0.0028 < 0.005 and to interpret the chow test result, researcher better to choose the Fixed Effect Model because is rejected the Ho.

After this, researcher compare between the Fixed Effect estimation with the Random Effect using Hausman test to make sure which the best model to use in the panel data regression.

b. Hausman Test

Table 3: Result of Hausman Test

Correlated Random Effects - Hausman Test
Equation: RE
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.681313	3	0.0003

Source: processed by EVIEWS 10 software

This test is to measure whether researcher chooses random effect model estimation or fixed effect model estimation.

H0: Random Effect

H1: Fixed Effect

Based on the Table 4.9, the probability value of cross-section random is 0.0003. It means that 0.0003 < 0.005 and to interpret the Hausman test result, researcher better to choose the Fixed Effect Model because is rejected the Ho.

After researcher compare between 2 models which is Chow Test and Hausman test, the result of both of the test is describe that Fixed Effect estimation model is better to use for the researcher in the data panel regression.

Hypothesis Testing Result and Discussion

A. The Efficiency Level of Domestic and Foreign Bank in Indonesia

To test first hypothesis researcher, look the result from the table 4.4 above about the average level of efficiency of bank in Indonesia, researcher compared the result of average level of efficiency of domestic and foreign bank that will give the final result. The average level of efficiency in domestic bank is higher rather than the foreign bank which is 0.9981 for domestic and 0.8962 for foreign bank. It also explains that two of foreign bank is less efficient which are Standard Chatered and Bank of America, and for domestic bank only one bank that inefficient which is BNI. Which mean researcher can conclude that the average value that closer to 1 is more efficient, from the result above the domestic bank is more efficient compare with the foreign bank in term of generating the output from the input that the company have in period of 2014 - 2016. *So, H1 is should be accepted*.

Based on the findings, first the researcher looks to the average level of efficiency of domestic and foreign bank per year, for domestic bank, the better condition or efficient is in year 2014 and 2016 because the level of efficiency achieve 1 (E=1), but in year 2015 the average level of efficiency is only reach 0.9942 means that the condition is inefficient. If the researcher compares with foreign bank, the average level of efficiency of foreign bank is only efficient in year 2014 but in year 2015 and 2016 the value of efficiency is below 1 which is 0.867 and 0.8218 means that the condition is not efficient.

If researcher compare based on the type of bank, which is between domestic and foreign bank, the average level result is higher on the efficiency in domestic rather than in foreign bank. The total average value efficiency of domestic bank is 0.9981 higher than the average value efficiency of foreign bank that only reach 0.8962. In this research result, one of the domestic bank is not reach the level of efficiency 1 which is BNI, because the average level of efficiency is 0.9903. For the foreign bank, there are two banks that not reach the perfect level of efficiency which are Standard Chatered Bank with the value of efficiency at 0.857 and 0.624 for Bank of America. From this research result, it is also proving by the past research by the Widiarti et al. (2014) that explain some commercial bank is efficient but not fully efficient and based on the Wardana 2013, Permono and Darmawan (2000), Ratnasari (2012) also stated that the domestic bank such as BUMN is more efficient rather than some of foreign bank. That's all describe that domestic bank is more efficient rather than foreign bank. But, in other hand, it is different with the research from Putra (2013), Fathony (2012) and Hadad, et al (2003) stated that forein bank is more efficient than domestic bank.

But if researcher look to this result research that describe domestic is more efficient, is it can prove because the condition of economic in Indonesia in year 2014 – 2016 is fluctuate. Based on the data from Badan Pusat Statistik, showing that condition of Indonesian economic is decreasing from year 2010-2015 (from 6.81% become 4.79%), although the economic condition is decreasing but the condition of banking industry still safe, because the economic condition still reach around 4% not below that point like in the past on year 2008.

From the result above, also researcher look that domestic bank tends to evaluate better when the proportion of input and output is not optimal. Different with the research of some researcher from the other nation such as from Ayadi (2013) that describe the foreign bank in Tunisian Bank is more efficient than domestic bank in that nation, in addition because the condition of every nation is also different, there are some considerations why the domestic bank in Indonesia can reach more efficiency compare with the foreign bank. First, because the trust of society also more for the domestic rather than foreign bank, all financing activities will be more in domestic bank rather than foreign bank. Second, about the technology that domestic bank used, although foreign bank lastly is better in the technology, but domestic bank now can develop more in term of technology to satisfy the better performance in the banking industry, for example in previous year BRI can

spread the new satellite, the purpose is also to develop the performance of the bank as well as to make easiest in doing all financing activities. So, all the effort that domestic bank do is to compete with the foreign in every situation and condition of the nation can we see from the performance that domestic industry can reach the higher level of efficiency compared with the foreign bank in Indonesia, which means that domestic bank already better to achieve proportional and optimal value between the input and output factors of the banks.

B. The impact of internal factors toward bank efficiency level in Indonesia

To test the hypothesis 2 until 4, the researcher choosing the result from fixed effect model and also to knowing from three kinds of variables such as ROA SIZE and CAR, which are that influence the efficiency of bank in Indonesia in period of 2014 until 2016.

Table 4: Result of Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROA	-2.169137	3.141235	-0.690536	0.4992
SIZE	-0.287056	0.093508	-3.069835	0.0069
CAR	0.186909	0.461796	0.404743	0.6907
C	6.377829	1.862809	3.423769	0.0032

Effects Specification			
Cross-section fixed (dummy variables)			

R-squared	0.629405	Mean dependent var	0.969333
Adjusted R-squared	0.367808	S.D. dependent var	0.112961
S.E. of regression	0.089816	Akaike info criterion	-1.683420
Sum squared resid	0.137138	Schwarz criterion	-1.076234
Log likelihood	38.25129	Hannan-Quinn criter.	-1.489176
F-statistic	2.406014	Durbin-Watson stat	1.959228
Prob(F-statistic)	0.048011		

Source: processed by EVIEWS 10 software

The important things of the result of the researcher get from the model selection above which is from Fixed Effect models are by looking the result value of Coefficient, Prob and the R-squared. Based on the table 4.10, X1 is the column "prob" is representing significant levels for each variable. The figure shows that only SIZE that significant because p-value is less than 0.05. And the two of the others variable are insignificant because p-value is larger than 0.05. Conversely, a bigger (insignificant) p-value describes that ROA and CAR is not influencing the efficiency of bank in Indonesia. Then after this researcher looking to the coefficient value of each variable, there is negative influence on ROA and SIZE toward the dependent variable which is the EFF.

In the other hand, those three factors still give influences toward the efficiency of bank in Indonesia. Based on the table 4.10, the result of R^2 value indicates how much the total variation of dependent variable (EFF) can be explained by independent variables (ROA, SIZE and CAR). A good R-squared is more than 50%, because it means the sample used for the regression can represent half the total population and be able to explain more relevantly. The result can be seen from the results of regression, that there is a value of R-squared worth 0.629. So, it can be interpreted that the sample in this regression can represent the total population of approximately 63%. It can be said that the sample can well represent the total population.

b. The influence of ROA to efficiency of Bank in Indonesia

Therefore, based on table 4.10 that ROA has Prob 0.4992 > 0.05 and Coefficient -2.169137. So, ROA is insignificant and give negative influence to the EFF, which means H0 is accepted or **H2 should be rejected**

Based on the findings result, ROA or bank's profitability is insignificantly and negatively influence the efficiency of Bank in Indonesia, from findings results shows p- value is in insignificant value because Prob is

more than 5 % (0.4992 > 0.05) and the coefficient is having negative value of -2.169137 which means that when the independent variable (ROA) rises, the dependent variable (EFF) can be decreases but the ROA is not influence the efficiency of bank in Indonesia. While based on Pasiouras (2008), and Saad and Moussawi (2009) efficiency is being influenced by bank profitability.

ROA have important role to the banking industry, based on the annual report of each bank domestic as well as foreign, the percentage of ROA in period 2014 – 2016 of each bank is fluctuate, not always increasing but sometime the value slightly decreases from year to year. The condition of economic global also influence the banking industry in Indonesia, in here because the condition of economic tend to decreasing and also ROA from each bank also tend to be fluctuate, means that there some confusing whether ROA can directly influence efficiency of bank industry or not. Researcher consider macroeconomic condition in that year, if the banking industry as well as the condition of nation is in good condition it might be consider ROA can influence the efficiency, because according to Fathorny (2012) the higher the ROA from year to year it can be lead to the efficiency of bank industry. But in this case, because the condition is fluctuated means that ROA not always influence the efficiency of the bank industry.

However, the result of this research is explainable in the context of Indonesia's banking industry since during the years of 2009 until now is being fulfilled with fact than Bank Indonesia trying to increase the Loan to Deposit Ratio by develop the regulation that stated that banks with LDR lower than 90% must add certain Reserve Requirement (RR) equal to 1% of the third-party funds (ICRA Indonesia, 2010). It is make strong indicator that return earned by bank in Indonesia not just coming from intermediary role to the business for the sake of economic growth but acquiring the return from the other activities such put the fund to some financial market investment and credit for consumption.

c. The influence of SIZE to efficiency of Bank in Indonesia

Table 4.10 also describe that SIZE has Prob 0.0069 < 0.05 and Coefficient -0.0287056. So, SIZE is significant influence and give negative influence to the EFF, which means H0 is accepted or ***H3 should be rejected.*** Based on the findings, the influence of size toward efficiency level on bank in Indonesia is significantly and give negatively influence. From findings result shows p-value show significant value because Prob is less than 5% (0.0069 < 0.05) and the coefficient size value is in a negative of -0.287056 which means that when the independent variable (SIZE) value rises, the dependent variable (EFF) value can be decreases and also the SIZE is influence the efficiency of bank in Indonesia. Which also little bit similar with the research result from Pasiouras et al. (2007), Saad and Moussawi (2009).

If consider the total asset that each bank has to generating the financing activities, from time to time the total asset that domestic as well as foreign bank is increasing, it means that the company can expand more in term of adding more asset to increase the value of the company. When the company getting bigger, they also tend to have opportunity to get more profit in the future because the more the asset that company have the more value that company will get if they can control well their operation and financing activities with better strategies.

In other hand SIZE can significantly influence the efficiency of bank in Indonesia because the fact that Indonesian bank experienced more in merger and acquisition which make them become bigger and also being driven to be efficient by the acquiring bank. Acquiring bank like OCBC (NISP), CIMB (Niaga) Maybank (BII), Mandiri, etc already implemented the specific banking practices including the technology that forces the bank to be more efficient. Berger et al. (1999) also have explained that bank mergers may lead to changes in efficiency. As one of the samples in this research is CIMB NIAGA that already implement an expansion strategy which is acquisition.   This bank can improve the performance value better rather than in the previously when CIMB not acquired by NIAGA. The case of merger and acquisition also can lead to efficiency in banking industry, when the company can develop the new strategies it leads to new condition which is become efficient condition.

Based on the findings result, if the researcher relates with the case of bank that merger and acquisition in Indonesia, it is not always give positive impact, there are some banks that the bigger the banks when do merger but if the acquired bank is not having level efficiency better with initial bank it can be give the negative influence of efficiency in the company. It is proving with the research of Rudi (2009) shows that only Bank Mandiri that has efficient and stable performance after the merger. The result of his efficiency test shows that only Bank Mandiri that is able to demonstrate the stability of its financial efficiency performance, so compared with the result of efficiecncy of Bank Mandiri now is in level of efficient (E=1). To know more deeply about the factors that determine the success of Bank Mandiri's efficiency performance needs to be done further

research on qualitative aspects of managerial that support the financial efficiency and effectiveness of the company's organization.

Thus, it can be concluded that mergers and acquisitions will not necessarily lead to efficiency if the bank cannot control the burden of interest costs and labor in its internal environment and make bank assets more productive by providing loans to qualified external parties and reduce lending to related parties bank.

The banks that are resulting from the formation of a merger of its efficiency performance are highly dependent on the initial performance of the bank's builders and against the performance of its forming banks. A strong bank performance scores its efficient if join-bank that has a strong efficiency performance will result in a bank with efficient performance. Conversely, if the joint-bank has weak efficiency performance will cause the merged bank decline its efficiency performance. Banks with poor efficiency performance when joining similar banks will result in weak banks condition as well as their efficiency scores. While banks with strong efficiency scores if joining a bank with medium efficiency scores will result in merged banks initially with strong efficiency but in the following year tends to decrease to middle efficiency scores (e.g Bank CIMB Niaga). A middle-efficiency bank if joining a middle-performing bank will result in a lower-performing bank tending to decline in subsequent years (eg Bank Danamon Indonesia). If the bank joins a bank with a strong efficiency score then the merged bank will have performance efficiency tends to increase.

So, to conclude that result the researcher shows the SIZE of car is influence the efficiency but it is can negatively influence when the banks cannot controlling well the performance of the company, while the bigger the company when doing merger is better because it can increasing the total asset or size of the company and it can lead to the efficiency of banks but the value of efficiency it is not always give maximum value, because if both company that is in the same level which is they have same range of the total asset or type and they do merger or acquisition in some period that is not always can lead to the maximum level of efficiency, it can might to the lower efficiency when compared with the condition before merger.

But if the initial banks can do merger with the different level of the company which for example the banks with the lower level of total asset do merger with the bank that have higher total asset it can lead to the better value which is there some consideration that the efficiency can achieve maximum value.

d. The influence of CAR to efficiency level of Domestic and Foreign Bank in Indonesia

Based on the Table 4.10, that CAR has Prob 0.6907 > 0.05 and Coefficient 0.186909 and. So, CAR is insignificant and give positive influence to the EFF, which means H0 is accepted or ***H4 should be rejected.*** Based on the findings result, CAR is insignificantly and influence the efficiency of Bank in Indonesia in period 2014 - 2016, from findings result shows p-value is in insignificant condition because Prob is more than 5% (0.6907 > 0.05) and coefficient value is having a positive value of 0.186909 (coefficient CAR) which means that when the independent variable (CAR) rises, the dependent variable (EFF) can be increase but the CAR is not influence the efficiency of bank in Indonesia.

This result is same with the research from Purworoko and Sudiyatno (2013) than explained that the ability of bank to keep the operation it can lead to some risk as well in term of controlling the capital in the banks, in other hand the bank is business industry that give the priority to the society, so that as long as society believe in the credibility of the company, the health of the bank at least 8% in accordance with the provisions of BI will not affect the efficiency of banking.

The researcher looks to the percentage of CAR of each domestic and foreign bank, the result is there are increasing from time to time in term of percentage of CAR. Means that the ability of the firm can researcher prove that company is able to see the opportunities to make society believe with the credibility of the firm and also it is not lead whether the company is in efficient condition or not in exact calculation but when the society see that the company or bank can reach at least 8% in car, they will be safe for the company because this reason not affect the efficiency of banking. Because the society follow the regulation, they are trust to the credibility of the banks which means society doesn't need to look at efficiency level value of each bank, they only look to the CAR value of the banks. Based on the data of the research, average value of the CAR for domestic and foreign bank is 32%, means that from CAR data shows an inconsistency between the efficiency level and the CAR value that is why CAR not always influence efficiency of the banks.

Therefore, management must be able to keep and build public confidence to the bank for the future bank's performance to be more efficient. While looking the management activities to control the public confidence, is also task for the management to try develop the efficiency level using some other factor, because proportion of capital not only one of the factor that can lead the efficiency of the bank but also some other factor might become the reason that can lead the banking industry to be more efficient. So, CAR not always influence

efficiency of bank industry especially in Indonesian condition, some other researcher can see this factor can be influence efficiency, but from this research result CAR is not influence the efficiency of banks because of the reason that researcher already explain above.

V.   CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The overall calculation describes that domestic bank is have high level of efficiency in term of proportioning the input to generate some output, compare with the foreign bank in Indonesia that have a little bit lower level of efficiency than the domestic bank. It proves that the only one company from domestic bank such as BNI have the level of efficiency less than 1, and for the foreign bank is have 2 companies that have level of efficiency less than 1 such as Bank of America and Standard Chatered Bank. This condition is explainable because the economic condition in Indonesia tends to fluctuate and reach the local department or companies to develop more rather than foreign, and also if researcher looks to the trust of society toward the bank, they will tend to go to a domestic bank rather than foreign bank in Indonesia. The domestic bank also has more effort to establish the technology and the process of financing activities rather than foreign bank in Indonesia to serve the society better and develop the trust of the society.

The impact of internal factors such as ROA, SIZE and CAR toward the efficiency of domestic and foreign bank is also having different result which is not always three internal factors above are influencing positively to efficiency level of Bank in Indonesia. Based on the analysis above is only SIZE that negatively influence on efficiency of bank in Indonesia and the result is also contradict with the hypothesis, because the size can easily influence the efficiency of bank with Indonesian bank that have experience merger and acquisition but if the initial bank didn't have enough asset to cover and increasing the result after do merger or acquisition it can be lead to negative influence to the bank efficiency.

The ROA and CAR that also contradict with the hypothesis because these internal factors are not influencing the efficiency on bank in Indonesia. For ROA, because the return earned by bank in Indonesia not only coming from intermediary role but also the bank can get from other activities such as some financial market investment or for credit consumption and for CAR, because the society more believe by looking to the credibility of the company when the bank's health have at least 8% in accordance with the provision of BI it prove that CAR will not affect the efficiency of banking industry and also average value of the car in this research show the inconsistency value compared with the efficiency level so its prove that CAR not always influence the efficiency.

Research Limitations

This study has the following limitations, such as:
1. The sample is only 5 sample of domestic and 5 sample for foreign bank
2. The period is only 3 years period which in from 2014 – 2016
3. The internal factors that researcher use is only 3 factors which are ROA, SIZE and CAR.

Recommendation

For the Investors should always be careful in making investment decisions by looking the condition of efficiency level of the company. Based on the limitation of the study, for future research, the researcher can conduct with more sample and more period as well as more internal factors to know make better decision in the future research and know also what other factors that can influence efficiency of banking industry in Indonesia.

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