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EFISIENSI, PERSAINGAN, DAN RISIKO *DEFAULT* PERBANKAN INDONESIA SEBELUM DAN SETELAH PBI 14/26/2012

EFFICIENCY, COMPETITION, AND DEFAULT RISK INDONESIAN BANKING BEFORE AND AFTER PBI 14/26/2012

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ABSTRAK

Penelitian ini mencoba menemukan dampak PBI / 14/26/2012 pada perbankan di Indonesia. Peraturan ini membatasi kegiatan bank berdasarkan modal inti yang mereka miliki. Tujuan peraturan ini adalah untuk meningkatkan efisiensi, daya tahan dan persaingan perbankan. Efisiensi diukur dengan menggunakan DEA, proksi daya tahan dengan skor Z dan proksi persaingan dengan HHI. Hasil penelitian menunjukkan bahwa terdapat perbedaan yang signifikan sebelum dan sesudah peraturan dikeluarkan untuk variabel efisiensi dan kompetisi tetapi untuk daya tahan tidak signifikan. Tahap selanjutnya dari penelitian ini adalah untuk mengetahui pengaruh daya tahan, persaingan, peraturan dan jumlah Dewan Direksi (BOD) terhadap efisiensi. Pengukuran dilakukan dengan regresi panel dan menyatakan bahwa BOD dan pandangannya secara signifikan mempengaruhi efisiensi.

Kata kunci : efisiensi, kompetisi, resiko *default, Board of Director* (BOD), perbankan.

ABSTRACT

This study try to find out about the impact of PBI / 14/26/2012 for banks in Indonesia. This regulation limiting the activities of banks based on their core capital. The purpose of this regulation is to improve the efficiency, durability and banking competition. Efficiency is measured by using DEA, endurance proxy by Z score and competititon proxy by HHI. The results showed that there was a significant difference before and after the regulations issued for variable efficiency and competition but not for durability. The next stage of this research is to know the effect of endurance, competition, regulations and numbers of Board of Directors (BOD) of the efficiency. Measurements were made by a panel regression and stated that the results of the BOD and year significantlyaffecting efficiency.

Keywords: efficiency, competition, default risk, BOD, banking

INTRODUCTION

Background

There are differences opinion regarding the impact of financial institution to economic developments (Creel *et al*, 2014; Adeniyi *et al*, 2015). Financial institutions may have positive effects on the economy if the economy of a country has reached a certain level or the positive relationship can be seen with more complex equations (Adeniyi *et al*, 2015).

The second opinion said that there is a positive relationship between financial institutions and the country's economy because of the credits (Creel *et al*, 2014). Credit enables transfer of funds from surplus units to the deficit units. One financial institution that is always under scrutiny from many parties is banking. Financial institutions in Indonesia dominated by banking asset. In the second quarter of 2015, total bank assets reached 76%, while assets of the institution Non-Bank Financial (IKNB) only 23% (BI, 2015).

Banking as intermediary institutions also have a duty as a custodian of domestic savings (Banerjee and Velamuri, 2015) so that the bank must make a profit but the bank is also required to be careful in reaching its target (Banerjee and Velamuri, 2015). Supporting operation of payment systems, implementating of monetary policy and the achieving of financial system stability is some

strategy functions held by banks (FSA, 2015). Unstable banking will have ineffective monetary policy (Warjiyo, 2006). However, the ownership structure of banks with the government turned out to be countercylical support in times of crisis.

The growth of banking in Indonesia which is relatively rapid requires appropriate regulation to encourage the growth of the Indonesian banking sector so that banks can grow in quantity and quality. Various kinds of regulations issued by the regulator to support the development of banking in Indonesia. One of them, issued at the end of 2012, is Bank Indonesia Regulation Number 14/26 / PBI / 2012 with the intention to increase endurance, competition and efficiency of banks in Indonesia.

Bank Indonesia Regulation Number 14/26 / PBI / 2012 restrict banking business in accordance with the core capital owned. There are four groupings called Commercial Banks based on Business Activities (BUKU). Each group BUKU have limits on the scope of business they can do as well as related to the expansion plans that will be done. Banks that engage in activities that do not correspond to BUKU group should increase its core capital in order to continue its activities in a certain period of time determined by Bank Indonesia. If the bank can not raise their core capital they can not continue these activities.

In addition, since 14/26/2012 PBI also stressed the opening of an office network, the bank which has opened a branch office exceed the maximum limit in accordance with the BUKU group can not open a new branch until they reach the minimum requirements. The purpose of the restrictions on banking business in accordance with the core capital is to increase resilience, competitiveness, and efficiency of the national banking industry (BI, 2012). This is also strengthened by the challenges of the Asean Economic Community (AEC), which makes the economy between countries grow without limit.

Efficiency and banking competition must be improved so that the resources in Indonesia is not less competitive with foreign sources of incoming power. Core capital-related regulations also seek to reduce the risk of the bank. Restrictions on bank activities by core capital is expected to make the bank more cautious in conducting its operational activities in order not to engage in activities outside the ability of the bank.

Restrictions on the activities of banks that are based with core capital should reduce the behavior of agency theory that may happens to the banks and further improve efficiency (Pessarossi and Weill, 2015). Djankov *et alet al* (2002); Laeven and Levine (2007) said regulations related to restrictions on banking activities only lowers efficiency. Barth *et al* (2013) says that there has been no clear view about the effects of regulation and monitoring of efficiency. According to Barth (2006) there are several theories about the effect of regulation on the efficiency and fairly common theory is public interest view and private interest view.

Further Barth (2006) writes that the theory of public interest view saying that the regulation and supervision of banks is done for the sake of public interest, while private interest view says only in the interests of certain groups. When the regulation was formed for the benefit of society at large, the efficiency of the bank will increase while the current regulation established only in the interests of certain groups, the efficiency will decrease (Barth *et al*, 2013).

Efficiency is critical to improved because the bank with optimum efficiency levels according to Hassan *et al* (2009) will improve the whole economy and affect the level of welfare. Berger *et al* (1993) found that the more efficient financial institutions will present the hope that in future profits and intermediation produced bigger, better service to the users of financial services and the better the health of the institution. Seeing the importance of the efficiency of banks is not surprising research in this field has been done much before (Beck *et al* (2013); Hasan and Dridi (2010); Srairi (2010); Mokhtar *et al* (2006); Bader (2008), Hasan *et al* (2009), Wanke (2016), Sufian (2009) and Sufian (2007) and Bonin *et al* (2005).

Based on existing literature, it is known that competition, as research conducted by Viverita (2014) and Karman and Carvallo (2014) has a relationship with the level of efficiency. Durability also become one of the enactment of the PBI / 14/26/2012 is also believed to have links with the efficiency (and Nguyen Nghiem, 2014; Tan and Floros, 2013; Zhang *et al* 2013).

In this study, we are going to measure the effect of regulation, competition and durability, to the efficiency of Islamic banks in Indonesia before and after regulation PBI / 14/26/2012 apply. Measurements carried out on the observation period 2011-2014 to avoid the effects of the global crisis.

Literature Review

Bank Indonesia Regulation Number 14/26 / PBI / 2012 and Efficiency

December 2012 Bank Indonesia issued Bank Indonesia Regulation Number 14/26/ PBI

/2012. The regulation regulated business activities and office networks based on the bank's core capital. Some of the objectives according to BI (2012) is to support economic growth, improve the reliability, efficiency and competitiveness as well as support to improve the intermediation of banks. Banking has an important function as an intermediary institution for loans granted by financial institutions became one of the determinants of economic development (Creel *et al*, 2014).

The existence of this rule results in the scope of banking business is restricted to core capital (for banks with the status of Indonesia's Law) or Capital Asset Maintenance Equivalency (CEMA, the foreign banks that have branches in Indonesia). In addition, banks also can not open a new network office if the core capital they do not qualify.

In summary, the central bank's core capital split into four groups called the Commercial Banks based on Business Activities (BUKU). The division of the BUKU, as quoted by Bank Indonesia Regulation Number 14/26 / PBI / 2012 is as follows:

1. BUKU 1 is a bank with core capital to less than Rp. 1000000000000.00 (one trillion rupiah).
2. BUKU 2 that banks have core capital of at least 1000000000000.00 (one trillion) to less than 5000000000000.00 (five trillion rupiah).
3. BUKU 3 is a bank that has a core capital of not less than 5000000000000.00 (five billion rupiah) to less than 30,000,000,000,000.00 (thirty trillion rupiah).
4. BUKU 4 is a bank with a core capital of not less than 30,000,000,000,000.00 (thirty trillion rupiah).

The regulation conducted by BI applies to all types of conventional and Islamic banking. Banks that conduct business outside of their BUKU have to increase their core capital or adjusting activities according to their category in BUKU. In addition, if these banks already have a network of offices more than the ratio of their BUKU they can not open new offices until they increase their core capital and move to the higher BUKU groups.

When the regulation was formed for the benefit of society at large, the efficiency of the bank will increase while the current regulation established only in the interests of certain groups, the efficiency will decrease (Barth *et al*, 2013). According Pessarossi and Weill (2015) restrictions on the activities of banks based with core capital will reduce the agency theory occuring in the bank. Agency theory describes the behavior between management and shareholders. Party management who feel that they will not have be materially adversely affected if there is a failure in the investment decisions of the company, would tend to put the funds in more risky investment. The existence of restrictions on freedom for banks based on core capital will indirectly reduce agency theory and improve efficiency (Pessarossi and Weill, 2015).

In addition to a reduction in agency theory, restrictions on the movement of the banks considered would reduce the ability of banks to diversify their revenue streams. Indirectly, this will actually make the bank decreased efficiency (Djankov *et alet al*, 2002; Laeven and Levine, 2007). Various kinds of arguments related to the relationship about regulatory restrictions on activities or core capital with efficiency in is still not clear (Barth *et al*,2013)

The concept of Efficiency

The core of the economy is the efficiency (Leibenstein, 1966). Berger and Humphrey (1997) said that the data on the efficiency can be used for three purposes, namely to assess the results of government policies, provide an overview of the efficiency of an industry and managerial improvement. It has also been recognized by Farrell (1957) that the measurement of productive efficiency is important not only for specialists but also for the policy authority.

Banks with optimum efficiency levels according to Hassan ***et al*** (2009) will improve the whole economy and affect the level of welfare. In addition, Berger ***et al*** (1993) found that the more efficient financial institutions will increase positive perception in the future about more profits, better service to the users of financial services and the better condition of the institution. When banks have inefficient intermediation, Hassan ***et al*** (2009) says that the opposite will occur coupled with tax issues that should be used in case of a bailout.

Level of Competition and Efficiency

Market power is the ability to maintain and increase the market share of a company to another company (Louati, 2015). For banks, the market power or the level of competition is important because it is related to the savings that will be placed by the public (Arrawatia ***et al***, 2015).

Furthermore, Arrawatia ***et al*** (2015) found in the developing countries credit from banks is very important and the higher competition will obtain more profits. Competition is believed to have an influence on the efficiency. There are two kinds of theory in industrial organization, namely the Structure Conduct Performance (SCP), and Efficient Structure (ES). SCP theory says that the current concentration inthe industry increases, will increase the company's performance is efficiency. ES theory is divided into two theories that support the increased competition will bring increased efficiency (Efficiency Competition Hypothesis) and the theory that increased competition will lower efficiency (Inefficiency Competition Hypothesis).

In theory Inefficiency Hypothesis Competition there is an indication of decreased efficiency as competition increases caused by Quiet Life Hypothesis theory, namely the theory that the market less competitive, the company with a high level of competition will tend to maintain existing conditions and do not seek to improve efficiency. Research relating to the relationship between competition and efficiency is still fairly rare (Sastrosuwito and Suzuki 2012).

Mulyaningsih ***et al*** (2015) stated that the competition can increase efficiency and economic growth. Several studies have linked the effect of competition on the efficiency has been done by Kumbhakar ***et al*** (2001, Casu and Girardone (2009), Wanniarachchige and Suzuki (2010), Sastrosuwito and Suzuki (2012), Mulyaningsih ***et al*** (2015), Arrawatia ***et al*** (2015) , Kasman and Carvallo (2014), and Viverita (2014).

Kumbhakar ***et al*** (2001) says that the increasing competition for regulation turns negative effect on efficiency. Increased competition will reduce the level of technical efficiency of banking in Spain. Similar results were found by Prutenau-Podpierra ***et al*** (2008) found that increased competition turned out to be a negative influence on the efficiency.

Several other studies have found that competition positive effect on efficiency. Casu and Girardone (2009) found that competition positively affects efficiency but otherwise has no effect on the competition efficiency. Similarly, Wanniarachchige and Suzuki (2010) stated that competition has positive influence on technical efficiency. Arrawatia ***et al*** (2015) conducted a study using a bank in India and the results of the study are positively effect on the competition efficiency and the reverse efficiency is also positively effect on competition. Research on the relationship of competition and efficiency conducted by Sastrosuwito and Suzuki (2012) in Indonesia. Results of the study stated that competition has positive influence on technical efficiency.

Kasman and Carvallo (2014) conducting research related to the effect of competition and efficiency to support the theory of quiet life hypothesis. Research results differ from those in Indonesia are carried out by Viverita (2014). Viverita (2014 indicates that in Indonesia theory Structure Conduct Performance and Efficient Structure Hypothesis hypothesis is valid, but theories about the quiet life hypothesis does not apply in Indonesia.

Default Risk and Efficiency

Saeed and Izzeldin (2014) in his research measuring about the relationship between default risk and efficiency in conventional and Islamic banks in the countries of the Gulf Cooperation Countries (GCG) and three non-GCG countries produce different findings on any type of banking in the years 2002-2010. Islamic bank, default risk and efficiency trade off does not occur while the conventional bank, default risk is getting smaller, followed by the smaller level of efficiency. This study uses a Merton model as a proxy for default risk and efficiency is measured by the Stochastic Frontier Analysis (SFA).

Nguyen and Nghiem (2015) examined the relationship between default risk, capital ratio and efficiency in Indian banking. The results showed that the higher the Z Score will increase efficiency and profits perbankan.Akhtam Awartani (2014) produced findings that the negative correlation between default risk with efficiency. Efficiency is measured by using Data Envelopment Analysis and Default Risk is measured by using the Z Score. Saeed and Izzeldin (2014) said that the relationship between default risk and efficiency is still rarely investigated. Therefore, the literature regarding the relationship between these two variables is a little.

RESEARCH METHODS

This study uses a quantitative study using panel regression method. Object in this research is 78 Banking in Indonesia.Data used in this research is secondary data obtained from the consolidated balance sheet and income sharia banking in Indonesia in the observation period 2011-2014. Data in the form of secondary data and is accessed from the website of the Otoritas Jasa Keuangan (OJK).

The purpose of PBI / 14/26/2012 is to improve the efficiency, durability, as well as

competition from national banks. This regulation is expected to improve the efficiency, durability, as well as competition from national banks. If the decline in the level of efficiency before and after PBI 14/26/2012, the durability as well as competition from banks also indicated changes before and after PBI / 14/26/2012 was issued. Efficiency is measured using Data Envelopment Analysis, competition is measured using the Herfindahl-Hirschman Index (HHI) and durability default risk is measured using Z Score. Based on this, the hypothesis 1-3 of this study are:

Hypothesis 1:
H0: banking efficiency before and after PBI / 14/26/2012 did not have significant differences.
H1: banking efficiency before and after PBI / 14/26/2012 had significant differences.
Hypothesis 2:
H0: banking competition before and after PBI / 14/26/2012 did not have significant differences.
H1: banking competition before and after PBI / 14/26/2012 had significant differences.
Hypothesis 3:
H0: Default risk before and after PBI / 14/26/2012 did not have significant differences.
H1: Default risk before and after PBI / 14/26/2012 had significant differences.

In theory, restrictions on bank activities are based with core capital should reduce the behavior of agency theory in the banks and further improve efficiency (Pessarossi and Weill, 2015). Barth *et al* (2013) says that the regulation which caused decline in efficiency is not done for the sake of public interest. (Djankov *et alet al* (2002); Laeven and Levine (2007)) also said that the regulations relating to restrictions on banking activities will reduce efficiency.

In addition, restrictions on banking activities makes bank hard to diversify their revenue. Although there was many arguments, such as income diversification can improve performance, but there are other opinions that say diversify income does not affect its performance (Humarseno and Chalid, 2013). Based on this, the fourth hypothesis of this study are:

Hypothesis 4:
H0: PBI / 14/26/2012 has no influence on the efficiency of the banking system.
H1: PBI / 14/26/2012 has an influence on the efficiency of the banking system.

Competition is believed to have an influence on the efficiency. There are two kinds of theory in industrial organization, namely the Structure Conduct Performance (SCP), and Efficient Structure (ES). SCP theory says that the current concentration in the industry increases, will increase the company's performance is efficiency. ES theory is divided into two theories that support the increased competition will bring increased efficiency (Efficiency Competition Hypothesis) and the theory that increased competition will lower efficiency (Inefficiency Competition Hypothesis).

In theory Inefficiency Hypothesis Competition there is an indication of decreased efficiency as competition increases caused by Quiet Life Hypothesis theory, namely the theory that the market less competitive, the company with a high level of competition will tend to maintain existing conditions and do not seek to improve efficiency. Research related to the relationship between competition and efficiency are still quite rare (Sastrosuwito and Suzuki, 2012). Based on the explanation above, then the hypothesis 5 of this study are:

Hypothesis 5:
H0: Competition has no influence on the efficiency of the banking system.
H1:The competition has an influence on the efficiency of the banking system.

Saeed and Izzeldin (2014) said that the relationship between default risk and efficiency is still rarely investigated. Saeed and Izzeldin (2014) in his research that measures the relationship between default risk and efficiency in the GCG as well as three non-GCG country produced findings that the default risk is getting smaller, followed by the smaller level of efficiency. That is, the smaller the risk of bankruptcy experienced by the banking turns will produce a level of efficiency that small anyway. Saeed research and Izzeldin (2014) is similar to research and Nghiem Nguyen (2015). Nguyen and Nghiem (2015) examined the relationship between default risk, capital ratio and efficiency in Indian banking. The results showed that the higher the Z Score will improve the efficiency of banking profits.

Akhtam and Awartani (2014) who also examined the relationship between default risk and efficiency in state GCG find different findings that the default risk negatively affect efficiency. Research Akhtam and Awartani (2014) resulted in

different findings with research and Izzeldin Saeed (2014) and Nghiem and Nguyen (2015). Akhtam and Awartani (2014) found that the relationship between default risk and efficiency is reversed. If the default risk is small then the higher the efficiency. Based on the explanation above, then the hypothesis 6 of this study are:

Hypothesis 6:
H0: Default risk has no influence on the efficiency of the banking system.
H1: Default risk has an influence on the efficiency of the banking system.

There are two views on the influence of the board of directors or the BOD on the performance of the company. First, a little amount of BOD will maximize the company's performance and will affect both the amount of BOD positively to company performance (Belkher, 2009). Based on the presentation, then the hypothesis 7 of this research are:

Hypothesis 7:
H0: Number of BOD has no influence on the efficiency of the banking system.
H1: Number of BOD has an influence on the efficiency of the banking system.

Methods

Regression Panel

Research involving large data set consisting of data time series and cross-section is called the panel data or longitudinal data (Brooks, 2008). Furthermore, Brooks (2008) says that the data panel will have better information on the time series data and cross-section data so that the data panel will store data the same obje and observe the changes that exist on the object at any time. In general, the equation of panel data is as follows:

$$Y_{it} = \alpha + \beta x_{it} + u_{it} \quad (3.1)$$

With the explanation Y is the dependent variable, α is the intercept, β is a k x 1 parameter vector in the independent variable and XIT ARE1 x k vectors observations on the independent variable, t is time, i is the cross-section.

There are three kinds of panel regression techniques, Pooled Regression, Fixed Effects Model (FEM), and Random Effect Model (REM), In the pooled regression, treatment was given between object at any time is the same so there is no difference with the usual multiple regression. While at the FEM is used during an intercept and correlation between individual variables. REM is used when there is an assumption intercept each variable is random.

In general, the model of the equation in this study are:

$$Efficiency_{it} = \beta_0 + \beta lnHHI_{it} + \beta Zscore_{it} + \beta Dyear_{it} + Error_{it} \quad (3.2)$$

Explanation of the above variables as follows:

$Efficiency_{it}$ = Efficiency Bank i in period t
β_0= Constant remains
$\beta lnHHI_{it}$ = natural logarithm of competition proxied by HHI Bank i in period t
$\beta Zscore_{it}$= *Zscore Bank i in period t*
$\beta Dyear_{it}$ = Dummy year stating the period before or after the applicable regulations. 1 yearafter PBI 14/26/2012 valid and 0 otherwise.
$Error_{it}$ = *Error term*

Data Envelompent Analysis

Data Envelopment Analysis or DEA is a efficiency measurement with nonparametric approach using linear program that does not have tendency to combine stochastic and disorder and inefficiency. The advantage of this method is the measurement of efficiency can be used with a little data (Havrylchyk, 2006). The method developed by Charnes *et al* (1978). This is a method that introduces about the term Decision Making Unit (DMU). Efficiency measurement developed by Charnes *et al* (1978) states that the DMU is composed of an average ratio of output to input on average a similar condition where the ratio is less than or equal to one.

Herfindahl-Hirscmanh Index (HHI)

Competition is measured using the Herfindahl-Hirschman Index (HHI). HHI measurement is performed as follows:

$$\text{HHI} = \sum_{t=1}^{n} \left(\frac{Asset\ Bank\ i}{Banking\ Total\ Assets}\right)^2 \quad (3.3)$$

Z Score

Because the original model of the Altman Z Score is a model that is used to measure manufacturing company, then the model must be modified in measuring banks. Z Score is mostly done by previous studies, such as Cihak and Hesse (2010), Gamaginta & Rokhim (2011), Kasman and Carvallo (2014). In general, from Z Score formula used is as follows:

$$Z_{it} = (\mu ROA_{it} + Eq_{it}/A_{it}) / \sigma ROA_{it} \quad (3.4)$$

Z is a measure of the probability of bankruptcy of the bank i at time t bank i, μROA_{it} is the return on asset bank i at time t, Eq_{it}/A_{it} he amount of equity to assets ratio at time t and bank 1 i time t, and σROA_{it} is standart deviation estimation.

RESULTS AND DISCUSSION

Statistic Descriptive

Table 1Static Descriptive

Data Envelopment Analysis			
Variabels	**Definition**	**Data Sources**	**Refferences**
Fixed Asset (*X1*)	Fixed Asset in Bank	Balance sheet	Ftiti *et al* (2013) dan Rosman*et al* (2014)
Deposit (*X2*)	Total Deposit	Balance sheet	Hadad *et al* (2003), Saeed *et al* (2014), Ahmad danRahman (2012), Ftiti *et al* (2013) dan Rosman*et al*(2014)
Labor Cost (*X3*)	Labor Cost	Income Statement	Hadad (2003), Ahmad danRahman (2012), Ftiti *et al* (2013) dan Rosman*et al*(2014)
Total Loans (*Y1*)	Total Loans	Balance sheet	Halkos *et al* (2014),Ftiti *et al* (2013) ,Soetanto dan Ricky (2011), Ascarya dan Yumanita (2009), Ascarya *et al* (2006) dan Hadad *et al* (2003), Rosman*et al*(2014)
Non Interest Income (*Y2*)	Other Income	Income Statement	Ftiti *et al* (2013),Rosman*et al*(2014)

Table 2 Static Descriptive

Competition			
Variabels	**Definition**	**Data Sources**	**Refferences**
Herfindah-Hirschman Index (*HHI*)	(Asset bank/Total assets bank)^2	Balance sheet	Rettab *et al* (2010), Guegler and Siebler (2007), Rokhim and Susanto (2013).
Default Risk			
Variabels	**Definition**	**Data Sources**	**Refferences**
Asset	Asset Bank	Balance sheet	CihakdanHesse (2010), Gamaginta & Rokhim (2011), KasmanandCarvallo (2014)
Equity	Equity	Balance sheet	
Return of Asset (*ROA*)		Financial Ratio	
Dummy Year			
Variabels	**Definition**	**Data Sources**	**Refferences**
Dyear	1 after PBI 0 otherwise		
Board of Directors			
Variabels	**Definition**	**Data Sources**	**Refferences**
Number of BOD	Number of BOD each banking	Comittee Report	Belkhir (2009)

Efficiency, Competition, and Default Risk Before and After PBI / 14/26/2012

Paired difference test performed on the same sample. An average of Z Score efficiency, and competition at every bank in every period tested to know whether there is a significant difference before and after 14/26/2012 PBI issued.

Two variables in PBI / 14/26/2012, namely efficiency and HHI already has a significant difference between before and after the issuance of the regulation. Efficiency and HHI significantly

different from the probability of below 1%, which is in significant efficiencies in the HHI of 0.000 and 0.006. In a variable resistance, which is proxied by Z Score is not significantly different before and after the issuance of PBI / 14/26/2012 is shown with a significance of 0.132.

Need to be studied further on the causes of the lack of resistance variable difference before and after the issuance of the BI regulation. One of the reasons that may happen is because this research has only sampled two years since the issuance of regulations PBI / 14/26/2012.

Paired test results that the first hypothesis, banking efficiency before and after PBI / 14/26/2012 had significant differences. In the second hypothesis banking competition before and after PBI / 14/26/2012 does not have a significant difference and the third hypothesis Default risk before and after PBI / 14/26/2012 did not have significant differences.

Effect of competition, Default Risk, and the Board of Directors of the efficiency with Dummy Year

Effect of competition, default risk, and the Boards of Directors of the efficiency with year dummy performed using a fixed effect panel regression model (FEM). According to Gujarati (2002) FEM is used to measure if the number of objects more than the periods of time and the data is not taken randomly. However, both Test Chow and Haussman test was also conducted and the test results stated FEM is the right model for the models to be tested. Equation regression model using FEM models are as follows:

$Efficiency_{it}$ = 11.06948 -0,036359$Zscore_{it}$ -0,636618lnHHI_{it} ** + 2,081556$Dyear_{it}$ 1,034482BOD_{it} *** Description: * significant 10%, ** significant 5%, *** significant 1%

Two of the three variables above is taken as a proxy of the components of PBI NO/ 14/26/2012, such as reliability, competitiveness, and efficiency of national banks in Indonesia. The efficiency used as dependent variables resulting from the decision of researchers based on previous studies showing that the efficiency can be affected by variables mentioned above. In addition, previous studies stating that the rules relating to restrictions on bank activities or regulations related to the core capital will affect the efficiency increase.

The object of this study is 78 banks comprising Owned Banks, Private Banks, Joint Venture Banks, and Foreign banks in eight periods of time starting in 2011 first quarter to the fourth quarter of 2014. Data-year period used as a dummy variable between the periods before and after PBI. From the data collected, it can be seen the value of each of the independent variables are variables HHI (in natural logarithm), default risk and the Board of Directors (BOD). The value of R-Square of .855794 shows that our model can explain the relationship between the variables about 85.6%.

This study uses the HHI as a proxy of banking competition in Indonesia. Arrawatia *et al*, 2015 found in the developing countries of credit from banks is very important an dthe competition will be obtained more profits. Competition is believed to affect the efficiency of such research conducted by Mulyaningsih *et al* (2015), Arrawatia *et al* (2015), Casu and Girardone (2009), Kasman and Kasman (2015).

Market forces (market power) is the ability to maintain and increase the market share of a company to another company which had domestic or foreign ownership structure (Louati, 2015). For banks, the market power or the level of competition is important because it related to the savings that will be placed by the public (Arrawatia *et al*, 2015). Furthermore, Arrawatia *et al*, 2015 found in the developing countries credit from banks is very important and the competition will be obtained more profits. Competition is believed to affect the efficiency of such research conducted by Mulyaningsih *et al* (2015), Arrawatia *et al* (2015), Casu and Girardone (2009), Kasman and Kasman (2015).

In the above study, the results of the competition turned out to be negative and significantly on the efficiency. The value of the coefficient of -0.636618 competition shows that increased competition would reduce the efficiency of one of the banks amounted -0.636618.

The results are consistent with research by Kumbhakar *et al* (2001) and Prutenau-Podpierra *et al* (2008). Kumbhakar *et al* (2001) examined the relationship between competition and efficiency in the Spanish banking. Kumbhakar (2001) suggested that the increased competition will lower the level of technical efficiency of banking. A similar study by Prutenau-Podpierra *et al* (2008) in Czech Republic shows that the increased competition turned out to be a negative to efficiency.

The competition which has a negative effect on the efficiency in accordance with the theory of Competition-inefficiency theory. Broadly speaking, the relationship between competition and efficiency in this theory say that increased

competition will not improve efficiency (Kumbhakar *et al* (2001); Prutenau-Podpierra *et al* (2008) and Weill (2004)).

The conditions in which efficiency is not influenced positively by the competition indicates no Quiet Life Hypothesis on the observation period 2011-2014. In other words, the bank is not trying to improve the efficiency when competition increased. The results of this study similar from the results of Sastrosuwito and Suzuki (2012) and Viverita (2014).

Z Score is a measurement of default risk using accounting data. Z Score is widely used approach for measuring the value of this has an inverse relationship with the possible default of a company (Cihak and Hesse, 2010), and Nguyen Nghiem (2015), Akhtam and Awartani (2014). The higher the value of Z score indicates that banks getting away from possible bankruptcy.

The results of the panel regression above shows that the Z score has a negative effect and no significant effect on efficiency. Z Score value of the coefficient of -0.036359. The meaning of these values is increase of Z Score will decrease the efficiency of banks amounted -0.036359. Conversely, any decrease in the value of Z Score will improve efficiency. In other words, there is a trade off between efficiency and Z Score. Does this fit with theories and hypotheses? Need to explain further.

This finding is consistent with research from Nguyen and Nghiem (2015) and Saeed and Izzeldin (2014). Both of these studies resulted in a negative relationship between default risk and efficiency. Saeed and Izzeldin (2014) using merton model as a proxy for default risk and efficiency is measured by the method and the SFA, while Nguyen Nghiem (2015) using the Z score as a proxy for default risk and efficiency is measured by the DEA. The negative relationship between efficiency and Zscore can be caused because of poor management or moral hazard.

In theory, these findings are not in accordance with the theory of Bad Luck. Bad luck theory states that when the default risk is high then the lower the efficiency. This is because the managers of the company will strive to improve the existing portfolio by way of a greater expense (Saeed and Izzeldin, 2014). Actions of managers a greater expense to oversee the company's portfolio will generate inefficiency of the higher (Saeed and Izzeldin, 2014).

Dtahun variable is a dummy variable for the period before and after PBI / 14/26/2012 was issued. A value of 1 for the period after 14/26/2012 PBI is issued and the value 0 for the period in others. The results of the panel regression showed a positive and significant correlation between the variables Dtahun with efficiency.

Dyear coefficient is 2.081556. It means that in the period after PBI / 14/26/2012 banks gained efficiency by 2.081556. Efficiency is critical to improved because the bank with optimum efficiency levels according to Hassan *et al* (2009) will improve the whole economy and affect the level of welfare.

14/26/2012 PBI Regulations are regulations restricting banking activities based on the core capital owned. Banks are divided into four categories BOOK. Banks in BOOK 4 is a bank with the most core capital and can perform a wide range of banking activities not only in Indonesia but also allowed to open branches abroad. According Pessarossi and Weill (2015), restrictions on bank activities are based with core capital was supposed to reduce the behavior of agency theory happens to the banks and further improve efficiency.

Barth (2006) says there are several theories about the effect of regulation on the efficiency and fairly common theory is a theory about the public interest and the private interest view view. Barth (2006) also pointed out that the theory of public interest view saying that the regulation and supervision of banks is done for the sake of public interest, while private interest view says only in the interests of certain groups. When the regulation was formed for the benefit of society at large, the efficiency of the bank will increase while the current regulation established only in the interests of certain groups, the efficiency will decrease (Barth *et al*, 2013).

Number of Board of Directors (BOD) is a component of Corporate Governance (CG) associated with the control system on each bank. Effective oversight is thought to increase the efficiency of the banking system. In this study, BOD serve as control variables. Variable BOD positive and significant impact on the efficiency. The coefficient value of the variable BOD of 1.034482. This suggests that any increase in the number of BOD will increase the efficiency of 1.034482.

The results of this study according to research conducted by Belkher (2009). The theory says that the amount of BOD will generate slightly more efficient performance than the amount of BOD that much. The theory assumes that there will be a deviation from the role performed by BOD large amounts while doing surveillance. However,

Belkher (2009) found that the increase BOD will also improve efficiency.

Of the four independent variables there are only two variables that affect the efficiency of that dummy year and BOD. This shows that the influence of regulation PBI / 14/26/2012 against the overall efficiency. Although there are two variables that do not have significant influence, it could be caused by this rule has not been a long-running so that still needed further evaluation.

The regression results above answer 4-7 hypothesis, namely that PBI / 14/26/2012 has an influence on banking efficiency (hypothesis 4), competition has no effect on the efficiency of the banking (hypothesis 5), default risk has no effect on the efficiency of the banking (hypothesis 6) and the amount of BOD has an influence on banking efficiency (hypothesis 7).in the interests of certain groups, the efficiency will decrease (Barth *et al*, 2013).

CONCLUSIONS

From the study above we can conclude that regulation PBI 14/26/2012 affect efficiency positively. Efficiency and competition HHI significantly different before and after the issuance of PBI / 14/26/2012. Variable Z score has a negative coefficient but insignificant to efficiency. Variable BOD effect significantly to efficiency. Increasing the amount of BOD will increase the efficiency of the banking system.Two other variables, Z Score and HHI also affect efficiency positively. Based on the theory, it means that the regulation issued by Central Bank of Indonesia consistent with Public Interest View, which is the regulation issued to public interest. For the competition, the result indicates that Quite Life Hypothesis did not exist in Sharia Banking for period observation.

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