BANKING INDUSTRY COMPETITION IN INDONESIA

Ratna Sri Widyastuti
Boedi Armanto[1]

Abstract

This paper analyzes the competition level of the banking industry, prior to and after the introduction of the Indonesian Banking Architecture (API). Using panel data, the result shows that competition in banking decreased after the introduction of API, with a large tendency to monopoly or collusive oligopoly. For a bank with niche market such as a Regional Bankand joint venture bank, the introduction of API did not affect it much, while the competition level for a foreign bank was the lowest one. Non price variables would be the main determinantsof banking competition in the future including number of branches, wages and credit volume.

Keywords: banking competition, market structure, Indonesian Banking Architecture (API).
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1 Authors are researcher on Bank Indonesia; Corresponding author Boedi Armanto (boediarmanto@bi.go.id).

I. INTRODUCTION

Increased competition in the Indonesian banking actually began with Indonesian banking transparency initiated by the issuance of a policy package on June 1, 1983 (*Pakjun*) with the aim to modernize banking. This was then proceeded with a policy package October (*Pakto*) on October 27, 1988, which provided convenience in permitting the establishment of new banks, including the opening of a branch office. At that time, with funds of Rp 10 billion alone, an investor was able to establish a new bank (Deni and Djoni, 2004), and this led to a significant increase in the number of banks.

An increasing number of banks in the banking sector have the potential to encourage businesses to be more competitive and improve the efficiency and health of banking[2]. But for Indonesian banks, mostly private banks were owned by big businessmen before the Asian crisis; consequently, when such businesses required substantial funding, they tended to mobilize public funds through their banks for business interests (of the group/groups). This meant that the original intent of Pakto 88 to channel public funds to the community, shifted to the distribution to the group so there was a potential Lending Limit violation (LLL), (Deni and Djoni, 2004). This condition weakened the banking industry infrastructure, and consequently amidst the international financial market turmoil which began with the exchange rate crisis in Asian countries, Indonesian banks were not able to survive. These conditions resulted in the deepening crisis of confidence in the rupiah and national banks, especially after the revocation of business licenses of 16 banks in November 1997.

The Government sought assistance from the International Monetary Fund (IMF) to resolve the crisis, but the policies imposed by the IMF in the form of tightening of liquidity worsened conditions for Indonesia[3]. Furthermore, the Government and the central bank tried to implement a comprehensive program of stabilization and reform to concurrently strengthen the national financial system and restore public confidence.

In 1999, the Act No. 23 of 1999 was issued emphasizing that Bank Indonesia (BI) have a more focused goal of achieving and maintaining stability of the rupiah, which was seen as a prerequisite of economic growth sustainable. Several years later, Bank Indonesia issued the Indonesian Banking Architecture (API) as the basic framework of the Indonesian banking system. API is comprehensive and expected to provide direction, shape, and structure of the banking industry for a period of five to ten years (BI, 2007, the Indonesian Banking Architecture).

After the emergence of the API, which was supported by the strengthening of the capital structure of banks, Indonesian banks were expected to be more stable and able to function as intermediary institutions. Stability would result in stronger national banks that would eventually

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2 According Cetorelli (2001), there is a long view that says competition will drive banks to better market situation

3. Contrast with United State who excercised opposite policies during the global crisis of 2008.

be able to compete with foreign banks in the international market[4]. The competition, which encourages increased competitiveness, is the main foundation of the process of strengthening the national banking system. Therefore, changes in the level of competition among banks will also change the behavior and the conduct of the banking business.

Several studies have tried to examine competition in Indonesian banks, including Claessen and Laeven (2004) who estimated the level of competition in 50 countries including Indonesia using the Panzar-Rosse method over the period 1994-2001. From these studies it was noted that the Indonesian banking industry structure belonged to the category of *monopolistic competition*[5]. Results of this study were also supported by Setyowati (2004) whicharrived at the same conclusion.

Associated with the implementation of the Indonesian Banking Architecture (API), an interesting question arose, how the API can influence the level of stability and competition in Indonesian banking industry? This research question will be answered in this paper.

The next section of this paper reviews the basic theory and literature on banking stability, level of competition and the performance of the Indonesian banking industry. The third part of the paper reviews the data and methodology employed, while the fourth section presents the results and analysis. The conclusion and policy implications are given at the end and comprise the concluding section of this paper.

II. THEORY

Competition is often associated with some sort of competitive situation to obtain something. Furthermore, competition is also often associated with market power despite the fact that these two things are different. Market power refers to the behavior of individual firms in setting pricing strategies, while the competition has more to do with the interaction of the market or more it aggregated members (de Rozas, 2007)

There are several forms of market competition. The first is a perfect competitive market, characterized by a lot of sellers and buyers, where prices are determined by market forces. In these market conditions, the parties are free to enter or to exit from the market. Second characteristic is goods are homogeneous, and the third is no transaction cost, nor transportation costs. On the other side, non-competitive market is characterized by the opposite features of perfect competition, such as monopoly and monopsony, oligopoly, and monopolistic competition.

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4 Associated with the number three pillars of the API.

5 Indonesian banking Hstatistic value was 0.62during the period 1994-2001 as studied by Claessen and Laeven (2004).

2.1. Competition and Stability in the Banking Industry

Alhadeff (1951) mentioned that the banking market has several characteristics, first, the presence of more than one credit provider, in this case a bank, in one region. Second, the relationship between bankers and borrowers (debtors) are built based on the experiences related to earlier time lending. Third, large volumes of credit borrowers will get more offers of credit while a small number of borrowers will face a very limited supply. Fourth, there are barriers for the entry of new players who show a tendency to maintain a monopoly or oligopoly conditions for a positive benefit in the long run. Fifth, actions and decision of bankers generally correlate with each other, often referred to as agreement, mutual assistance, reduction of unhealthy competition, coordination, and so on. This is the reason for the existence of collusion losses that occur when competing against each other which can be replaced with profit obtained after an agreement is reached.

Chandler (1938) argues that competition in the banking industry is not perfectly competitive but is coupled with monopolistic collusion to set non-price competition and price. Alhadeff (1951) supported the statement with Chandler stating that the bank may not be in a situation that it really competes because a situation of pure competition may threaten banks in going bankrupt which will jeopardize the macro economy as the collapse of a bank can be transmitted to other banks (contagion effect).

Competition between banks can occur due to seizure of productive resources, such as the deposit, savings, and loans that are a source of income. Non-price competition among banks may take the form of gifts and promotions to attract customers as much as possible. Competition also may take the form of new products and the types of services that are supported by the development of technology that can reduce the cost of production and distribution.

Some studies concluded that more concentrated banking markets have a low level of competition, which is a buffer in the face of vulnerability. This makes banks more stable. On the other hand, these conditions also provide incentives to excessive risk-taking.

There are two opposing views about the relationship between a high level of banking competition and banking health: first the traditional view which states that banking competition will increase the supply of credit to companies in need. This opinion is also supported by Claessens and Laeven (2003) who found that high competition in the financial sector could boost production efficiency, quality financial products, and the level of innovation. Increased competition is also expected to reduce the cost of intermediation services making them more efficient because of the time needed to obtain a loan becomes much shorter and eventually will increase bank revenues (in Patti and Dell'Ariccia, 2004). In contrast, higher interest rates will reduce investment in research and development, so that the innovation will be hampered and ultimately decrease productivity (Cetorelli, 2001). Lindgren, Garcia, and Saal (1996) stated that a competitive banking market will use its own power to reduce weak banks and to encourage the existence of healthy banks.

Contrary to the above, there is an expressed view that competition is actually bad for a new company and the future of the banking industry as borrowers face credit supply when more and more banking competition increases. This model is based on the idea that competition will increase moral hazard and adverse selection problems of the borrower. When the inter-bank competition increases, companies increasingly have a choice of banks or creditors. Dell 'Ariccia (2000)[6] supported the conclusion that the bank's efforts to screen prospective borrowers will decline when the number of banks increase.

2.2. Measuring Competition and Panzar Rosse Model

Based on the literature, the measurement of competition can be grouped into two: first, a more structural approach that is conventional and generally adheres to the paradigm of Structure Conduct Performance (SCP), and second, non-structural approaches that take the opposite direction to study of the structural approach, in which the manner or behavior of companies or organizations affect market conditions. There are three models of non-structural approach to the Iwata model, Bresnahan model, and Panzar-Rosse (PR) model. In this study, the model used is the PR model.

The PR model was introduced by Panzar and Rosse (PR) in 1987, using an indicator of competition known as 'H statistic' which provides a quantitative assessment of competition in the market. The H statisticis derived from the sum of the income elasticity of the price of production factors, based on reduced-form bank revenue equations. This model is widely used in empirical research because it does not need to specify the geographic market given the behavior of each bank will give you an indication of market strength.

PR model can only be applied to companies with a single type of product. Therefore, the bank is treated as a loan product producer of services. In the production process, the bank requires three inputs namely labor, physical capital and financial account. The PR model is based on the assumption of a situation of perfect competition and that a company behaves to maximize profits.

The data required in the model is in company unit, and does not require a level of industry aggregate. Another advantage is the use of bank earnings as the dependent variable which are more easily observed and found to be comparable in price and quantity of products or the actual cost. Applications of the PR model were first used to measure competition in the printing industry and then used for many other fields, including banking.

TheH statistic is based on a comparative static analysis of the revenue reduction equation. The methodology proposed by Panzar and Rosse (1987) refers to the general equilibrium model of the market, where firms use different pricing strategies in response to any changes in input

6 Paper published by Nicholson (2001): Competition among Banks: *Good or Bad?*

factor prices. The price change is highly dependent on the competitive behavior of participants in the market. In summary, the model developed by Panzar and Rosse refers to the equilibrium input price (marginal cost) with gross income (gross revenue).

Following the model used Bikker and Haaf (2001)[7], the optimization of the bank in the industry must satisfy the condition of zero profit so that revenues equal to costs. This condition is represented as follows:

$$R_i(y_i^*, Z_i^R) = C_i(y_i^*, W_i, Z_i^C) \tag{1}$$

where R_i and C_i respectively of income and bank chargesi; y^*_i bank is in a state of equilibrium output; W_i is a vector of input prices; Z^R_i is a vector of exogenous variables; and Z^C_i is a vector of exogenous variables that affect the cost. At the company level, MR=MC, so that:

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

To evaluate the *H* statistic, the elasticity of the total revenue to changes in input prices isreflected below:

$$H = \sum_{k=1}^{K}\left(\frac{\partial R_i^*}{\partial w_{ki}} \cdot \frac{w_{ki}}{R_i^*}\right) \tag{3}$$

Linearization equation (2) gives the value of elasticity directly, and can avoid heteroschedasticity (Shaffer, 1982:

$$\ln(R_i') = a_0 + a_1 \ln(y_i) + \sum_{j-1}^{J} d_j \ln(z_{jt}^R) \tag{4}$$

$$\ln(C_i') = c_0 + c_1 \ln(y_i) + \sum_{k-1}^{K} b_k \ln(w_{ki}) + \sum_{l=1}^{L} v_l \ln(z_{lt}^C) \tag{5}$$

In competitive equilibrium conditions (zero profit), and by some rearrangements we have:

$$a_0 + a_1 \ln(y_i^*) + \sum_{j-1}^{J} d_j \ln(z_{jt}^R) = c_0 + c_1 \ln(y_i^*) + \sum_{k=1}^{K} b_k \ln(w_{ki}) + \sum_{l=1}^{L} v_t \ln(z_{lt}^C) \tag{6}$$

$$\ln(y_i^*) = \frac{1}{(a_1 - c_1)}\left(c_0 - a_0 + \sum_{k=1}^{K} b_k \ln(w_{ki}) + \sum_{l=1}^{L} v_t \ln(z_{it}^C) = \sum_{j=1}^{J} d_j \ln(z_{ji}^R)\right) \tag{7}$$

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7 Quotedfrom de Rozas, Luis Gutierrez (2007). Testing for the Competition in the Spanish Banking Industry: the Pazar-Rosse Approach Revisited.

The reduced form revenue equation bank i, depends on the output and price of equilibrium as shown by:

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

where the price level can be obtained from the inverse demand equation, which is in natural logarithm form:

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

where $Y = \sum_{i=1}^{I} y_i$ (aggregate output in an industry). With a little algebra, the reduced form can be written back into:

$$\ln(R_i^*) = \alpha + \sum_{k=1}^{K} \beta_k \ln(w_{ki}) + \sum_{q=1}^{Q} \delta_q \ln(z_{qi}) \tag{10}$$

where Z_i is a vector of bank-specific variables Q. In equation (3), the statistical value of H can be calculated by:

$$H = \sum_{k=1}^{K} \beta_k \tag{11}$$

H-statistic values range between to 1, which indicates the level of market competition. When the value of $-\infty < H < 0$, this is the form of a market monopoly or oligopoly, perfect collusion. In the structure of this kind of competition, rising input prices will translate into higher marginal cost, the equilibrium output is reduced, and revenue declined. If $0 < H < 1$, then a monopolistic competition market structure is formed. If a competitive market, the value of H will range from one (H = 1). Under these conditions, an increase in input prices will proportionally affect revenue changes, without distorting the optimal amount of output from the company. Technically, the test can be done with the value of H Wald test, as well as to examine whether there are differences in the value of H in the first period or a period of consolidation with the post-issuance API period.

Given the PR model is a static approach, there is necessary condition that must be satisfied as the sample observations should represent the long-run equilibrium. Testing the stability of the long-term is usually done by measuring the E statistic which is the sum of the elasticity of Return on Equity (ROE) or Return on Assets (ROA) of the price of production factors, based on the reduced form income equation. The statistical value E = 0 indicates the situation in a long-run equilibrium, which means the return of bank assets are not related to the input prices of factors of production.

The equation to test the long-run equilibrium condition can be written as follows:

$$\ln(ROE_i^* atauROA_i^*) = \alpha + \sum_{k=1}^{K} \beta_k \ln(w_{ki}) + \sum_{q=1}^{Q} \delta_q \ln(z_{qi}) \quad (12)$$

and the necessary condition that indicates that the market in a long-run equilibrium is:

$$E = \sum_{k=1}^{K} \beta_k = 0 \quad (13)$$

Fulfillment of a long-run equilibrium assumption is one of the most intractable problems in this method. However, some researchers emphasize that the banks had reached steady state[8].

III. METHODOLOGY

3.1. Empirical Model

Estimated empirical model is a modification of the model of de Rozas (2007) in two ways, first, the variable logarithm of market share in loans and savings that target consumers is eliminated because the same group of banks makes it difficult to determine market share in a bank group. Second, a variable on the number of branches added is believed to consider specific variables of the Indonesian banking industry which could affect revenues, costs and demand[9]. U.S. research shows that banking consolidation in the country have a significant impact on improving the quality of banking services to customers, one of which is through the branch network (Berger, Demiurgic-Kunt, and Haubrich, 2004). Statistics show that the number of bank branches in Indonesia continues to increase despite the decline of total banks due to the large number of bank mergers and acquisitions among banks.

$$\ln(NITA_{ij}) = \alpha_i + \beta_{1t} \ln(PL_{it}) + \beta_{2t} \ln(PLF_{it}) + \beta_{3t} \ln(PCE_{it}) + \delta_{1t} \ln(EQTA_{it}) + \delta_{2t} \ln(LOATA_{it}) + \delta_{3t} \ln(LFTA) + \delta_{4t} \ln(CAB_{it}) + \mu_{it} \quad (14)$$

NITA is the income of the bank, which is the ratio between the amount of interest income and non-interest income to total assets. This variable includes both revenue earnings of each bank

8 Ibid.
9 Shaffer (1982) recommends using the number of branches as it can affect the cost and demand.

and the interest, which is then divided by total assets and used as the dependent variable in calculating H-statistic.

PL is wages; PLF is the price of loanable funds,and reflects price per one unit of labor in this study that is represented by the ratio of personnel expenses to number of employees. Personnel expenses used in this study are the sum of the total salary and benefits or bonuses plus the cost of education and training of employees. PCE is the price of capital expenditure, and represents the price of each unit of money in the bank that was approached by the ratio of interest expenses to the loanable funds comprised of deposits, tradable securities, and subordinated instruments. Due to data limitations, the price per one unit of the fund was replaced with research interest expenses compared to Third Party Funds (TPF). The third variable (PL, PLF, and PCE) represent the input factor prices.

Other explanatory variables are nonfactor variables which reflect the risk of production, business depth, and size of the bank, as well as ability to affect revenues, costs and demand. EQTA is equity to total assets; LOATA is a loan to total assets, and represents the price per unit of capital is used. In this study the price per unit of capital is approximated by the ratio of capital expenditure on fixed assets. Capital expenditure in this study is obtained from the sum of the cost of maintenance and repairs, the cost of depreciation of fixed assets, rental fees, and the cost of goods and services.LFTA isthe ratio of loanable funds to total assets, proxied with the ratio of deposits to total assets. This variable indicates the importance of deposits in the balance sheet. The latter is CAB, representing the total number of branches.

Given that thelevel of competition sought by any group of banks is examined during the two periods, i.e., during the consolidation phase (2001-2003), and the phase after the API was published (2004-2006), then equation (17) was added with a dummy variable (Dd). The dummy variables are specific to each type of bank (state-owned banks, foreign exchange banks, non-foreign exchange banks, regional bank, joint venture banks, and foreign banks):

$$\begin{aligned}\ln(NITA_{ij}) = {} & \alpha_{1i} + \sum_{2}^{d}\alpha_{dt}Dd + \beta_t \ln(PL_{it}) + \sum_{2}^{d}\chi_{dt}.Dd.\ln(PL_{it}) + \delta_t \ln(PLF_{it}) \\ & + \sum_{2}^{d}\varepsilon_{dt}.Dd.\ln(PLF_{it}) + \phi_t \ln(PCE_{it}) + \sum_{2}^{d}\varphi_{dit}Dd.\ln(PCE_{it}) + \gamma_t \ln(EQTA) \\ & + \sum_{2}^{d}\eta_{dt}.Dd.\ln(EQTA_{it}) + \iota_t \ln(LOATA_{it}) + \sum_{2}^{d}\kappa_{dt}Dd.\ln(LOATA_{it}) + \lambda_t \ln(LFTA_{it}) \\ & + \sum_{2}^{d}\omega_{dt}.Dd.\ln(LFTA_{it}) + \pi_t \ln(CAB_{it}) + \sum_{2}^{d}\varpi_{dt}Dd.\ln(CAB_{it}) + \mu_{it} \end{aligned} \quad (15)$$

If the level of competition is in the form of monopolistic competition, then according to Yildirim and Philippatos (2004), there will be an increase in revenue at the time there is an

increase in the prices of factors of production, evenwhen this increase is not as high as the increase in the prices of factors of production. If the results of data processing show that the market is in situation of perfect competition, the relationship between revenue and the prices of input factors will positive. This correlation is formed are based on perfect competition in which the banks are in a situation of zero profit, and where free entry and free exit will drive change in proportion to income without disturbing the optimal output level in each company in the event of an increase in the prices of factors of production. If the market form is a monopoly, a negative correlation is expected between the income and the prices of factors of production. In this situation, an increase in the prices of labor and other raw materials will increase the marginal cost, causing equilibrium output decline to ultimately reduce bank earnings. Given that banks behave as companies to maximize profit and have to deal with the market price-inelastic, then there would be a decrease in revenue.

A positive correlation between the amount of outstanding loans and bank earnings are expected to occur because of the interest-bearing loans of bank revenue. Meanwhile, for the other variables in addition to the variable factor of production, there is no expectation of any kind of signs of correlation, as in other studies using the PR model[10].

The requirement that commercial banks can be tested with the dependent variable ROE or ROA in long-run equilibrium conditions represents the profitability of banks, with the following equation:

$$\begin{aligned}\ln(ROE_{ij}) = {} & \alpha_{1i} + \sum_{2}^{d}\alpha_{dt}Dd + \beta_t \ln(PL_{it}) + \sum_{2}^{d}\chi_{dt}.Dd.\ln(PL_{it}) + \delta_t \ln(PLF_{it}) \\ & + \sum_{2}^{d}\varepsilon_{dt}.Dd.\ln(PLF_{it}) + \phi_t \ln(PCE_{it}) + \sum_{2}^{d}\varphi_{dit}Dd.\ln(PCE_{it}) + \gamma_t \ln(EQTA) \\ & + \sum_{2}^{d}\eta_{dt}.Dd.\ln(EQTA_{it}) + \iota_t \ln(LOATA_{it}) + \sum_{2}^{d}\kappa_{dt}Dd.\ln(LOATA_{it}) + \lambda_t \ln(LFTA_{it}) \\ & + \sum_{2}^{d}\mu_{dt}.Dd.\ln(LFTA_{it}) + \pi_t \ln(CAB_{it}) + \sum_{2}^{d}\varpi_{dt}Dd.\ln(CAB_{it}) + \mu_{it} \end{aligned} \quad (16)$$

3.2. Estimation Technique

Panel data regression was utilized to estimate the data in this study. There were many changes in the role of banking in Indonesia, among others, are changes in policy, bank closing, and merger and acquisitionafter the economic crisis. Therefore, we are dealing with unbalanced panel estimation. The use of panel estimation is to anticipate the possible correlation between

10 Bikker (2001) mentioned that the majority of researchers do not have a certain expectation of the sign of the correlation for the independent variables in addition to the factors of production. Most researchers still expect equity would negatively be correlated because they can drive revenue from interest although some other researchers actually expect a positive correlation between equity capital and income because demand will increase with credit risk and investment.

banks, for example when they share commonmarket target.

The method chosen or considered to be the most appropriate for this study is random effect method. This method was chosen with consideration of the number of samples more than the amount of time (Nachrowi and Usman, 2006). In addition, the choice is supportedwith the Haussman test (see Appendix). The fixed effect method cannot be used since provide a near singular matrix, due to many dummy variables, resulting matrix close to zero.

Autocorrelation and heteroscedasticity examination was not carried out specifically since the amount of panel data in this study reach thousands. This minimizes the possible bias as when individual or company level data is aggregated. In addition to our effort to overcome multicollinearity and heteroschedasticity problem by using natural logarithm (de Rizas, 2007) and ratios, we also examine multicollinearity issue using coefficient covariance matrix.We examine the collinearity issue given that high collinearity can produce parameters that are not in accordance with the substance and potentially lead to miss interpretations, (Nachrowi and Usman, 2006).

IV. RESULT AND ANALYSIS

Bank Stability

Broadly speaking, the estimation will provide us two types of statistics, namely E-Statistic forthe long-run equilibrium or indicator of stability, and H-Statistic that describes the level of competition for each bank group. Calculation of the level of competition with the PR method requires that the banking system must be in a long-run equilibrium. By applying the Wald test for the value of E-statistic, we know that during the consolidation period, overall banks were not in their long-run equilibrium.

When we estimate the E-statistic for each group of banks usingrandom effect models, we found that three of the six groups of commercial banks; state-owned banks, foreign banks, and non-foreign exchange banks, were not in their long-run equilibrium state during the consolidation period. The other three commercial banks, namely Regional Bank (BPD), joint venture banks, and foreign banks, were in long-run equilibrium situation during the consolidation period.

However, we still continue to measure the competition level using PR model for these three groups of bank that were not stable during consolidation period. Shaffer (2004) arguedthat if the result showed disequilibrium, it does not necessary reflect the PR model results to be invalid. Instead, rejection of equilibrium indicators showed that the banking industry was growing dynamically during the observation[11]. Shaffer (2008) also emphasized that research with this

11 Quoted from Schaeck Klaus, Martin Cihak, and Simon Wolfe (2009), Competition, Concentration, and Bank Soundness: New Evidence from the Micro-Level

condition can still be continued as long as the H-statistics can reject a monopoly situation ($H \leq 0$). If the H-statistic generates monopoly, then the long-term instability ($E \neq 0$) would indicate that the market was in short-run equilibrium.

For the period of 2004-2006, the estimation result shows that the commercial banks were in their long-run equilibrium. The entire estimation results of E-statistic for each commercial banks group shows that the six banks were already in long-run equilibrium. This includes the state-owned banks, foreign exchange, and non-foreign exchange banks, which previously not in equilibriumduring consolidation phases.

The shift from non-equilibrium to equilibriumfor the entire group of banksshows that three years implementation of API had led stability for bank.Comparison between the two periods shows that more banks were stabilizing after the API luncheon (see Table 1).

Indication of more stable commercial banks after the API luncheonwas also supported by several indicators. Deposits collections for all groups of commercial banks tended to rise, with the exception of the foreign bank deposits that slumped at the end of 2006. General bank lending continued to rise, as well as the Loan to Deposit Ratio (LDR). In contrast, the percentage of bad loans at all commercial banks declined from 2001 to 2006, possibly due to the recovery and stabilization of the economy after the crisis.

Table 1.
Wald Test Results on Long Run Equilibrium

Bank Group	Consolidation period	Post-API
All General Banks	Fail to pass the test of long run equilibrium	Passed the test of long run equilibrium
State-owned Banks	Fail to pass the test of long run equilibrium	Passed the test of long run equilibrium
Foreign Exchange Bank	Fail to pass the test of long run equilibrium	Passed the test of long run equilibrium
Non-foreign Exchange bank	Fail to pass the test of long run equilibrium	Passed the test of long run equilibrium
Regional Bank (BPD) (Regional Banks)	Passed the test of long run equilibrium	Passed the test of long run equilibrium
Joint Venture Bank	Passed the test of long run equilibrium	Passed the test of long run equilibrium
Foreign Banks	Passed the test of long run equilibrium	Passed the test of long run equilibrium

Description: This is E statistical test which is a necessary condition before seeking statistical value H

Competition level of Commercial Banks

Calculation results for H-statistic value and the Wald test for each bank group is provided in Table 2. Overall, the commercial banks were in a monopolistic competition conditions during the consolidation period. Looking across bank group, four of the commercial banks were in monopoly or collusive oligopoly structure, while the other two groups (state-owned banks and foreign banks)were in monopolistic competition.

Three years after the API was launched, competition in the Indonesian commercial banks has evolved. A whole group of commercial banks were in a situation of monopoly or collusive oligopoly, where previously they were in monopolistic competition. This condition showed that the level of competition in commercial banks tended to be lower and higher monopoly intensities in some banks.

From 2001 to 2006, most of the banks were in a situation of monopoly or collusive oligopoly. In summary, banks weregenerally in a situation of monopoly or collusive oligopoly as supported by Manurung and Rahardja (2004) who stated that the financial industry is rarely in perfectly competitive market. This is particularly true for domestic market due to the difficulty for the new banks to achieve economies of scale, complexity management issues, and the severity of non-price competition.

Collusion in banking can be in a form of agreement, mutual assistance, and coordination between banks to set price and or non-price competition, (Alhadeff, 1951). Furthermore, the monopoly or oligopoly is more often favored by bankers because it produces more stable profits compared to the situationof a highly competitivemarket(Caves and Porter, 1978).

The findings of this study correct Setyowati(2004) and also the findings of Claessen and Laeven (2003) who concluded that Indonesian banks in general are in a situation of monopolistic competition. Along with the previous E-statistic result, we found that the competition in every group of commercial banks in Indonesia was getting lower with increasing stability.

This finding is also supported by the results of H-statistics for all groups of commercial banks data, using only one dummy variable representing prior and after the implementation of API. The estimation results of six groups combined data shows a decrease in the level of competition, shifted from monopolistic competition towards monopoly or collusive oligopoly. Decrease in the level of competition as a result of increased stability in the financial sector is also supported by Allen and Gale (2004)[12]. Stability is beneficial for banks since it provides bigger opportunities to be a price leader.

The first reason for the decline of competition level wasbecause of the large number of bank mergers and acquisitions, or consolidation among banks, especially in the following years after API luncheon (post crisis 1997/98). This policy was adopted because it was more elegant than direct liquidation, and would not likely triggering panic especially for banks with poor performance. Empirically, the process of mergers and acquisitions that reduce the number of banks was already pushing the market towards monopoly or oligopoly and away from perfect competition (Alhadeff, 1951; Bikker and Haaf, 2001).

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12 Dimuat di dalam paper Berger, Denirguc-Kunt, dan Haubrich (2004). *Bank Concentration and Competition: An Evolution in the Making.*

Table 2.
Processing Results and Statistics. H Wald Test

Bank Group	Consolidation period		Post-API Publishing		Perubahan
	H Stat	Market Type	H Stat	Market Type	
All Commercial Banks	0.89	*monopolistic competition*	-0.01	*monopoly / collusive oligopoly*	Competition decrease
State-owned Banks	0,87	*monopolistic competition*	-0,03	*monopoly / collusive oligopoly*	Competition decrease
Exchange Bank	0,12	*monopolistic competition*	0,11	*monopoly / collusive oligopoly*	Competition decrease
Non-Foreign Exchange Banks	0,11	*monopoly / collusive oligopoly*	0,05	*monopoly / collusive oligopoly*	Monopolyinte nsityincrease
Regional Bank (BPD) (Regional Banks)	0,05	*monopoly / collusive oligopoly*	0,03	*monopoly / collusive oligopoly*	Fixed
Mixed Banks	-0,00	*monopoly / collusive oligopoly*	-0,01	*monopoly / collusive oligopoly*	Fixed
Foreign Banks	0,09	*monopoly / collusive oligopoly*	-0,14	*monopolistic competition*	Monopoly intensity increase

Note: α=10%

The second factor that reduced the level of competition is the banking regulation, such as the Single Presence Policy[13] (SPP), which encouraged reduction in the number of banks. Similarly, the establishment of new banks policy with minimum Rp 3 trillion of capital, also helped stop the emergence of new banks. At first, the presence of this regulation was to prevent fraud and mismanagement. However, in reality, these series of regulatory measures had also restricted the flexibilities of financial institutions (Manurung and Rahardja, 2004).

Changes in the level of banking competition due to the emergence of a government policy or banking surveillance authority was also found in de Rozas (2007) research Spain banking and also in Bikker and Groeneveld (1998) on European banks after deregulation following the establishment of the European Union. Therefore, competition was likely hampered in a financial industry loaded with regulations.

Another interesting finding of the random effect estimationwas the presence of two out of six groups of banks that have a monopoly or collusive oligopoly structure, both prior and

13 The SPP policy forced banks with common ultimate shareholders to merge into one bank. However, the definition of the common ultimate shareholders was apparently taken from legal lending limit, which was actually intended for spreading risk; this made the two definitions were not match.

after API luncheon. Two groups of banks are banks that have a niche market, the Regional Bank (BPD) group and joint venture banks. These findings indicate that the API does not affect the competitive level of these two groups of bank. Likewise, the foreign banks appeared to have the lowest competition level relative to other groups. Chances are this is related to the foreign bank presence in only certain cities due to the geographical limitationfor this bank.

On the micro level, the effect of competition changes on the asset side tends to be different from the liability side. On the liabilities side, the increase in competition may encourage an increase in deposit rate because banks tend to garner new customers through the lure of a higher interest rate relative to its competitors. In contrast,on the asset side, competition increase would drive banks to lower interest rates as banks try to offer lower interest rates to the debtor.

Panel data estimation results showed that not all elasticity parameters of independent variable are statistically significant. These insignificant variables could be interpreted to represent the evolution of the market structure and market specialization process. Some variables which are likely to be decisive in the future of competition level are the number of branches, the price of labor, and the volume of lending[14].

The number of branches could affect the level of competition and bank profits[15]. Branches could increase profits at the point where bank branches are able to spearhead marketing, both in terms of financial resources (adding depositors) and the use of funds (increase the debtor) leading to an increase in transactions. In contrast, the branch office that is not able to attract more customers will add costs. It is evident for example on BRI with its Terasprogram, the BTPN with MUR, Danamon with DSP, Bukopin with Swa Mitra, and even Mandiri with its Micro Unit.

The price and the quantity of labor could also be determinant of competition in the future given the direct relationship between the price of labor and the costs. Decline in the price of labor will also decrease the cost, considering the banking industry as a labor intensive industry, particularly for banks that engaged in retail or micro, small and medium-sized enterprises (SMEs).

The volume of lending could also be a determinant of competition (in terms of assets to the bank) since banklending will create revenue through interest margin, which is much larger than the inter-bank money or securities market. More bank lending will invite greater income,

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14 De Guavara, Maudos, and Perez (2002) which researched levels of competition with a model that was almost the same as the PR model but it was based on a function of cost and price of three factors of production in its processing to produce a findings that contained a lot slope for the independent variables which were not significant.

15 Branches are not limited to the physical form of the building but also the non-physical (or often called branchless banking) such as internet banking or e-banking which is growing along with information and communication technology and more innovative gadgets. In addition, the bank is also working with the post office or agency, finance companies, rural banks and Credit Unions to expand its network, such as Danamon with DSP, etc. Bukopin with Swa Partners.

and vice versa. It is worth to note that the Loan to Deposit Ratio (LDR) during the banking consolidation period was lower than after the API luncheon. This represents potential increase of credit allocation.

V. CONCLUSION

The first conclusion of this paper is that the overall performance of the commercial banks improved after three years the API luncheon. All groups of commercial banks were also more stable after the API. Although more stable, competition level of banking industry in Indonesia at the national level tended to decrease. Commercial banks in general were in monopolistic competition during the period of consolidation and then shifted to monopoly or collusive oligopoly after API.

Across the banking group, the market structure of commercial and foreign exchange bank were previously monopolistic competition during consolidation period, and then shifted to monopoly or collusive oligopoly after the API. On the other hand, those bank with originally in monopoly or collusive oligopoly also experienced a decline in competition level (or increasing monopoly intensities).

We suspect the decline of banking competition level is caused by reduction of number of banks, and also by the emergence of banking deregulation. In addition, the declineof competition level was also affected by the increase of banking stability. Therefore, this study provides evidence that commercial banks became more stable, with lower levels of competition after the API luncheon.

The second conclusion, the API does not affect the structure of competition in the Regional Bank (BPD) group that has a niche market (i.e. local governments, their employees and associated companies), nor the joint venture banks with a fixed market of foreign multinational companies. The monopolistic competition or collusive oligopoly on these two types of banks stayed the same prior and post the implementation of API.

The third conclusion is that foreign banks have a lower level of competition relative to other bank groups. This is related to the regional restriction imposed by the government to operate only in certain region.

To investigate in more detail about the structure of banking industry in Indonesia, future study can release the static assumption as presumed on current paper. Another option is to use more precise proxy for the variables. The grouping of the bank based on their asset size may also be interesting rather than use the current classification from Bank Indonesia.

This paper has emphasized the future decisive role of number of branch, price of labor, and the credit volume (across region) on the level of bank competition. Future research may want to focus on these variables to predict and to manage the competition of banking to the desired level.

The above findings bring implications for the monetary authorities to pay more attention on the level of competition among banks, considering that the larger tendency toward monopoly, the greater inefficiency will occur. With respect to the ability to compete globally, it is also important for the bank to achieve certain scale, be strong and stable, which could be attained by merger and acquisition process, without sacrifice the decline in competition level.

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APPENDIX

Wald Test for Statistic - E (E=0)

State Owned Bank (Bank Persero)								
Consolidation Period (2001-2003)					**Post API Implementation (2004-2006)**			
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	20,71381	(1, 9685)	0		F-statistic	0,03975	(1, 9685)	0,842
Chi-square	20,71381	1	0		Chi-square	0,03975	1	0,842
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(14) + C(26) + C(38)		0,682298	0,149915		C(15) + C(27) + C(39)		0,032767	0,16435
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Foreign Exchange Bank (Bank Devisa)								
Consolidation Period (2001-2003)					**Post API Implementation (2004-2006)**			
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	5,731132	(1, 9685)	0,0167		F-statistic	2,773027	(1, 9685)	0,0959
Chi-square	5,731132	1	0,0167		Chi-square	2,773027	1	0,0959
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(16) + C(28) + C(40)		0,362901	0,151589		C(17) + C(29) + C(41)		0,252621	0,151702
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Non-Foreign Exchange Bank (Bank Non-Devisa)								
Consolidation Period (2001-2003)					**Post API Implementation (2004-2006)**			
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	3,456312	(1, 9685)	0,063		F-statistic	2,421574	(1, 9685)	0,1197
Chi-square	3,456312	1	0,063		Chi-square	2,421574	1	0,1197
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(18) + C(30) + C(42)		0,280953	0,151122		C(19) + C(31) + C(43)		0,235237	0,151167
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Regional Bank (BPD)								
Consolidation Period (2001-2003)					**Post API Implementation (2004-2006)**			
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	1,822212	(1, 9685)	0,1771		F-statistic	1,375768	(1, 9685)	0,2409
Chi-square	1,822212	1	0,1771		Chi-square	1,375768	1	0,2408
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(20) + C(32) + C(44)		0,204539	0,151522		C(21) + C(33) + C(45)		0,178132	0,151869
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Mix Bank (Bank Campuran)								
Consolidation Period (2001-2003)					**Post API Implementation (2004-2006)**			
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	1,090981	(1, 9685)	0,2963		F-statistic	0,84967	(1, 9685)	0,3567
Chi-square	1,090981	1	0,2963		Chi-square	0,84967	1	0,3566
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(22) + C(34) + C(46)		0,158303	0,151559		C(23) + C(35) + C(47)		0,140341	0,152251
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Foreign Bank (Bank Asing)								
Consolidation Period (2001-2003)					**Post API Implementation (2004-2006)**			
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	0,014078	(1, 9685)	0,9056		F-statistic	0,013283	(1, 9685)	0,9082
Chi-square	0,014078	1	0,9056		Chi-square	0,013283	1	0,9082
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(24) + C(36) + C(48)		0,018333	0,154516		C(25) + C(37) + C(49)		-0,01774	0,153911
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Wald Test for restriction H=0 and H=1

Uji H=0					Uji H=1			
State Owned Bank (Bank Persero)Consolidation Period (2001-2003)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	157,7242	(1, 9686)	0		F-statistic	3,717626	(1, 9686)	0,0539
Chi-square	157,7242	1	0		Chi-square	3,717626	1	0,0538
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(14) + C(26) + C(38)		0,866907	0,069028		-1 + C(14) + C(26) + C(38)		-0,13309	0,069028
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

State Owned Bank (Bank Persero) Post API Imlementation (2004-2006)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	0,195048	(1, 9686)	0,6588		F-statistic	186,8024	(1, 9686)	0
Chi-square	0,195048	1	0,6587		Chi-square	186,8024	1	0
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(15) + C(27) + C(39)		-0,033392	0,075609		-1 + C(15) + C(27) + C(39)		-1,03339	0,075609
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Foreign Exchange Bank (Bank Devisa) Consolidation Period (2001-2003)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	3,061351	(1, 9686)	0,0802		F-statistic	158,2152	(1, 9686)	0
Chi-square	3,061351	1	0,0802		Chi-square	158,2152	1	0
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(16) + C(28) + C(40)		0,122115	0,069793		-1 + C(16) + C(28) + C(40)		-0,87789	0,069793
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Foreign Exchange Bank (Bank Devisa) Post API Imlementation (2004-2006)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	2,300753	(1, 9686)	0,1293		F-statistic	2,300753	(1, 9686)	0,1293
Chi-square	2,300753	1	0,1293		Chi-square	2,300753	1	0,1293
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(17) + C(29) + C(41)		0,105956	0,069854		-1 + C(17) + C(29) + C(41)		-0,89404	0,069854
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Non-Foreign Exchange Bank (Bank Non-Devisa) Consolidation Period (2001-2003)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	2,301804	(1, 9686)	0,1293		F-statistic	165,2097	(1, 9686)	0
Chi-square	2,301804	1	0,1292		Chi-square	165,2097	1	0
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(18) + C(30) + C(42)		0,105575	0,069587		-1 + C(18) + C(30) + C(42)		-0,89443	0,069587
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Non-Foreign Exchange Bank (Bank Non-Devisa)Post API Imlementation (2004-2006)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	0,481951	(1, 9686)	0,4876		F-statistic	186,9261	(1, 9686)	0
Chi-square	0,481951	1	0,4875		Chi-square	186,9261	1	0
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(19) + C(31) + C(43)		0,048323	0,069607		-1 + C(19) + C(31) + C(43)		-0,95168	0,069607
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Regional Bank (BPD) Consolidation Period (2001-2003)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	0,488204	(1, 9686)	0,4847		F-statistic	185,8757	(1, 9686)	0
Chi-square	0,488204	1	0,4847		Chi-square	185,8757	1	0
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(20) + C(32) + C(44)		0,048751	0,069772		-1 + C(20) + C(32) + C(44)		-0,95125	0,069772
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Regional Bank (BPD) Post API Imlementation (2004-2006)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	0,225298	(1, 9686)	0,635		F-statistic	191,1256	(1, 9686)	0
Chi-square	0,225298	1	0,635		Chi-square	191,1256	1	0
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(21) + C(33) + C(45)		0,033194	0,069933		-1 + C(21) + C(33) + C(45)		-0,96681	0,069933
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Mix Bank (Bank Campuran) Consolidation Period (2001-2003)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	0,002794	(1, 9686)	0,9578		F-statistic	206,8383	(1, 9686)	0
Chi-square	0,002794	1	0,9578		Chi-square	206,8383	1	0
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(22) + C(34) + C(46)		-0,003689	0,069788		-1 + C(22) + C(34) + C(46)		-1,00369	0,069788
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Mix Bank (Bank Campuran) Post API Imlementation (2004-2006)								
Wald Test:					Wald Test:			
Pool: THESIS7					Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**		**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	0,005744	(1, 9686)	0,9396		F-statistic	92,67264	(3, 9686)	0
Chi-square	0,005744	1	0,9396		Chi-square	278,0179	3	0
Null Hypothesis Summary:					Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**		**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(23) + C(35) + C(47)		-0,005313	0,070108		-1 + C(23) + C(35) + C(47)		-1,00531	0,070108
Restrictions are linear in coefficients.					Restrictions are linear in coefficients.			

Foreign Bank (Bank Asing) Consolidation Period (2001-2003)							
Wald Test:				Wald Test:			
Pool: THESIS7				Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**	**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	1,446236	(1, 9686)	0,2292	F-statistic	7841,977	(12, 969)	0
Chi-square	1,446236	1	0,2291	Chi-square	94103,73	12	0
Null Hypothesis Summary:				Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**	**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(24) + C(36) + C(48)		-0,085573	0,071157	-1 + C(24) + C(36) + C(48)		-1,08557	0,071157
Restrictions are linear in coefficients.				Restrictions are linear in coefficients.			

Foreign Bank (Bank Asing) Post API Imlementation (2004-2006)							
Wald Test:				Wald Test:			
Pool: THESIS7				Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**	**Test Statistic**	**Value**	**df**	**Probability**
F-statistic	3,745501	(1, 9686)	0,053	F-statistic	7841,977	(12, 969)	0
Chi-square	3,745501	1	0,0529	Chi-square	94103,73	12	0
Null Hypothesis Summary:				Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**	**Normalized Restriction (= 0)**		**Value**	**Std. Err.**
C(25) + C(37) + C(49)		-0,137157	0,07087	-1 + C(25) + C(37) + C(49)		-1,13716	0,07087
Restrictions are linear in coefficients.				Restrictions are linear in coefficients.			

Wald Test on Prior vs. Post API Implementation (2004-2006)

Non-Foreign Exchange Bank (Bank Non-Devisa)			
Wald Test:			
Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**
F-statistic	3,745501	(1, 9686)	0,053
Chi-square	3,745501	1	0,0529
Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**
C(18) - C(19) + C(30) - C(31) + C(42) - C(43)		0,057252	0,012055
Restrictions are linear in coefficients.			

Regional Bank (BPD)			
Wald Test:			
Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**
F-statistic	1,152382	(1, 9686)	0,2831
Chi-square	1,152382	1	0,2831
Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**
C(20) - C(21) + C(32) - C(33) + C(44) - C(45)		0,015557	0,014492
Restrictions are linear in coefficients.			

Mix Bank (Bank Campuran)			
Wald Test:			
Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**
F-statistic	0,01139	(1, 9686)	0,915
Chi-square	0,01139	1	0,915
Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**
C(22) - C(23) + C(34) - C(35) + C(46) - C(47)		0,001625	0,015222
Restrictions are linear in coefficients.			

Foreign Bank (Bank Asing)			
Wald Test:			
Pool: THESIS7			
Test Statistic	**Value**	**df**	**Probability**
F-statistic	4,802108	(1, 9686)	0,0284
Chi-square	4,802108	1	0,0284
Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**
C(24) - C(25) + C(36) - C(37) + C(48) - C(49)		0,051584	0,023539
Restrictions are linear in coefficients.			

Estimation Result across Types of Bank State Owned Bank (Bank Persero)				
Consolidation Period (2001-2003)			**Pasca API (2004-2006)**	
Independent Variable (in natural log)	**Slope**		**Independent Variable (in natural log)**	**Slope**
Constant	0,62		Constant	-1,98**
Price of labor	0,17**		Price of labor	-0,03
Price of capital	-0,17**		Price of capital	0,33**
Price of fund	0,87***		Price of fund	-0,33*
Equity	0,14**		Ekuitas	-0,08
Loan	0,17		Equity	-0,16
Third Party Fund	0,93***		Third Party Fund	-0,51
Number of Branch	-0,08		Number of Branch	0,2***

***: Significant at 1% **: Significant at 5% *: Significant at 10%

Foregin Exchange Bank (Bank Devisa)				
Consolidation Period (2001-2003)			**Pasca API (2004-2006)**	
Independent Variable (in natural log)	**Slope**		**Independent Variable (in natural log)**	**Slope**
Constant	0,10		Constant	-1,55**
Price of labor	-0,01		Price of labor	-0,06
Price of capital	0,23***		Price of capital	0,27***
Price of fund	-0,10		Price of fund	-0,22
Equity	-0,13**		Equity	-0,15**
Loan	0,78***		Loan	0,56**
Third Party Fund	-1,14***		Third Party Fund	-1,18***
Number of Branch	-0,95		Number of Branch	0,06

***: Significant at 1% **: Significant at 5% *: Significant at 10%

Non-Foregin Exchange Bank (Bank Non Devisa)				
Consolidation Period (2001-2003)			**Pasca API (2004-2006)**	
Independent Variable (in natural log)	**Slope**		**Independent Variable (in natural log)**	**Slope**
Constant	-0,79		Constant	-1,71***
Price of labor	-0,06		Price of labor	0,08
Price of capital	0,29***		Price of capital	0,29***
Price of fund	-0,12		Price of fund	-0,32
Equity	-0,12**		Equity	-0,17**
Loan	-0,13		Loan	-0,12
Third Party Fund	-1,39		Third Party Fund	-0,11
Number of Branch	0,14**		Number of Branch	0,17**

***: Significant at 1% **: Significant at 5% *: Significant at 10%

Regional Bank (BPD)				
Consolidation Period (2001-2003)			**Pasca API (2004-2006)**	
Independent Variable (in natural log)	**Slope**		**Independent Variable (in natural log)**	**Slope**
Constant	0,07		Constant	-1,00
Price of labor	-0,08		Price of labor	-0,01
Price of capital	0,29***		Price of capital	0,3***
Price of fund	-0,16		Price of fund	-0,29**
Equity	-0,1*		Equity	-0,14**
Loan	-0,05		Loan	0,02
Third Party Fund	0,02		Third Party Fund	-0,11
Number of Branch	-0,02		Number of Branch	0,03

***: Significant at 1% **: Significant at 5% *: Significant at 10%

Mix Bank (Bank Campuran)				
Consolidation Period (2001-2003)			**Pasca API (2004-2006)**	
Independent Variable (in natural log)	**Slope**		**Independent Variable (in natural log)**	**Slope**
Constant	-2,77***		Constant	-3,16***
Price of labor	0,22***		Price of labor	0,19**
Price of capital	0,19**		Price of capital	0,29***
Price of fund	-0,41***		Price of fund	-0,49**
Equity	-0,07**		Equity	-0,05
Loan	-0,18		Loan	-0,31
Third Party Fund	-0,45		Third Party Fund	-0,57*
Number of Branch	-0,01		Number of Branch	0,09
***: Significant at 1%	**: Significant at 5%	*: Significant at 10%		

Foreign Bank (Bank Asing)				
Consolidation Period (2001-2003)			**Pasca API (2004-2006)**	
Independent Variable (in natural log)	**Slope**		**Independent Variable (in natural log)**	**Slope**
Constant	-1,95***		Constant	-1,53***
Price of labor	0		Price of labor	-0,03
Price of capital	0,53***		Price of capital	0,32***
Price of fund	-0,61***		Price of fund	-0,43***
Equity	-0,07		Equity	-0,09
Loan	-0,09		Loan	-0,14
Third Party Fund	-0,27		Third Party Fund	-0,37
Number of Branch	-0,28***		Number of Branch	-0,03
***: Significant at 1%	**: Significant at 5%	*: Significant at 10%		

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