

## Financial System Stability in Indonesia during The Global Financial Crisis 2007/2008: Conventional vis-à-vis Islamic

Muh. Rudi Nugroho<sup>1</sup>, Ibnu Qizam<sup>2</sup>

<sup>1, 2</sup> Faculty of Islamic Economics and Business  
State Islamic University Sunan Kalijaga Yogyakarta-Indonesia  
(Corresponding author: q\_zami@yahoo.com)

**Abstract:** This research aims to analyze the financial stability especially in dual banking system in Indonesia and discusses the role of Islamic banks in the financial stability of national banks. In addition, this study also focuses on the analysis of the determinants of financial stability namely on the national banking Industry. This research uses panel data in which combined data between time series and cross section with an observation periods are 2005:1 - 2009:1 by using an internal variable of banks and macroeconomic data. Z-score analysis will be used as main tool analysis regressed with internal variable. Empirical results obtained from this research shows that during the period of 2005:1 - 2009:1 banking financial stability, for both conventional and Islamic and categorized based on an asset scale, the movement of the Z-score value is different. From the Z-score values analysis shows that Islamic banks are the most stable bank with a trend increased sharply when compared with other banks, namely conventional counterparts. If viewed from each category, small conventional banks more stable than small Islamic banks, and there are declining trend in 2005:1 to 2009:1. Whereas for large and middle conventional banks the trend of the Z-score movement are in the same patterns. This study also founds that the determinant of the banking stability can be seen from two sides namely bank's internal factors and macroeconomic factors. Internal factors consist of: Income Diversity (ID), Credit or Financing (Loan), Total Assets (TA), Operational Cost (Cost), Cost Income (CI), Loan Asset (LA), Current Liability (CL), Cash to Current Liabilities (CCL), Capital Bank (MDL). While macroeconomic factors consist of: inflation, BI Rate, Exchange Rate, Composite Index (JCI), the Gross Domestic Product (GDP). This research also examined the extent to which the role of Islamic banks and the global financial crisis to the financial stability of national banking. This analysis shows that the global financial crisis and Islamic banks affect significantly to the financial stability of banking industries in Indonesia.

**Keywords:** Financial Stability, Z-score, Islamic Banking, and Conventional Banking.

### Introduction

The impact of the global financial crisis affect in the weakening of the current economic conditions in developed countries, where these countries is the export destination of the developing countries, thus it indirectly will affect national economic growth, particularly in the banking sector. For example, in conducting credit policy, banks will be more selective in giving credit, thus, can cause credit crunch<sup>1</sup>. Therefore, when this credit crunch phenomenon is

<sup>1</sup> Credit crunch is the reluctance of banks and savings loans (the reluctance of bank and thrift to lend) conducted by the bank. In other words a decline in credit supply as result of the decline in bank willingness to distribute credit (Bernanke and Lown, 1991). Credit crunch is also happening due to imbalances in supply and credit demand, supply too careful in selecting the customer banking, the trauma of the crisis, and also low customer demand

allowed, it would disrupt economic growth, particularly growth in the real sector. Finally, it can affect economic instability, which in turn also affects to the financial sector, particularly banking industry.

Learning from the 1997/1998 crisis that occurred in Indonesia, overall, a result of the crisis has worsened not only on aspects of banking liquidity but also affect the solvency and rentability aspect. Since banking is a dominant market in the financial industry in Indonesia, thus, systematically the financial sector also experienced paralysis (Santoso, 2003). Study conducted by Bank Indonesia in 2003 pertaining to the financial stability, the financial and banking crisis that has sucked the national expenditure approximately at 51% of GDP so that Indonesia can be categorized in the history as the largest financial crisis. The cost of crisis is of course not including the negative impact of the crisis on the overall economy such as economic growth, investment, unemployment and other social costs due to political and social instability as a follow-up on the impact of the crisis. According to Berg and Pattilo (1999) the causes of the financial crisis could be classified into 2 major parts, namely: first, the disruption of economic fundamentals (inflation, economic growth, and balance of payments) and the second, the existence of speculative behaviour that accelerated the crisis (self-fulfilling crisis).

Meanwhile, McKinnon and Pill (1994) studied the role of capital flows in the economy by the unregulated banking sector, deposit insurance and moral hazard problems in banking are all factors causing the financial crisis. Capital inflows in such a situation will cause the cycle of excessive borrowing with consumption boom and current account deficits. As a result of this excessive credit is the occurrence of over-investment, which causes inflation. If high inflation is likely to continue, it will result in a loss of competitiveness and declining economic growth that can eventually disturb the stability of the national economy.

In Indonesia, the issue of financial system stability was raised after the financial and banking crisis in 1997-1998. However, currently there is not a juridical concept of thinking and institutional (legal and institutional framework) of the institutions that have responsible for maintaining the overall stability of the financial system. Currently there is two banking system, namely interest rate banking system and profit-sharing system or better known by the system without interest (free interest rate system). For example, Bank Indonesia issued Bank Indonesia Certificates (SBI) for conventional banks and issued Bank Indonesia Certificates Wadiah (SWBI) for Islamic Banking. This shows that Indonesia has the dual monetary system, i.e. interest rate and profit sharing. Sharing system as a principle calculation based on the borrower's income or the producers who have flexible nature of the return for the results.

Islamic banks in Indonesia started in 1992, but until the year 1999 the development of Islamic Banks are relatively stagnant. This is because there is only one Islamic bank, but after the stipulation of Law No. 10, 1998 that estimated more than 250 institutions of Islamic mutual funds which manage approximately \$ 300 billion imposition of a dual banking system<sup>2</sup> (Agustianto, 2008).

Ainley et.al (2007) mentions that the existence of a profit sharing system will raise the possibility of displacement of consumer from interest system to profit-sharing system. Substitution mechanism will create lack of monetary policy. Other possibilities, it can reduce the negative effect than the reduction of conventional loans in the sector. The reduction was incurred as result of Islamic lending mechanism that makes the balance between growth in the monetary sector and real sector. Any acceleration of banking both conventional and Islamic is not independent of monetary policy transmission mechanism that exists and is applied in every country. Transmission mechanism is a channel that connects between monetary policies to the

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or willingness to borrow money because the risk is too high to be the responsibility (Gosh and Gosh, 1999 ) and (Starr and Yilmaz, 2005).

<sup>2</sup> A system in which the government introduced two policies in the Islamic banking system and the conventional, where conventional banks can open and Islamic business units or fully convert into Islamic banks.

economy (Taylor, 1999). Bernanke and Gertler emphasize on the credit sector (credit channel). Obstfeld and Rogoff while emphasizing the concept of selecting the transmission mechanism of exchange rate policy (McCallum, 2004). Because the transmission mechanism of monetary policy will encourage the appropriate level of financial stability. Some economists agree that the transmission mechanism is a process that causes changes in real GDP and inflation through the mechanism of monetary policy (Taylor in McCallum, 2004).

The development of Islamic bank in Indonesia within the last 6 years can be known from some internal indicators of Islamic and conventional banking, for example; Loan Deposit Ratio (LDR) of Islamic banks an average is around 99.5 was much higher than conventional bank that in average at 64.2. This shows that as an intermediary function, Islamic banks can work better than conventional banks. For Non-Performing Loan (NPL) or in Islamic banks call as Non-Performing Financing (NPF), a lower Islamic bank in the amount of 3.72 for conventional bank was 8.17. This indicated that the credit crunch in Islamic banks is smaller than the conventional banks, even in the outlook for Islamic banking in Indonesia in 2010 stated that Indonesia's position in the global financial market growth of Islamic banking industry in the last 5 years higher than the growth of the global Islamic financial industry (15% - 20%) and over a period of 17 years of growth, total assets Islamic banking industry has increased by 30 times from Rp 1.79 trillion in 2000, to Rp 58,034 trillion in September 2009. Asset growth rate of 53.32% per year (yoY, average growth in the last 8 years). From the above exposition, in order to respond to the fast development of the financial industry it is necessary for all relevant institution (Bank of Indonesia) to maintain financial stability, particularly banking institutions to remain as trusted institutions by the community. Therefore, this research will analyze how the financial stability of the banking system that occurred in the dual banking system model applied in Indonesia viewed from empirical analysis.

## **Problem Statement**

The failure of the system of monetary policy transmission mechanism raise a confidence among researchers to find alternative models of new transmission mechanism. Transmission mechanisms that have not found it in economic terms is often referred to as black box of the economic system (Bernake, 1995). This is because the transmission mechanism of monetary policy will encourage and assist a bank's financial stability. Banking financial stability is absolutely necessary as to maintain national economic stability. Indonesia is now implementing a dual banking system in the mechanism of monetary policy and banking applications, it is strengthened by the adoption of Act No. 21 of 2008 on Islamic Banking. Therefore, identification and review the need for financial system stability and health of financial institutions to be managed well, for the next crisis symptoms can be identified so that the losses suffered by Indonesia because of the crisis that may occur can be minimized, should always be done. Based on the above conditions, then the problem will be examined in this study was what is the ratio of financial stability of national banking (Islamic and conventional)? How the role of Islamic banks in the financial stability of national banking? What factors that could affect the financial stability of national banking (Islamic and conventional)?

## Literature Review

### Theoretical Background

#### Financial Stability

Financial system stability or often-referred to as financial stability is moving of the financial crisis / avoidance of financial crisis (MacFarlane, 1999) and (Sinclair, 2001). More specifically, financial system stability is the stability of institutions and financial markets (Crockett, 1997). While Mishkin (1991) defines a financial crisis as a disruption to financial markets, in which the problem of adverse selection<sup>3</sup> and moral hazard<sup>4</sup> that deteriorating financial markets, thus, can't efficiently channel funds productive sector. From the three terms above, it can be conclude that the stability of the financial system is intended to create institutions and stable financial markets in order to avoid a financial crisis that could disrupt the national economic order.

Sutton and Tosovsky (2005) say that financial stability was; first, situations where the financial system can allocate resources efficiently into productive activities at different conditions. Secondly, to predict and to manage financial risks, and third, to absorb financial shock. The purposes of these three points are the stability of the financial system includes the efficiency and resilience of the financial system. The stability of financial system depends not only on individual financial institutions but also depends on a complex interaction between financial institutions, real sector and financial markets.

Syamsul, Charkes, and Shinta (2007) states that financial stability can be interpreted broadly as to avoid the failure of financial institutions in large scale and to avoid serious disruption of the intermediary function of financial system (IMF-WB, 2005). In a stable financial system, there is a high trust in which financial institutions in the system can perform its function well without any interruption or outside assistance (Ishii and Habermeier, 2002). In addition, market participants can make transactions at the level of relatively stable prices and transaction reflects a fundamental condition. Ishii and Hebermeir (2002) also explained that in a stable financial system stability is included therein and a settlement payment systems and the adequacy of liquidity in the money market and foreign exchange market (forex). Thus, financial stability emphasizes the stability of two important components of the key and the key market institution<sup>5</sup> that make up the financial system.

Bank's financial stability was also used as an early detection system to avoid systemic risk (systemic risk). Systematic risk according to Jones is, "The Variability in a security's total return that is directly associated with overall movements in general market or economy". This risk is inherent in all investments and can't be avoided by investors. Meanwhile, according Gitman, systematic risk is, "The portion of an asset's risks attributable to market that affects all factors firm; can not be eliminated through Diversification". Tan Lian Soei interpreted as systematic risk due to risk factors that simultaneously affect the price of securities, such as

<sup>3</sup> Adverse selection arises before the transaction occurs when the bank chose the borrower (borrower) is likely to lead to bad credit risks. Because of potentially large adverse selection led to bad debts, the loan (lender) may not lend in the market although there are borrowers who have low credit risk (KSK Bank in March, 2003)

<sup>4</sup> Moral hazard arises after the transaction occurs because lenders potentially harmed by the borrower is compelled to do such activities are not expected to pay due liabilities. Moral hazard asymmetric information about knowing where the lenders borrower activity that allows borrower to moral hazard. Conflicts of interest between borrower and lender due to moral hazard (agency problem) indicates that many lenders decided not to give loans, credit and investment that does not achieve the optimal level that can cause credit crunch.

<sup>5</sup> Banks generally regarded as the key institution. Given the potential instability in the banking-of-mouth effects of systemic (systemic contagion), while key markets including money markets and stock exchange. Bond market and the corporate state. Capital markets and derivatives markets.

system changes or economic conditions, political and social changes that affect the company or the industry as a whole and not be able to avoid. Systemic risk is the risk in the banking context, in which the failure of a bank will result in the loss or destruction of a large national economy. Systematic risk is also called market risk is market risk due to variables outside the company (exogenous), so the company can't be controlled and can't be diversified.

### **Dual Banking System**

According to the banking Act No. 7 of 1992 in which banks are given freedom to determine the type of reward that will be taken from customers either interest or profit sharing. With issuing Act No. 72 of 1992 on the banks of the constraints explicitly that "the bank for the results should not be conducting business activities that are not based on principles of results (interest), on the other hand banks are business based on principles of profit sharing" (Chapter, 6) (Muhammad, 2002). After the issuance of Law No. 10 of 1998, (Chapter 6) allows commercial banks to conduct business activities in accordance with the principles of Islamic (Dual Banking System) through the establishment of branch offices under a new office or branch office or change office under branch offices that conduct activities business based on Islamic principles, Islamic banks nevertheless be subject to the regulations and requirements and applicable banking include: licensing provisions in business development, reporting obligations to Bank Indonesia, internal oversight, and oversight for achievement, funding, management, profitability, liquidity and other factors.

### **Previous Studies**

A study conducted by Martin Cihak and Heiko Hesse (2008) entitled "Islamic Banks and Financial Stability: An Empirical Analysis", in which this study examined 20 countries in the world, with a 77 Islamic bank and 320 conventional banks as a research sample. In this study using the formula of Z-score, as the dependent variable and use some of the bank's internal variables and macroeconomic variables as independent. From the research, results can be seen that Islamic banking financial stability can be assessed based on individual evidence of Islamic banks and conventional banks. It can be seen from (i) Financial stability of small Islamic banks tend to be stronger than small commercial banks, (ii) Financial stability of large commercial banks are stronger than large Islamic banks, and (iii) Financial stability of Small Islamic banks are stronger than large Islamic banks.

Sundararajan and Errico (2002); Iqbal and Llewellyn (2002); World Bank and International Monetary Fund (2005), examined the financing of profit and loss sharing change a credit risk directly from banks to their depositors, but also raise the overall level of risk in assets of banks balance sheets, which makes it susceptible to Islamic banking and risk, including equity investors rather than holders of debt. While operational risk is very risky in Islamic banking. Operational risk is described as the risk of losses resulting from the inability or failure of internal processes, people and systems or from external events, not including legal risk and Islamic compliance risk. According to the most important literature review of operational risk in Islamic financial institutions that reflect the complexity is related to the administrative model of profit and loss sharing, which is included in the Islamic bank, where it is which often limit the arrangement to oversee the banks and customers.

Choong and Liu (2006) conducts research entitled Islamic Banking: Interest Free or Interest-Based trying to analyze whether Islamic banks completely different from conventional banks. One of the most distinguishing features is the existence of Islamic banking concept of profit and loss sharing, but the contract of profit and loss sharing is still small in terms of financing because it relates to the customer. In fact, savings and deposit products almost

exclusively been applied to the concept of profit and loss sharing. This paper also analyzes that address the risk of Islamic banks in different financial systems in a manner most conventional bank. Risks in Islamic banking are usually only arise from a contract/ covenant in Islamic banking products, overall legal/ legal basis, the liquidity of government and infrastructure.

Marcella Lucchetta, 2008 in his paper that the title "How the Interbank Liquidity Market Affects Financial Stability Policies", offers a new perspective on the role of the interbank market in risk-taking because of risk reduction policies. In the interbank market system is not only about the risk factors that influence it, but see how the market works. Determination of endogenous factors such as those related to tariff rates or interest rates can affect risk-taking that will appear. This paper also recommends the need to increase capital in improving the ability of a bank, because the amount of capital the bank can reduce the risk that will appear in a bank. In the sense that the more capital owned by a bank, the ability to control the risks involved, the better, so if the risk can be controlled to create a bank's financial stability.

Santoso, Cicilia A. Aaron, Taufik Hidayat, and Wonida Hero (2008) examined the risk of market liquidity as an indicator of financial stability that occurred in Indonesia. The study says that a review of the liquidity aspect of the financial markets prove that the emerging financial markets are still feel contagion effect. Analysis of events in the subprime mortgage crisis now provides evidence of how the financial turbulence in advanced markets spread to emerging markets, although the return of the financial markets are still attractive. Because emerging markets are still tight (tight) from the side of liquidity, uncertainty may increase the risk of liquidity for both equity and bond markets. The market is still growing liquidity risk. This shows the market liquidity risk measurement will be a useful indicator to measure the financial stability of the financial markets is a rapidly growing (emerging financial markets).

## **Research Methods**

This research discusses on financial stability of banks in a dual banking system which has been implemented in Indonesia by using secondary data in quarterly with the period 2005:1 to 2009:1. The data used are taken quarterly data from the Central Bureau of Statistics data, macroeconomic data (e.g.; Inflation, Gross Domestic Product, and the Exchange Rate). Indonesian Banking Statistics published by Bank Indonesia, which consists of a number of financial reports of commercial banks as many as 99 banks, Islamic banks as many as 3 banks, and Islamic Business Unit as many as 11. So the number of observations in this study as many as 1921.

## **Model Specification**

This research will look at and measure the financial stability of banks. Analysis tools are used Z-score model. Z-score as a variable dependent, where this value as a measure of individual bank risk. Z-score is also a reflection of the strength of a bank (Boyd and Runkle, 1993; Maechler, Mitra, and Worrell, 2005; Cihak and Hesse, 2008). To investigate the level of financial stability of banking in several countries in the world by using a panel of cross section and time series data.

This study applies the model Cihak and Hesse, (2008) to examine how the level of financial stability and the conventional Islamic banking in Indonesia with empirical analysis. The data used are panel data cross section and time series from several banks (conventional banks, Islamic banks, and Islamic business units) and macroeconomic data in Indonesia from 2005: 1 - 2009: 1. Specification model used in this study are as follows:

$$Z_{j,i,t} = \alpha + \sum \beta B_{j,i,t-1} + \sum \delta T_{j,i} + \sum \varphi B_{j,i,t-1} T_z + \omega M_{j,t-1} + \sum \pi D_t + \varepsilon_{i,j,t-1}$$

Where:

$Z_{j,i,t}$	: Z-score, where, j is the individual bank, i is the type of bank and t is time,
$B_{j,i,t-1}$	: the bank's internal variable,
$T_{j,I}$	: Type banks and the interaction between the type of bank,
$B_{j,i,t-1} T_{j,I}$	: the bank's internal variable of each type of bank,
$M_{j,I,t-1}$	: Variables used in the macro-stability analysis, finance banking,
$D_t$	: dummy variable,
$\varepsilon_{j,i,t}$	: Residual

Combined models mentioned above, can be reduced to two models include:

**Model 1:** the internal variables of each bank (Islamic and conventional banks)

$$Z_{j,i,t} = \alpha + \sum \beta_1 Loan_{j,i,t-1} + \sum \beta_2 MDL_{j,i,t-1} + \sum \beta_3 TA_{j,i,t-1} + \sum \beta_4 COST_{j,i,t-1} + \sum \beta_5 CL_{j,i,t-1} + \sum \beta_6 ID_{j,i,t-1} + \sum \beta_7 CI_{j,i,t-1} + \sum \beta_8 CCL_{j,i,t-1} + \varepsilon_{i,j},$$

Where:

$Z_{j,i,t}$	: Z-score,
$Loan_{j,i,t}$	: Credit or Financing,
$MDL_{j,i,t}$	: Capital Bank,
$TA_{j,i,t}$	: Total Assets,
$COST_{j,i,t}$	: Operating Costs,
$CL_{j,i,t}$	: Current Liability,
$ID_{j,i,t}$	: Income Diversity,
$CI_{j,i,t}$	: Cost Income,
$CCL_{j,i,t}$	: Cash Current Liability,
$\varepsilon_{i,j},$	: Residual

**Model 2:** macroeconomic variables

$$Z_{j,i,t} = \alpha + \sum \varpi_1 INF_{j,i,t-1} + \sum \varpi_2 Kurs_{j,i,t-1} + \sum \varpi_3 PDB_{j,i,t-1} + \sum \varpi_4 IHSG_{j,i,t-1} + \sum \varpi_5 BIR_{j,i,t-1} + \sum \varpi_6 D + \varepsilon_{t-1}$$

Where:

$Z_{j,i,t}$	: Z-score,
$INF_{j,i,t}$	: Inflation,
$Kurs_{j,i,t}$	: The rupiah exchange rate against the dollar,
$PDB_{j,i,t}$	: Gross Domestic Product,
$IHSG_{j,i,t}$	: Composite Stock Price Index,
$BIR_{j,i,t}$	: BI Rate,
$D_{j,i,t}$	: Dummy, the situation before the crisis and after the financial crisis, the global entry in Indonesia (3rd quarter of 2008) where the value 1, after the crisis and 0 before the crisis.

Analysis of the two models mentioned above is done by divide and differentiate between conventional banks and Islamic banks,

- a. Conventional banks are divided into three categories namely conventional banks with assets less than one trillion rupiah (<1 T) are categorized as small banks, banks with assets one to ten trillion rupiah (1T - 10 T) is categorized as being a middle bank, and banks the assets more than ten trillion rupiah (> 10 T) is categorized as a large bank.

- b. Islamic banks are divided into two categories, namely assets Islamic banks less than one trillion rupiah (<1 T) are categorized as small banks, banks with assets one to ten trillion rupiah (1T - 10 T) is categorized as being a middle Islamic bank.

### **Determination Value of Z-Score**

Z-score is as dependent variable, where this value as a measure of individual bank risks. Z-score is also a reflection of the strength of a bank (Boyd and Runkle, 1993; Maechler, Mitra, and Worrell, 2005; Cihak and Hesse, 2008). Z-score is calculated by:

$$Z = (k + \mu) / \sigma,$$

Where,

k: The percentage ratio of capital and reserves to assets,

$\mu$ : average return on assets (ROA)

$\sigma$ : Standard deviation of return on assets (ROA) to return volatility.

A higher Z-score corresponding to the bankruptcy risk is lower. Therefore, a higher Z-score implies probability of bankruptcy risk is lower or in other words the higher the value of the Z-score, the better the condition of the banks financial stability. So in this model will be compared with Z-score values between Islamic banks and conventional banks.

### **Linear Regression with Panel Data**

Verbeek (2000: 310) argued that the benefits of regression with panel data is its ability of panel data regression to identify the regression parameters without the need restrictions or constraints assumptions. According to Baltagi (1995), the benefits of using panel data over time series data and cross-section data are; 1) panel data estimates show evidence of heterogeneity in each unit; 2) With panel data, the data is more informative, reducing co-linearity between variables, increase the degree of freedom and more efficient; 3) panel data suitable to describe the dynamics of change; 4) panel data may be better able to detect and measure the impact; 5) panel data can be used to study with a more complete model; 6) panel data to minimize bias may have resulted in aggregation. According to Pindyck and Rubinfeld (1998) there are 3 (three) panel data estimation procedure: 1) regression combining all the data; 2) regression with dummy variables to determine changes intercept time series and across sections; 3) error component model. Estimated regression model combining all data for intercept and slope coefficient is constant at all times and regular units are called panel data regression estimates with Pooled Least Square method, which has the form of the following specifications:

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_{it} \quad \dots \quad (1)$$

If the regression model the slope coefficient is assumed to have constant but varies each unit intercept then use time dummy variables and units. For example:

$$Y_{it} = \beta_{1t} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_{it} \quad \dots \quad (2)$$

Model (2) is known as the Fixed Effects Model (FEM). Intercept although each unit varied but not different in each time (time invariant). Dummy variables used to know the size of each unit of the coefficient differences (differential intercept dummies) and the model can be written as follows:

$$Y_{it} = \alpha_1 + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \alpha_4 D_{4i} + \beta_{2it} X_{2it} + \beta_3 X_{3it} + \mu_{it}$$

Model (2) is also known as Covariance Model. One reason for the use of fixed effects models is that, conclusions (inferences) to be taken from the model that will be examined effect will consider only the existing sample and not on population. This is different from the goals used random effects models, namely to see the effect on the population in the conclusion (Hsiao, 1990: 41-42). Furthermore, the model estimates a panel data regression; the third is an error component model or also called Random Effects Model (REM). REM model involves the correlation between the error term due to the change in time or because of different units of observation. Basic model can be formulated as follows:

All three models mentioned above will be different in that interpretation analysis model selection needs to be done to obtain efficient estimates in accordance with the use of panel data regressions.

### ***Test Statistics F***

F statistical test used to choose between the PLS method without dummy variables or choose a fixed effect. F statistical test that can be done is as follows (Green, 2000):

$$F(n-1, nT - n - K) = \frac{(R_{UR}^2 - R_R^2)/(n-1)}{(1 - R_{UR}^2)/(nT - n - K)}$$

Where,

R2UR : refers to the unrestricted model

R2R : refers to the restricted model

$n$  : number of units of cross section

**Q** : number of units of time

K : number of parameters to be estimated

If you find that the calculated F stat  $\geq F(n-1, nT-nK)$ , means that  $H_0$  is rejected, it means intercept for all cross section is not the same. In this case, FEM is used to estimate the regression equation. In the meantime, the things that must be considered when are using the FEM (Kumastuti, 2008). First, the use of dummy variables would cause problem degrees of freedom. Second, the possibility of multicollinearity. Third, FEM can't be used to determine the impact of the invariant variables (eg, gender, race, etc.). Fourth, the error term should be noted that the classical error term assumptions should be modified

### **Lagrange Multiplier Test (LM)**

Lagrange Multiplier Test (LM) is used to choose between OLS without dummy variables or choose a random effect. Lagrange Multiplier Test (LM) that can be done (Breusch and Pagan, 1980):

$$LM = \frac{nT}{2(T-1)} \left( \frac{\sum_{i=1}^n (\sum_{t=1}^n e_{it})}{\sum_{i=1}^n \sum_{t=1}^n e_{it}^2} - 1 \right)^2$$

Where,

- n : number of individuals
- Q : number of periods
- E : residual OLS method

If the calculation  $LM > X^2$  with one degree of freedom, then  $H_0$  is rejected, meaning that REM can be used to estimate the regression equation.

### **Hausman Test**

Hausman test is used to choose between the Fixed Effects Model (FEM) or the Random Effects Model (REM)

Hypothesis of the Hausman test is:

- $H_0$  : random consistent estimator
- $H_a$  : random estimator is not consistent

Where REM  $H_0$  accepted means better use than FEM, and vice versa. So  $H_0$  accepted/rejected if:

$$\begin{array}{ll} X_{\text{tab}}^2 > X_{\text{hit}}^2 & : H_0 \text{ accepted} \\ X_{\text{tab}}^2 < X_{\text{hit}}^2 & : H_0 \text{ rejected} \end{array}$$

To get the value  $X_{\text{hit}}^2$  derived from the difference beta values and covariance each method. Housemantest statistic that can be done is (Haussmann, 1978):

$$W = \frac{(\bar{\beta}_{FEM} - \bar{\beta}_{REM})^2}{(V(\bar{\beta}_{FEM}) - V(\bar{\beta}_{REM}))} \sim X^2(1)$$

And for multivariate,

$$W = (\bar{\beta}_{FEM} - \bar{\beta}_{REM}) (V(\bar{\beta}_{FEM}) - V(\bar{\beta}_{REM}))^{-1} (\bar{\beta}_{FEM} - \bar{\beta}_{REM}) \sim X^2(k)$$

Hausman test statistic follows the chi-square ( $X^2$ ) with degrees of freedom of  $k$ , where  $k$  is the number of independent variables. If the Hausmanstatistic value greater than the critical value then the appropriate model is FEM, whereas if the Hausmanstatistic values is smaller than the critical value then the appropriate model is REM. According to Judge (1985), there are several things that must be considered to determine which approach is selected (FEM or REM) in a panel data estimation, namely: If  $\varepsilon$  and  $X$  correlated, it is better to use FEM, and if  $\varepsilon$  and  $X$  are not correlated, then it is better to use MER, if  $T$  (number of time series) and large  $n$  (number of individuals/ units) a small, two relatively small differences, then it is better to use FEM, if  $n$  is large and small  $T$ , FEM is used when the unit is not random from the sample large and REM used when the unit taken at random and if  $n$  is large and the small  $T$  and if the assumptions are met REM, REM estimator is more efficient than FEM.

### **Analysis Result and Discussion**

#### **Analysis of Z-Score Value**

Financial stability of banks in this study is measured using Z-score indicators. Where Z-score is as a measure of risk of individual banks and Z-score is also a reflection of the strength of a bank (Boyd and Runkle, 1993; Maechler, Mitra, and Worrell, 2005; Cihak and Hesse, 2008). This study compares the Z-score between banks in Indonesia, namely the Islamic

Banking and Conventional Banking. Conclusions from the analysis of Z-score are the higher Z-score is the level of financial stability strengthened banking/ well or in other words, if the Z-score had increased the risk of individual banks declined and if the Z-score decreases the risk of individual banks increased

**Table 1. Summary of Average Z-Score Values and Indicators of Banking in Indonesia According to the Bank category Period, 2005:1 - 2009:1**

	BANK							
	Total Banks		Large Bank		Middle Bank		Small Bank	
	C	S	C	S	C	S	C	S
<b>Z- Score</b>	0.97	7.40176	1.09	-	1.04	14.55	0.79	0.26
<b>Loan/ Assets</b>	0.54	0.731793	0.39	-	0.47	0.82	0.75	0.65
<b>Cost/ Income</b>	0.18	0.505909	0.14	-	0.15	0.41	0.25	0.61
<b>Income Diversity</b>	0.24	0.413658	0.20	-	0.20	0.47	0.32	0.36
<b>Asset (milyar)</b>	17.777	1.367	49.849	-	3.113	2.505	367	229

Note: Summary statistics are based on consolidated data bank and non-consolidated banks.  
Large banks / bank's / small banks classified by asset ownership.

Z-score scale of each of the sample banks vary widely, ranging from -6.88 to 42.37. Z-score describes the stability of each bank. High variations reflect the outliers, which have a large impact on the average Z-score. Initial hypothesis of this research is that Islamic banks are more stable than conventional banks. The above data are average data from 113 sample banks. From the data above, we can see that in general the average Z-score on Islamic banks is higher than conventional banks. This indicates that Islamic banks are more stable than conventional banks, and only on a small bank of conventional Z-score is more stable than small Islamic banks. The table also illustrates the importance of treatment of the outlier. Without the outlier ratio, results will be reversed (because there are several conventional banks that have Z-Score are very low). However, in some Islamic banks have a Z-Score is very high from the conventional banks. The table also illustrates the comparison between the credit or financing by the bank's assets, in which the sample results indicate that Islamic banks have a comparative value of the average higher than conventional banks. This reflects the fact that Islamic banking prohibits non-investment lending operations as normal bonds or T-bills in Islamic banking.

In general, Islamic banks have a comparative value of costs with revenues higher than conventional banks. To test this model, the researchers also tried several alternative definitions of the standard Z-score. The underlying idea behind this alternative approach is that the underlying standard deviation z-scores are only given some information about the behavior of Z-score (see Hesse and Čihák, 2007). Table 4 has four columns, in accordance with the four alternatives studied variables. Especially for:

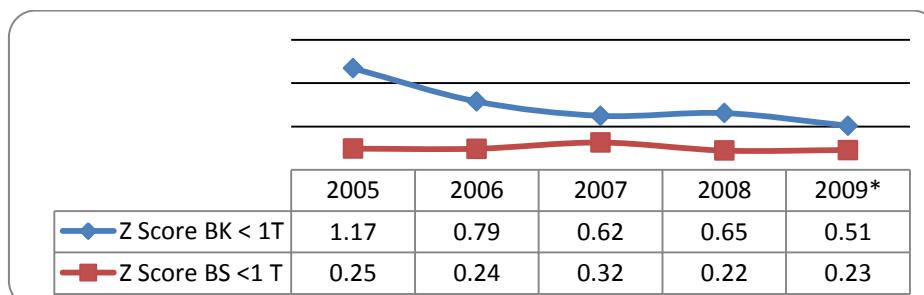
- Calculating the Z-score modification, this is defined as an additional capitalization of ROA over the absolute value of the volatility decline in ROA. These results indicate that the bank - Islamic banks are very stable from the bank - a small Islamic banks and conventional banks in all lines.
- Establish a decrease (increase) the volatility of Z-score sample average Z-score between banks in a given period and the average - average of the Z-score, if the Z-score lower (higher) than at a particular bank. In this alternative, Islamic banks are characterized by an increase greater volatility of Z-score indicating a higher stability.

**Table 2. Average Z-Score Values each Bank**

	<b>Average Z-Score</b>	<b>Variability Z-Score</b>	<b>Highest</b>
		<b>Smallest</b>	
<b>Total Banks</b>			
Conventional	0.97	-6.88	7.92
Islamic	7.40	-0.01	42.37
<b>Large Bank</b>			
Conventional	1.09	-6.86	7.66
Islamic	-	-	-
<b>Middle Bank</b>			
Conventional	1.04	-6.88	7.92
Islamic	14.55	0.17	42.37
<b>Small Bank</b>			
Conventional	0.79	-0.40	3.75
Islamic	0.26	-0.01	2.82

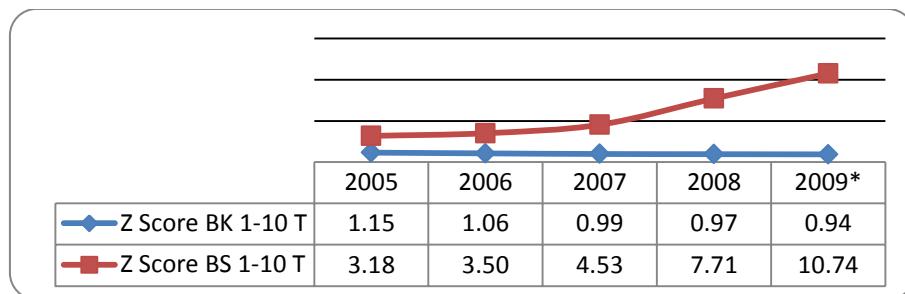
Note: To avoid the possibility of outliers in this sample, the distribution of each variable throughout the sample excluded. Decomposition is based on the consolidated and consolidated data. Large, medium and small banks based on asset ownership are defined.

If we compare the movement of the average value of Z-score for each year among large banks, and banks are small banks in accordance with the classification of operating systems also vary widely, that is, we compare between small and conventional small Islamic, is the conventional and the conventional are conventional and Islamic small with large conventional, as for the graphics are as follows:

**Figure 1. Movement of Z-Score value of the Bank with assets less than 1 Trillion**

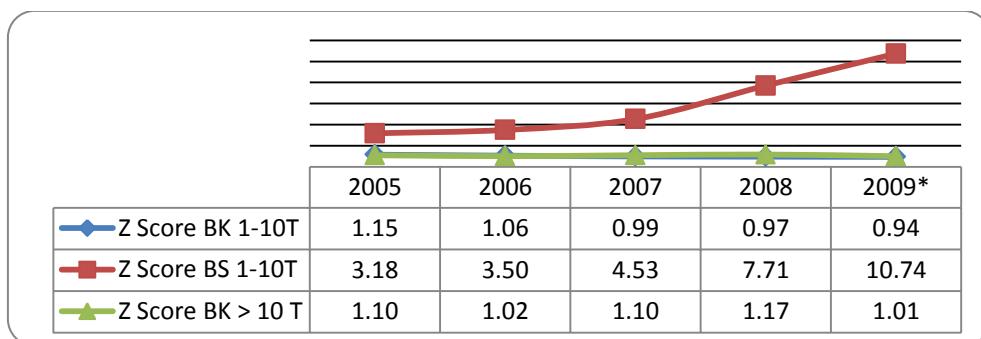
Source: Results of analysis and process data

From the graph above picture looks a declining trend of the movement of Z-Score value of small conventional banks from 2005 until 2009, while small banks were relatively stable despite Islamic Z-Score value is also smaller than the conventional small banks and, if seen from the movement graph above can be analyzed that the movement of two models of the convergence of the bank and headed toward the same point. It means that even a small bank of conventional Z-Score value is higher in that period, but a small bank of conventional financial stability drastically decreased and the same direction with small Islamic banks.

**Figure 2. Movement of Z-Score value of the Bank with the Asset 1 to 10 Trillion**

Source: Results of analysis and process data

Meanwhile, the Bank's Asset 1 to 10 trillion at the beginning divergence (same direction) but the movement of each period Z-score value of each bank is different. Conventional banks are, the tendency movement Z-Score value of its decline from the year 2005 until 2009, while Islamic banks in the same period the value of Z-score experienced a sharp increase. In general, the ratio Z-Score values of the bank were much higher in Islamic Bank.

**Figure 3. Comparison of Z-values movement Bank with assets Score 1-10 Trillion with Conventional Banks with assets of more than 10 Trillion**

Source: Results of analysis and process data

In the graph, the value of composite Z-score shows that the movement of Z-Score values Conventional Bank both medium and large tends to behave as a linear and low each year (decreasing stability level), while the Islamic banking movement of Z-Score values rose sharply each year are. This means that the graph of the two models at first divergence, but Islamic banks are experiencing a sharp increase each year so that in this case the condition of financial stability is better if compared with conventional banks conditions of diminishing and unstable. From the above it can be concluded that the asset in Islamic banking more stability or stable. In conventional banks greater financial stability of their assets and low linear trend. This conclusion denies the conclusions of research and Čihák Marten (2008), which says that when the small Islamic banks stable but if Islamic banking assets will rise score Z-value in terms of decreased stability to decrease, and if conventional banks if the small asset unstable and if their assets have grown to large to be stable.

### **Factors Affecting Banking Financial Stability**

Some variable that affect the financial stability of banks in this study divided into 2 (two), the bank's internal factors and macroeconomic factors. Data processed according to the type or classification systems used (Islamic / conventional) and in accordance with the grouping of data which consists of three groups of big banks with banks asset category more than 10 trillion, the bank's assets up to 1 trillion and 10 small banks with assets less than 1 trillion. To facilitate the calculations in this study, researchers using **Eviews 6** programs, so that the results would be more accurate and easier the process of calculation.

#### **Internal Bank Variable**

Internal factors affecting the bank's financial stability of banks consists of several variables including: Income Diversity (ID), Credit or Financing (Loan), Total Assets (TA), Operational Cost (Cost), Cost Income (CI), Loan Asset (LA ), Current Liability (CL), Cash to Current Liabilities (CCL), Capital Bank (MDL), before a panel data regression analysis is conducted test whether the regression model selection is done by Common methods Effects, Fixed Effects and Random Effects (though the process of data attached). Of the three models, selection process is the appropriate model is the Fixed Effects Model (FEM). As for the estimate to see the influence of explanatory variables to variables bound by using the FEM method is briefly as follows:

**Table 3. Panel Data Estimation Results Variable Internal Bank Match With Bank classification**

Description	Large Conventional	Middle Conventional	Small Conventional	Middle Islamic	Small Islamic
<b>C</b>	1.155220	1.187687	0.990885	4.057399	0.309276
<b>ID?</b>	-0.039246	-0.066514	0.116430	3.787864*	-0.085008
<b>LOAN?</b>	-7.21E-09**	-1.11E-07**	-2.61E-07	-4.32E-06***	1.61E-07
<b>TA?</b>	-3.95E-09***	-3.59E-08	-6.83E-07	-4.26E-07	-1.19E-07
<b>LA?</b>	1.14E-07	2.86E-08	5.06E-08	2.31E-05***	-4.83E-07
<b>COST?</b>	-0.065680	0.055259	1.241769	-	0.026318
				610.9518***	
<b>CI?</b>	0.524181***	0.247739**	0.094218	5.139502***	-0.072364**
<b>CL?</b>	-2.57E-09	-0.000968	-0.016826**	5.534228***	-8.04E-08
<b>CCL?</b>	-0.002904	0.005143	-0.006893	-0.047599**	-0.001335**
<b>MDL?</b>	2.50E-08***	1.87E-08	5.66E-07***	2.06E-05***	2.27E-07
<b>R<sup>2</sup></b>	0.828115	0.774721	0.677684	0.915836	0.687363
<b>F-statistik</b>	58.06132	47.23493	16.59901	62.38748	15.26085
<b>Model</b>	<i>Fixed Effect</i>				

Source: Result of data though the Eviews 6

From the regression results of the internal variables of the various classifications banks, whether viewed from the operational systems and asset include:

1) Large conventional banks.

Seen that the variable loan (credit) and TA (Total Assets) significant and negative effect on the level of 5 percent ( $\alpha = 5\%$ ), even to total assets is significant at the 1 percent level ( $\alpha = 1\%$ ), meaning if the credit and Total Assets conventional banks up one unit of the Z-Score will be reduced by -7.2 units and - 3.9 units. In the sense that if there is an increase in loans and total assets in large conventional banks faced the risk of major conventional banks will also rise. This is possible if data bank by assets increased while the bank will not follow or get unbiased function as intermediary institutions such assets will increase if not managed properly bias the result in increased operational costs and also this will result in declining profits, especially Return on Assets (ROA ) bank. Moreover, the big conventional banks variable CI (Cost to Income Ratio) and MDL variables (equity capital) have a significant positive this means that the increase in CI can increase the value of Z-score in terms of CI is a positive influence on financial stability of banking. This is possible if any costs incurred in the bank's operational framework for the development or the cost of market of the respective bank is proportional to the increase in earned income. Positive correlation also occurred in MDL variable (capital). If the capital owned by large conventional banks increases, will increase the value of Z-Score, or in other words if the bank's equity capital increase that will raise the level of financial stability bank. For the analysis of each bank is attached.

2) Midle conventional banks

In the analysis of conventional banks are, variable loan (credit) and a significant negative impact on the level of 5 percent ( $\alpha = 5\%$ ) this means that the increase in loans made by conventional banks were able to reduce the value of Z-score or level of financial stability in the banking case This is possible if the credit enhancements made by conventional banks are has a bad credit risk is great, so in this case the credit expansion by conventional banks are has a high level of risk that can increase the risk of individual banks in the respective bank. While the variable CI (Cost to Income Ratio), a positive significant effect on the level of 5 percent ( $\alpha = 5\%$ ) means that if the cost to income ratio improved one unit of the Z-score value will also increase it; the same at the bank conditions large conventional effect where CI is also significant and positive.

3) Small conventional banks.

Seen that the variable CL (current liability) significantly negative at the level of 5 percent ( $\alpha = 5\%$ ) means that if the CL up of unit will lower the Z-score value in the sense that if the CL rise will lower the level of financial stability in a small conventional banks. Variable MDL (Capital) have a significant and positive impact on the value of Z-score. So the increase in equity capital in each bank is absolutely done this is because more and more with an increase in equity capital owned by a bank is a bank's stability will be up and stable.

4) Midle islamic banks

In these banks, almost all of the bank's internal variables significantly affect the variable loan (finance), cost (operational cost and CCL (cash to current liability ratio) a significant negative effect on the level of 5 percent ( $\alpha = 5\%$ ) means that the improvement or expansion financing by Islamic banks were, could potentially / impact on the decline in the value of Z-score or the lower level of financial stability of the relevant banks. This also happens to variable cost (operational) and CCL if the cost and increase the value of the Z-score will experience a decline in terms of individual risk

will increase the bank to bank. In this analysis suggests that Islamic banks in operation to improve efficiency, but in this case can also be generalized that because of the current Islamic banking is to expand both funding and landing a promotion and opening the network to increase its market share is very possible if cost is happening in Islamic banks will be high besides that Islamic banks are also new banks, but the expected increase in cost will be proportional to the increase in revenues received by the Islamic bank's. and for the variables LA (loan assets), CI (cost to income ratio), CL (current liability) and MDL (capital) have a significant and positive means that if LA, CI, CL, and MDL up one unit of the Z-score value will also increase, in the sense that if the value of these variables will increase its financial stability also getting up and good. In other words, this will decrease the risk of individual banks.

### 5) Small Islamic Bank

In a small Islamic banks criteria, only the variable CI (Cost Income) and CCL is a significant and negative effect on the level of 5 percent ( $\alpha = 5\%$ ) this indicates that if the CI and the CCL on a single unit will result in decreased Z-score value in terms of that if CI and CCL-level rise will reduce the bank's financial stability in small Islamic banks. For internal analysis of each bank in the appendix.

### **Macro Economic Variables**

Macroeconomic factors that affect the bank's financial stability in this study consisted of several variables, including inflation, the BI Rate, Exchange Rate, Stock Price Index (JCI), the Gross Domestic Product (GDP), Dummy (global financial crisis, the situation before and after the global financial crisis). Before performing regression analysis of panel data on macroeconomic variables will be testing whether common methods effects, fixed effects and random effects do the regression model selection (though the process of data attached). Of the three models, selection process is the appropriate model is the fixed effect model. As for the estimate to see the influence of explanatory variables to variables bound by using the FEM method.

**Table 4. Panel data estimation results for macroeconomics variable  
Based on bank classification**

Description	Large Conventional	Middle Conventional	Small Conventional	Middle Islamic	Small Islamic
<b>C</b>	2.655665	2.160579	2.922606	21.24721	0.234156
<b>Inflasi ?</b>	(1.347081)*	(1.964418)**	(3.281491)**	-20.46058	0.342284
<b>BI Rate ?</b>	(-6.962355)**	(-6.685446)***	(-11.95660)***	(163.9580)**	-0.305217
<b>Kurs ?</b>	(-7.57E-05)**	-3.02E-05	-7.81E-05	(0.003138)**	-3.60E-07
<b>IHSG ?</b>	(-0.000134)**	(-0.000196)***	(-0.000266)***	(0.003940)**	8.18E-06
<b>PDB ?</b>	-0.705426	-0.190347	(-1.886811)*	4.124555	0.331091
<b>Dummy(D1)?</b>	(-0.189117)**	(-0.224798)***	(-0.296369)**	3.276527	0.007525
<b>R<sup>2</sup></b>	0.795025	0.789372	0.670080	0.946174	0.715383
<b>F-statistik</b>	52.52805	54.92717	20.85195	28.76461	23.58819
<b>Model</b>	<i>Fixed Effect</i>				

Source: Result of data though the Eviews 6

From the results of regression analysis on macro variables can we analyze that;

1. Inflation.

In these variables, conventional banks in different lines (large, medium, small) and significant positive effect, i.e. for large conventional banks at the level of 10 percent (10%  $\alpha$ ) and the conventional banks are small and the level of 5 percent (5%  $\alpha$ ), meaning that if inflation rises one unit of the Z-score value will also increase. Conditions are like this is very likely to occur in conventional banks because of the conventional system of management principles based on the interest and the conventional banks may impose interest rate changes at any time even in the midst of the credit due, so in the sense that when inflation rises interest rates also rose, so too the bank earnings rise. While on the inflation variable Islamic banks do not have a significant effect on the value of Z-score, or in other words that the inflation rate does not affect directly the level of financial stability in Islamic banking.

2. BI rate.

BI variable rate on the conventional banks in all lines affected significant and negative, this is due to the imposition of benchmark interest rates of conventional banks in default by the Bank if the Bank rate rise then interest rate deposits/ savings in conventional banks also rose, so the interest cost incurred conventional banks also rose, this has resulted in the BI rate conventional in bank negative impact or in other words, if the BI rate increase will lead to lower value of Z-score or the lower level of financial stability of the banking system. In contrast to conventional banks, the BI rate in Islamic banks have a significant and very positive. This means that if there is an increase in the BI rate Z-score value in Islamic banks increase precisely in the sense that the BI rate increase positive impact on the level of Islamic banking financial stability, this is possible because when compared with conventional banks in Islamic operational when wearing a margin or for results to the client is to remain unchanged until the end of the tempo of the covenant, in addition, when high BI rate automatically higher interest rates borrowers also prefer to Islamic banks and the last that the BI rate is not one of the main measures in the imposition of margin or profit-sharing ratio at Islamic banks.

3. Exchange rate

Variable rates on conventional banks in all lines (large, medium and small) and significant negative effect on the level of 5 percent ( $\alpha$  5%), while the exchange rate at Islamic banks was significant and positive impact on the level of 5 percent (5%  $\alpha$ ). This means that the conventional banks if the exchange rate to increase (weaker than the dollar) so can result in decreased value of Z-score or the lower level of financial stability in this conventional banking because it weakened the exchange rate will raise inflation and according to the statement that inflation was in front of a positive impact at interest rates that has resulted in the exchange rate at the conventional banks have a significant and negative. Unlike the Islamic bank exchange rate, have a significant and positive. If there is an increase in the exchange rate (weaker than the dollar) had a positive impact on the financial stability of Islamic banking. Front has also been explained that because the exchange rate is positively related to inflation and inflation are positively related to interest rates being at Islamic banks do not use a benchmark interest rate then it is possible that the exchange rate significantly and positively associated with Z-score values as a measure bank's financial stability.

**4. Composite stock price index (JCI).**

This variable is the conventional banks in all lines (large, medium and small) and significant negative effect means that if JCI up one unit then the Z-score value will decrease or the other in the sense that if JCI up so too will increase the risk that individual banks experienced in conventional banks, Islamic banks, while the medium, i.e. the opposite result JCI significant and positive effect means that if JCI an increase of one unit of the Z-score values in Islamic banks will also experience an increase in another sense that if JCI increase then the financial stability of the Islamic banks are going up/ getting better.

**5. Gross Domestic Product (GDP)**

This variable has no effect on the value of Z-score, in other words that the magnitude of GDP does not directly affect the financial stability of national banking.

**6. Dummy (condition before and after the global financial crisis)**

In the dummy variable conditions global financial crisis. Conditions before the global financial crisis, given the value 0 and conditions after the crisis with a value of 1. In the conventional banks in all lines (large, medium and small) dummy variable significant and negative effect on the level of 5 percent ( $\alpha$  5%) in the sense that the dummy variable (D1) of the global financial crisis and the significant negative effect this means that the global financial crisis entered Indonesia in the third quarter or the month of September 2008 or have a negative impact of global financial crisis now affects the financial stability to reduce the bank's banking conventional banks in all lines while at the Islamic bank dummy variables are not significantly affect the financial stability of banks. The results of regression analysis of each bank is attached.

***Combined Model***

This regression model by combining variables between the two systems (Islamic and conventional). Focus in this combined model is used to determine how the role of Islamic banks in the financial stability of national banking. This analysis is also seen from the internal side of the bank and macroeconomic financial stability of banking. In this composite model, conventional and Islamic banks are combined into one model in accordance with the grouping based on the amount of bank assets. Moreover, in this combined model included a dummy variable that banks operating systems if conventional banks with Islamic numbers with 0 and 1 digits. So in the combined model is essentially to determine how far and how the role of Islamic banks in the financial stability of banking. The results are as follows:

**Table 5. Estimation Results Variable Internal Bank Match With Bank classification**

Description	Internal Combine Middle Bank	Internal Combine Small Bank
<b>C</b>	0.302111	0.876000
<b>ID?</b>	-0.250625	0.285929
<b>LOAN?</b>	-3.72E-07**	-3.64E-07
<b>CI?</b>	-0.887339	0.182369
<b>LA?</b>	2.347996***	4.01E-08
<b>CL?</b>	0.023986**	-0.293799
<b>CCL?</b>	-0.049794**	2.63E-07
<b>MDL?</b>	2.29E-07**	0.000143
<b>D1?</b>	0.464439**	-0.559128**
<b>D2?</b>	12.18986***	5.90E-07**
<b>R<sup>2</sup></b>	0.351888	0.137147
<b>F-statistik</b>	59.39807	4.248181
<b>Model</b>	<i>Random Effect</i>	<i>Random Effect</i>

Source: Result of data though the Eviews 6

In the combined regression showed that the dummy variable 1 (the global financial crisis) in the case of banks was significant and positive impact on the level of 5 percent means that the average - the average bank's financial stability before the global financial crisis is as much as 0.302111 and the global financial crisis, banking financial stability increases becomes 0.76655. While the small banks the global financial crisis and the significant negative impact on the financial stability of banks. If the financial stability of banks before the global financial crisis Z score value is 0.876000 for the global financial crisis after financial stability banking value decreases by 0.559128. Two dummy variables (operational principle of conventional banks (0) or Islamic (1) either at the bank or banks are small, these variables influence significantly and positively in the sense that Islamic banks have a positive role in improving the financial stability of national banking. I.e. the bank was initially value the financial stability of the banking 0.302111 with the Islamic banking increased to 12.18986. While the small banks beginning, 6776 increased to 0.876000.

**Table 6. Estimation Results Match Combined Macro Variables With Bank classification**

Descriptions	Middle Bank	Small Bank
C	1.156001	2.945086
Inflasi?	1.156001	3.210456**
BI Rate?	2.669883	-11.44234***
Kurs?	-3.953296	-8.79E-05
IHSG?	3.32E-05	-0.000254***
PDB?	-0.000232	-1.462614
D1?	13.51016	-0.247412***
D2?	1.174491***	-0.536416***
R <sup>2</sup>	0.151525	0.136891
F-statistik	27.98682	6.751914
Model	<i>Random Effect</i>	<i>Random Effect</i>

Source: Result of data though the Eviews 6

If the data on the combined macro-economic regression, the crisis dummy variable (D1) and a significant negative impact on small banks while the banks were not affected. This means that the value of Z-score at small banks initially declined to 2.945086 of 2.40867. While the dummy two (conventional / Islamic in which the Islamic branch mark made) shows that Islamic banking is a positive role in banking financial stability and a positive significant even at 1 percent level. It means that Islamic banks are having a positive role or have a contribution to strengthen the financial stability of banking which was originally 1.156001 average increased to 2.330492. Meanwhile, a small Islamic banks and a negative significant effect on the financial stability of banks.

## Conclusions and Recommendations

### *Conclusion*

The results showed that a bank's financial stability is very important needed in banking activities, especially related to the policy both internally and externally. This is used to measure and to detect early in the financial system in Indonesia. Issued Law No. 10 of 1998, then Indonesia has been using or applying the dual banking system. Therefore, in this study compared the level of financial stability between conventional and Islamic banking systems. Benchmarking system made by dividing the amount of bank assets in accordance with the first, asset bank less than one trillion (<1 T) is categorized in small banks, secondly, the bank asset of one to 10 trillion (1 - 10T) were categorized in the bank; and third, banks asset more than 10 trillion categorized large banks.

The results of the analysis states that Islamic banks are among the most stable categories of banks with other banks (large conventional banks, conventional banks are, a small conventional banks and the small Islamic banks) and also can be concluded in this study that the Small Islamic bank, namely if its asset below 1 Trillion (<1T), the condition of financial stability is low, while, the greater the Islamic bank's, the financial stability increased and better. For the conventional banks there is not occur a significant difference about the movement of Z-score values in all categories of banks. This is different with the conclusions and findings and

Martin Cihak, 2008, researchers from the International Monetary Fund (IMF) concluded that if the Islamic bank is small (<1T) is still stable but if the asset increases or the greater the Islamic banks become unstable and at conventional banks if the banks were small conventional banks will not be stable but if there is an increase in assets or more conventional banks so that banks become stable.

Therefore, in order to improve the financial stability of national banking government need to improve and increase the share of Islamic banking market, which has been implementing the operational functions of the banking intermediary and with good performance. Especially in this time have enacted laws No. 21 of 2008 on Islamic banking, it is expected with the development of the national banking industry becomes more dynamic and better developed.

### ***Suggestions***

This study measured only the financial stability of the banking empiric approach only. Therefore, for further research, there is need for measurement and classification of interbank include about product characteristics, market share, managerial systems, and the ability of banks (financial and network) so that when making comparisons between the two banks (Islamic and conventional) will be more measured and fair. Therefore, that the results obtained will be better, relevant and comprehensive.

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