AN ANALYSIS OF COMPETITION LEVEL IN BANKING INDUSTRY, INDONESIA

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ABSTRACT: Banking industry in Indonesia has a wide variety of products and other banking services offered to the customers and the prospective customers is the same but the advantages of each service product are different. Competition in the banking industry is not a perfect competition but a monopoly which is then augmented by collusion to regulate a price competition and non-price banking industry in Indonesia is generally in a monopolistic competition situation. The variables used to explain the income variables (NITA), such as PL, EQTA, LDTLD and LFTA variables which have a positive and significant influence, meanwhile the PCE and LOATA variables have a negative and significant effect on NITA in banking institutions in Indonesia. The rise of input prices of PL, EQTA and LOATA decline (labor costs, capital, and fund / borrowing costs) used to generate bank output have an impact on the increase in revenues to be received by banks. This is consistent with the assumption that the higher input prices (PL, EQTA) is, the lower specific indicators of LOATA which mean the higher input costs of banks as the impact of increasing demand for bank output ultimately increases bank revenues.

KEYWORDS: Banking Industry; Competition Level; Economy Growth

INTRODUCTION

Banking industry plays an important role in all sectors of human life, one of which is the economic and business sectors. Banking has a strategic position as an intermediary institution and supporting the payment system (Law No. 10/1998). As an intermediary institution, banks can facilitate the flow of funds from savers with the position of savers to the borrowers for various purposes. In addition, bank is also an agent of development which can encourage the progress of the development through credit facilities and ease the payment and withdrawal in the transactions process conducted by economic actors. In its development, Indonesian banking experienced significant growth. In Indonesian Financial Statistics, it is recorded that the number of banks in 1988 were 7 state banks and 104 private banks. There is an interesting phenomenon related to the October 1988 Package of the 1980s providing a mild condition for entry into the banking industry, terms of establishment and forex transactions. At that time, with a fund of Rp 10 billion, the investors were able to establish a new bank (Deni and Djoni, 2004), and this led to a significant increase in the number of banks. The growing number of banks has the potential to push the banking sector business more competitive and improve the efficiency and health of banks. In Indonesia, the increasing number of banks, especially the private banks before the crisis, were held by big businessmen, as a result when their business requires large funds, they tend to use the funds available to the bank for their business interests (group), so the goal of PAKTO 1988 changed the channeling public funds to the community, shifting into distribution to the group resulting in potential violations of the Legal Lending
Limit (BMPK), (Deni and Djoni, 2004). Here is a deregulation that supports the banking industry in Indonesia.

### Table 1: Micro Banking Policy in Indonesia 1983 - 1997

<table>
<thead>
<tr>
<th>Year</th>
<th>Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deregulation</strong></td>
<td></td>
</tr>
<tr>
<td>June 1983</td>
<td>Eliminating the control of interest rates and lending rates on banks.</td>
</tr>
<tr>
<td>October 1988</td>
<td>1. Opening the banking industry for private banks and new joint ventures by lowering the minimum capital requirements.</td>
</tr>
<tr>
<td></td>
<td>2. Eliminating the restrictions and providing convenience such as opening new branches, easing inter-bank lending and allowing banks to differentiate their deposit products.</td>
</tr>
<tr>
<td>February 1992</td>
<td>1. Allowing the foreign investors to purchase shares of listed banks in the stock market.</td>
</tr>
<tr>
<td></td>
<td>2. Privatizing partially by allowing the government banks to list in the capital market</td>
</tr>
<tr>
<td><strong>Re-Regulation</strong></td>
<td></td>
</tr>
<tr>
<td>1995 - 1997</td>
<td>1. Recontrolling the lending that a bank can provide.</td>
</tr>
<tr>
<td></td>
<td>2. Improving the control in terms of issuance of securities by banks.</td>
</tr>
<tr>
<td></td>
<td>3. Improving the supervision of non-bank financial institutions.</td>
</tr>
<tr>
<td></td>
<td>4. Tightening the opening permit of new branches.</td>
</tr>
<tr>
<td></td>
<td>5. Imposing fines for banks that expand faster than allowed.</td>
</tr>
<tr>
<td></td>
<td>6. Increasing the minimum reserve ratio and tighten banking prudential rules.</td>
</tr>
</tbody>
</table>

*Source: McLeod (1999, p. 293-295) and Chua, BH (2003)*

From the table above, it can be seen that deregulation policy made by the Government in 1983-1992 led to high expansion of the banking industry in Indonesia. The number of banks increased rapidly because the deregulation made by the Government strongly supports the banking sector. This condition causes competition in the banking industry to increase as well. This can be seen from banks in Indonesia are allowed to determine their own interest rate, either the interest on deposits or on the loan. Then the bank is also facilitated to open and expand new branches as well as lower minimum reserve ratio and eliminate restrictions (restrictions) credit granting between banks and other debtors.

Then in 1995-1997, the Government issued a regulatory policy aimed at overseeing the lending distributed by each bank, supervising the issuance of banking securities by banks, supervising the opening permits for new branches of each bank, issuing fines for each bank expanding from as determined by Bank Indonesia and increasing the minimum reserve requirement of bank capital. In 1997-1998 there was an economic and financial crisis affecting almost all sectors of life in Indonesia, one of which was the banking sector. The development of the banking sector was not matched through good supervision by Bank Indonesia, which made the banks with insufficient capital were still able to operate, resulting in an impact on Indonesia's economic crisis. In the end, dozens of banks were liquidated and many banks merged in order to survive so that the competition among the banks was getting tighter and improving the competition of previous banks. This policy is aimed at reducing the number of existing banks and improving the prudential aspects of banking. The number of commercial banks in 1998 reached 208 banks, then in the aftermath of the economic crisis that in 2005 fell to 131 banks and continued to
decline in 2014 to 119 banks. The number of banks has decreased but the number of branch offices has increased significantly.

Table 2: Development of Banks and Bank Offices in the Period 2005 - 2014

<table>
<thead>
<tr>
<th>Number of Bank/Office</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Bank</strong></td>
<td>131</td>
<td>130</td>
<td>128</td>
<td>124</td>
<td>121</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>119</td>
</tr>
</tbody>
</table>

**Source: Bank Indonesia 2005-2014**

The traditional approaches to banking competition are based on the opinions of McKinnon (1973) and Shaw (1973) who postulate that government intervention in prices and credit allocations credited will cause financial distress, hindering financial development as it reduces the real market interest rate. This approach also postulates that low real interest rates impede the economic growth through the level and productivity of its investments. The increasing number of the banking industry branches during the last 10 years (2005-2014) led to an increase in the price of production factors, one of which is the wage of labor. This is supported by research by Yildirim and Philipatos (2004) in Ratna Sri Widyastuti and Boedi Armanto (2013) that if the level of competition is in the form of monopolistic competition, there will be an increase in revenue at the time of increase in the price of production factors, although the increase is not as high as the price increase of production factors. The wage here is the cost/price of labor.

Labor cost is the price charged for the use of human labor. If the competition is in perfect competition then the revenue and price relationship of production factors (input factor) is positive. On the contrary if it is monopolistic competition, the revenue and production factors are negative. Banks behave as firms that maximize the profits and have to deal with markets that are price elasticity. The increase in labor costs is also related to the operational costs of the bank's operating income due to part of the operational costs incurred during a certain period. Furthermore, other input factors are the capital of the company/industry itself that is the overall capital owned by a company in running/financing the assets of the company. Of course this can be seen from the comparison of capital and assets reflected in EQTA (Equity to Total Assets).

According to A. Susty Ambarriani (2003) EAR (Equity to Total Assets Ratio) which is commonly called Equity to Total Assets (EQTA) has a positive and significant impact on the efficiency of Indonesian banking. EAR as an indicator of the role of owners to improve the efficiency of a bank will have a positive effect because the higher the motivation of owners over the sustainability of the bank's business, it will affect the management of managing banks professionally so that performance and efficiency increases. The higher the proportion of capital itself will be the higher the attachment or motivation of the owner of the bank's business continuity, so that the higher the role of the owner in influencing the management of performance improvement or bank efficiency in a more professional manner. On the contrary, the relatively low proportion of own capital will cause the owner to feel less disadvantaged if the bank goes bankrupt.

Next, the PCE (Cost of Capital Expenditure) or capital expenditure or other term is capex is an expense that can generate future profits and will be calculated as capital expenditure not as a cost and always budgeted by the company in its budget. According to Anandarajah (1998: 31)
Capital Expenditure is an on long-lived assets, also referred to as fixed assets or non-current physical assets”. In conclusion, capital expenditure deals with two elements, namely:

Expenditure

Long-lived assets or assets that have a long economic life

Meanwhile, according to Saphiro (2005), Capital Expenditure is an investment issued in the hope that will generate the cash inflows in the future. Therefore it is necessary preparation in planning capital expenditure. Related to the definition above, the capital expenditure also described as capital investment. Furthermore, some of the assets come from the debt or financed by the debt/loans made, so that some part of the overall assets are covered by the debt. This term is called LOATA (Loan to Total Assets). In the banking industry it is also known as borrowing costs. According to PSAK 26, Revised 2008, Paragraph 5, the borrowing costs are interest expenses and other costs borne by the entity in connection with the borrowing of funds. Another term used by LOATA is Total Debt to Total Assets Ratio. The ratio which is commonly called the debt ratio measures the percentage of funds derived from the debt. The debt here is all the debts owned by both short-term and long-term companies. The creditors prefer a lower debt ratio because the level of security funds is getting better (Sutrisno, 2001: 249). This ratio indicates the extent to which the debt can be covered by the asset. The smaller the ratio is, the more secure (solvable) it is. The debt to assets portion should be smaller (Harahap, 2002: 304).

LFTA (Loanable Fund to Total Assets) is a loan fund used to finance a company's assets, meaning that a number of loans granted by the debtor to the creditor to operationalize the assets in achieving the target. The loan funds are accounts receivable and the like. Then the receivables and debts that occur in a company of course see the difference that occurs, meaning the interest income and interest costs incurred to the transaction, this term is called LDTLD (Loanable to Total Loanable and Deposits).

Table 3: Development of NITA, EQTA, PCE, LOATA, LDTLD and LFTA at Conventional Commercial Banks in Indonesia in the Period of 2010 - 2014

<table>
<thead>
<tr>
<th>Tahun</th>
<th>NITA</th>
<th>EQTA</th>
<th>PCE</th>
<th>LOATA</th>
<th>LDTLD</th>
<th>LFTA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>0,21434</td>
<td>1,08558</td>
<td>0,55834</td>
<td>0,09447</td>
<td>0,102696</td>
<td>5,54820</td>
</tr>
<tr>
<td>2011</td>
<td>0,20048</td>
<td>0,94824</td>
<td>0,63597</td>
<td>0,09590</td>
<td>0,100393</td>
<td>5,74994</td>
</tr>
<tr>
<td>2012</td>
<td>0,19029</td>
<td>0,15849</td>
<td>0,67177</td>
<td>0,10094</td>
<td>0,105784</td>
<td>5,83207</td>
</tr>
<tr>
<td>2013</td>
<td>0,19026</td>
<td>0,14515</td>
<td>0,79304</td>
<td>0,08029</td>
<td>0,088947</td>
<td>6,02554</td>
</tr>
<tr>
<td>2014</td>
<td>0,17782</td>
<td>0,18125</td>
<td>0,95902</td>
<td>0,10579</td>
<td>0,107537</td>
<td>6,01541</td>
</tr>
</tbody>
</table>

Source: Indonesian Banking Statistics, processed

REVIEW OF LITERATURE

Understanding of Competition

In the competition, it is often associated with a competition situation of some parties in fighting for something. Sometimes market competition is associated with market power, although it actually has a different meaning. Market power refers to the behavior of individual firms in managing pricing strategies, while competition is more related to marketer interactions or more
aggregate (de Rozas, 2007). Market power or often also called as market forces arise due to competition. Competition is also defined as a dissociative social process where each individual or also between groups of people participated in the process. And fight each other to seek the profit through the areas of life and at certain times the center of public attention. By using a way that attracts the public's attention. Competition can be in the economic field (competition between producers of similar goods in seizing the limited market), the field of culture, and racial competition.

According to Deaux, Dane, & Wrightsman (1993), competition is the activity of achieving goals by defeating others or groups. Individuals or groups choose to work together or compete depending on the reward structure in a situation. Competition also explained by Kotler and Porter states that competition in the marketing context is a condition where companies in a particular product or service market will show their superiority, with or without bound by certain rules in order to reach its customers (Kotler, 2002). Meanwhile, according to Porter, competition will occur in some competing groups not only on similar products or services, can be on products or services substitution or competition in the upstream and downstream (Porter, 1996).

**Competition and Stability of Indonesian Banking Industry**

The banking industry in Indonesia has a wide variety of products and other banking services offered to the customers and the prospective customers is the same but the advantages of each service product are different. Competition in the banking industry is not a perfect competition but a monopoly which is then augmented by collusion to regulate a price competition and non-price (Chandler, 1938). Another opinion also supports with the same intention that banks may not be in a really competitive situation because in a pure competitive situation, the new bank is threatened to go bankrupt and this will endanger the economy on a macro basis because the collapse of a bank can be transmitted to the banks other (contagion effect), (Alhadeff, 1951). In the banking industry, inter-bank competition can occur because of a struggle for productive resources, such as on deposits, savings, and lending that are sources of income. Competition that occurs can be non-price competition between banks can be in the form of prizes and promotions to attract customers as much as possible or competition can also occur in the form of new products and types of services supported by technology services that can reduce the costs sacrificed. In addition, some studies suggest that a more concentrated, low-competition banking market has a buffer in the face of vulnerability, which makes the banking system more stable and will provide excessive risk taking. Then Claessen and and Laeven (2003) found that high competition in the financial sector can drive the increased production efficiency, financial product quality, and innovation levels. The increased competition is also expected to reduce the cost of intermediation services to be more efficient because the time needed to manage credit is much shorter and ultimately will increase bank income (in Patti and Dell'ariccia, 2004).

**Market Structure**

Market structure is defined as an important condition that must be in the market. The elements include the number of companies (producers), uniformity of inter-company products, ease of entry in the market, and the form of competition. Bain, 1952 states that market structure is a characteristic of a market organization that influences the nature of competition and price within a market. Furthermore, in Law no. 5 of 1999, the market structure is defined as a market condition that provides guidance on aspects that have an important influence on the behavior of business actors and market performance. These aspects include the number of sellers and...
buyers, barriers to entry and exit markets, product diversity, distribution systems and market share control. Guavar, 2002, reveals that market structure means grouping the producers/companies in the industry into a market based on the type of goods produced, the number of companies in the industry, the ease of entry and the role of advertising in industrial activities.

**Structure-Conduct-Performance (SCP Theory)**

Structure-Behavior-Performance is a measure of competition based on a conventional structural approach. An economist from Harvard University named Edward S. Mason in 1930 developed a formal framework of market variables, and then investigated by the next economy. The framework is used as a basis to explain the events and processes that occur in markets or industries. The model is further known as the framework of Structure - Conduct - Performance (SCP) and becomes a tool for analyzing industrial economics. Market conditions, market structure, market behavior and market performance are the market frameworks used in the SCP Theory analysis framework. According to industry economists these variables are believed to be their analytical tools, but some other economic opinions ask about the relationship between these market variables, what variables cause what, what variables have the most important roles, what variables can not be influenced by the firm.

**Panzar-Rosse Model**

The measurement of the next competition is with non-structural approach that is with three models, they are Iwata model, Bresnahan model, and Panzar - Rosse (PR) model. The model in this research is PR model. The PR model was first introduced by John C. Panzar and James N. Rosse in 1987 by developing empirical tests to distinguish oligopolistic competition, monopolistic competition and perfect competition. They see essentially the comparison of the static nature of the income-reduction equation by using H statistic. The competition indicator with H statistic provides a quantitative assessment of market competition.

In 1987, the methods used by Panzar and Rosse came from the equilibrium market model which assumed that firms would employ different pricing strategies in response to price changes that are input factors, depending on the competition behavior of market participants. So, competition is measured by the rate of change in input prices (high-low) to the balance of corporate earnings. Statistic H is obtained from the sum of income elasticity to the price of factors of production, based on the reduced form of equality of bank income. In empirical research, the PR model is well-suited because it does not need to specify the market geographically as the behavior of each bank will give an indication of market power. PR model can only be applied to company one kind of product, one of them banking company (bank) produce loan service product (credit/loan). The bank in its operational activities requires three inputs namely labor, physical capital and finance and applies to perfect competition and the bank company behaves profit maximization. H statistic is based on comparative static analysis of income reduction equation with common equation model, where firm uses different price strategy in response to any change of input factor price. The Panzar - Rosse (PR) model refers to the balance of the input price (marginal cost) with gross revenue. Optimization done by bank i in industry must fulfill zero profit condition so that income equal to cost (Bikker and Haaf, 2001). The Bikker and Haaf models are as follows:

\[ R_i (y_i, Z_i^x) = C_i (y_i, W_i, Z_i^c) \]  \hfill (1)
The above formula explains that \( R_i \) and \( C_i \) respectively are the income and cost of bank \( i \), then \( y_i^* \) is the output of bank \( i \) in equilibrium condition, \( W_i \) is the input price of the bank that is the labor price, the financial price and the temporary capital expenditure price of \( Z_i^R \) and \( Z_i^C \) in which each is an exogenous variable that affects revenue (\( R \)) and affects cost (\( C \)). Then \( MR = MC \) is defined as the marginal revenue equals the marginal cost, so the following functions are formed:

\[
R_i'(y_i^*, Z_i^R) = C_i'(y_i^*, W_i, Z_i^C) \tag{2}
\]

To evaluate the total income elasticity of the price change of input factor, so that the competition is calculated by the following functions:

\[
H = \sum_{k=1}^{K} \left( \frac{\partial R_i^k}{\partial W_i^k} \frac{w_i^k}{R_i^k} \right) \tag{3}
\]

If the equality 2 is linearly assigned a direct elasticity value to the marginal revenue and marginal cost and avoiding heteroscedasticity (Shaffer, 1982), it gives rise to the following functions:

\[
\ln(R_i') = \alpha_0 + \alpha_1 \ln(y_i^*) + \sum_{j=1}^{J} d_j \ln(z_{ij}^R) \tag{4}
\]

\[
\ln(C_i) = c_0 + c_1 \ln(y_i^*) + \sum_{k=1}^{K} b_k \ln(w_{ik}) + \sum_{j=1}^{J} v_j \ln(z_{ij}^C) \tag{5}
\]

If the competitive equilibrium condition (zero profit) with the above equation 2 then, the rearrangement is obtained as follows:

\[
\ln(y_i^*) = \frac{1}{\alpha_1 - c_1} \left( c_0 - \alpha_0 + \sum_{k=1}^{K} b_k \ln(w_{ik}) + \sum_{j=1}^{J} v_j \ln(z_{ij}^C) \right) \tag{6}
\]

\[
\ln(R_i^*) = \ln\left( p^*, y_i^* \right) \tag{7}
\]

The income of \( i \) bank is affected by the price of the bank as well as the output of \( i \) bank so the equation reduction as follows:

\[
\ln(R_i^*) = \ln(p^*, y_i^*) \tag{8}
\]

The equation of inverse demand (price reverse) can be arranged in the form of logarithm as follows:

\[
\ln(p) = \mu + \lambda \ln(Y) \tag{9}
\]

is the output of the banking industry by using algebra the reduced form of form is reshaped into:
where $Z_i$ is the bank variable vector of $Q$. The equation 3 can be calculated by $H$ - statistics as follows:

$$H = \sum_{k=1}^{K} \beta_k$$

**RESEARCH METHODOLOGY**

**Scope of Research**

The scope of this research is to analyze the competition of banking industry in Indonesia during the period of 12 years (2005-2015). This research is a quantitative research. According to Sugiyono (2013: 7), quantitative method is called traditional method, because this method has been used long enough so that has tradition as a method for research as a method for research. This method is called a positive method because it is based on the philosophy of positivism. This method is a scientific method because it has met the scientific rules that are concrete / empirical, objective, measurable, rational and systematic.

This research was conducted in Indonesia with the object of research are conventional commercial banks. This research belongs to the explanatory research group which means to explain the attachment (relationship) between the independent variable (independent) and the dependent variable (bound). The dependent variable in this research is income that is NITA, independent variable is input price and specific indicator between conventional commercial bank.

**Types and Data Sources**

This study uses secondary data which was sourced from Bank Indonesia and OJK by using time the series data between 2005 - 2016 and cross-section data to form paneled data. The population is a generalization region consisting of: objects/ subjects that have certain qualities and characteristics set by the researchers to be studied and then drawn conclusions. So the population is not just people, but also the objects and other natural objects as Sugiyono (2011: 117-118) states that population is not just the number of objects/subjects studied, but includes all the characteristics or properties possessed by the subject or object. From the description, population in this study is all conventional commercial banks in Indonesia, both State-Owned Public Bank and Private-Owned Banks.

Sample is a part of the population to be studied and which is considered to describe the population (Soeharto, 2004: 57). Next Arikunto (2006: 131) states that sample is part or representative of the population under the study. If we will only examine a portion of the population, then the study is called a sample study. The sampling technique is Purposive Sampling which is the selection of elements to be a sample based on non-random, subjective considerations. So the sample in this study is the 10 conventional commercial banks, they are Bank Mandiri, BRI, BNI, BTN, BCA, Bank Permata, Bank Danamon, Bank Bukopin, Bank Mega and Bank Mestika Dharma. The data formed in the study is the period (n) multiplied by the number of samples (t) then $10 \times 10 = 100$ of research data.

**Analysis Method**
In general, the analytical methods used in the study are qualitative methods and quantitative methods. Qualitative data analysis is a method used not to use statistical instruments, but is done by interpreting the tables, graphs, or figures used in the basics of description and interpretation. Instead the quantitative method is the method used with statistical tools (statistical tests, statistical models and other models). The statistics used in the study generally are descriptive statistics and inferential statistics. Then the analysis based on variables consisting of 3 types: univariate analysis (1 variable), bivariate (2 variables) and multivariate (3 variables).

Next is the panel data analysis. The analysis in this research uses panel data. Panel data is the data that is the result of observations on multiple individuals or units (cross-sectional) which are each observed in several consecutive time periods (time units), (Baltagi, 2005). If the estimated data is data of time series (as many as \( t \) observation), then the estimated result parameters are assumed to be constant over a certain period and the estimation results can be known for their variance over the period. If the assumed data are cross-section data (as many as \( N \) observation), then the estimation parameters are assumed to be constant for all individuals and from the estimation results can be known the variations between 'individual' and 'one individual' variations within a given period. If the number of observations for each cross-section unit is equal to the number of called balanced panels whereas, if not equally called unbalanced panels. The process of combining cross-section data and time series to form data panels is called pooling.

Viewing from the various assumptions and forming factors, the model structure of panel data estimation can be grouped into Ordinary Least Square (OLS)/Pooled Model, fixed effect and random effect model, which can be used in estimating panel data as follows:

**Ordinary Least Square (OLS)/Pooled Model**

There is a \( K \) regressor in \( x_{it} \), not including constants. If the individual effects (\( \alpha_i \)) are constant over \( t \) time and specific to each \( i \) unit then the model is the same as the usual regression model. If the value of \( \alpha_i \) is the same for each unit, then OLS will produce a consistent and efficient estimate for \( \alpha \) dan \( \beta \). This method is simple but the results are inadequate because each observation is required as an independent observation.

**Fixed Effect Models**

This model uses individual variables to allow the changes in cross-section intercepts and time series due to the omitted variables. The intercepts vary only with the individual but are constant over time while the slopes are constant both for individual and time. Thus \( \alpha_i \) is a group of specific constant values in the regression model. The general formulation of this model assumes that the difference between units can be known from the difference in the constant value. The weakness of the fixed effect model is the use of a large number of degrees of freedom and the use of individual variables does not directly identify what causes the regression line to shift across time and across individuals. The model is written as \( y_i = \alpha_i + \beta, X_{it} + \varepsilon_i \).

**Random Effects Models (Estimation of variance-components models)**

According to the fixed effect model, the differences between individuals are seen from the intercept or constants, but according to the random effects model increase the efficiency of the least squares estimation process by taking into account the intercepts of the latitudes and the
intercept time series varying by individual and time but the slopes are constant over the individual and time. So \( \alpha \) is a group and a special annoyance, much like \( \epsilon \), except for each group there is a special value that goes in the regression identically for each period. The value of \( \alpha_i \) is distributed randomly on the cross-section units. The model \( y_{it} = \alpha_i + \beta X_{it} + u_i + \epsilon_{it} \), with \( u_i \) is a random noise value at observation and constant over time.

Theoretically, the selection between the fixed effect model and the random effect can be determined. If the impact of the disturbance is assumed to be random then a random effect model is chosen otherwise if the impact of the disturbance is assumed to have a fixed effect (regarded as part of the intercept) a fixed effect model is selected.

**DISCUSSION**

The competitive level of the banking industry in Indonesia is measured by general agreement on inputs used by banking companies, namely labor, loan funds (consisting of demand deposits and time deposits) and physical capital (fixed capital) in line with the production process organized by Sealey and Lindley (1977). So the general equation for obtaining H-statistics is:

\[
|H_t| = \beta_{1t} + \beta_{2t} + \beta_{3t}
\]

And so it is obtained the H-statistics of \( = 5.84E-10 - 0.009354 + 0.123403 \) = 0.11405

The H-statistic value of 0.11405 indicates that this value lies between 0 < H < 1, thus a statistical H value greater than 0 and smaller than 1 indicates that the level of banking industry competition in Indonesia generally contains elements of the nature Imperfect Market Competition or (Monopolistic Competition), (Hendroyiannis, 1999). The results of this study are in line with the research that was conducted by Claessens and Laeven (2003) who also concluded the same results that banks in Indonesia entered the monopolistic market. This study finally reinforces previous studies that were by Nathan and Nee (1989) and Shaffer (1985, 1993) in Hendroyiannis (1999) stating that banks will be able and earn income if the existing market system has a monopolistic market character. Also in Hendroyiannis (1999), Molyneux et al. which states that the existing banks in Germany, England, France and Spain earn their income in the condition of the banking market in monopolistic competition conditions.

The results of the study show Price of Labor (PL) to obtain positive results on NITA means there are additional factors - production in the form of addition of Human Resources that is new labor in a number of new labor additions in a number of new branches and expansion of the market so the increase the bank's income has an effect on the additional cost of the new labor. Equity to Total Assets (EQTA) also shows the same results and good with the PL is a positive result of NITA is the maximum capital obtained and used primarily internal capital (capital of internal owners) instead of capital from outside the company either in the form of loans or debts. While Price of Capital Expenditure (PCE) generate negative results to the NITA so that the gain is also negative or loss. The allocation of funds collected by the banking industry is not maximal, which is used as a credit facility to other parties in the form of Rupiah or Foreign Currency, so that over the time limit of return, principal of loan funds and interest income which is the right of the bank has not been paid, on the other hand banks still pay the cost of funds spent on funds raised earlier. We recommend that the banking industry in terms
of channeling funds collected considering the risk of return and placement/grant to other parties.

The other variable, Loanable Fund to Total Activa (LOATA) shows negative result to NITA. It means the banking industry is more careful in lending to other parties because liquidity risk is "anticipated income theory" still applied by banking industry. If the level of bank debt increases the term known as excess liquidity, resulting in low profits obtained by banks. Then Loanable Total to Total Loanable Deposits (LDTLD) resulted positively to NITA, meaning the payment of borrowing costs on borrowed amounts compared to interest income from unused funds. Payment of borrowing costs may be interest charges and other costs borne by the entity in respect of borrowing funds. While the Loanable Fund to Total Activa (LFTA) also shows the same result with LDTLD is positive, while the expected negative means that the provision of credit services in banking is still high despite not seeing the risk of loss and credit age (receivable) is very slow (long) repayment.

CONCLUSION

The competition level of the banking industry in Indonesia is generally in a monopolistic competition situation. The variables used to explain the income variables (NITA), such as PL, EQTA, LDTLD and LFTA variables which have a positive and significant influence, meanwhile the PCE and LOATA variables have a negative and significant effect on NITA in banking institutions in Indonesia. The rise of input prices of PL, EQTA and LOATA decline (labor costs, capital, and fund / borrowing costs) used to generate bank output have an impact on the increase in revenues to be received by banks. This is consistent with the assumption that the higher input prices (PL, EQTA) is, the lower specific indicators of LOATA which mean the higher input costs of banks as the impact of increasing demand for bank output ultimately increases bank revenues. However, other input prices like PCE (cost of funds) have decreased or negative and other specific indicators like LDTLD, LFTA (interest expense and debtor receivable) have increased or positive so that the indicator of NITA (income) of bank decrease or loss. The level of competition in the banking sector in Indonesia in 2005-2016 belongs to the market of monopolistic competition.

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