Thesis for the Degree of Master of Arts

Comparative Studies of Stability of Islamic and Conventional Banks in Indonesia

by

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August, 2013

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인도네시아 의 이슬람은행과 일반은행 안정성에 대한 비교

Advisor: Prof. Hwang Ho Soen

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ABSTRACT

In recent years, the Islamic banks (IBs) have grown rapidly compared with the growth of conventional banks (CBs) in Indonesia. There are some restrictions on the business of Islamic banks based on Islamic law, such as prohibition of interest charges. This study aims to answer why IB has grown faster than CB despite some restrictions on their business. Particularly, the thesis tries to measure the stability of bank operation by using z-score and Non Performing Loan (NPL) ratio, comparing the stability of IB with that of CB in Indonesia with the sample data consisting of 11 Islamic banks, 24 Sharia Business Units (UUS), and 120 conventional banks in Indonesia during the period of 2005-2012. The result shows that Islamic banks are more stable than conventional banks. Mostly during the global financial crisis in 2008, Islamic banks have shown that they are more stable, less risky, but less efficient. Macroeconomic environments and banking industries are factors that have more significant impact to Islamic banks. The findings proved that there is consistent result with the previous assumption.

Keywords*: Islamic bank, stability, determinant of stability, z-score*

인도네시아의 이슬람 은행과 일반 은행의
안정성에 대한 비교

이스미 이르마얀티 주하리

요약

최근 몇년간 인도네시아에서 이슬람 은행은 일반은행에 비해 빠른 속도로 성장하였다. 이슬람 은행은 이슬람 법에 기초한 몇가지 제한이 있는데 예를 들면 이자비용 금지다. 이 연구의 목적은 이슬람 은행이 여러가지 제한이 있음에도 불구하고 어떻게 일반은행보다 더 빨리 성장할 수 있었는지에 대해 알아보는 것이다. 구체적으로 말하면 이번 연구는 이슬람 은행과 전통은행의 운영 안정성을 11 개 이슬람 은행, 24개 비즈니스 개체, 120개 전통은행 2005-2012년 사이의 셈플 자료들을 Z-SCORE 지표와 NPL(부실대출비율) 비율로 측정하여 비교하는 것이다. 이 연구의 결과는 이슬람 은행이 일반은행보다 더 안정적이라는 것을 보여준다. 특히 위기때 이슬람 은행은 보다 안정적이고 위험부담이 적지만 효율이 낮다는 것을 보여준다. 거시경제와 은행산업의 요소는 이슬람 은행에 매력적인 영향을 준다. 이하 근거 자료들은 이전의 가정과 같은 지속적인 결과를 증명한다.

주요 용어: 이슬람은행, 안정성,안정성 결정, Z-SCORE

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Chapter 1:

Introduction

Chapter 1

Introduction

1.1. Current State of Event

Since 1975 Islamic banking has been growing and become viable mode of financing, while the competition in banking sector intensified over past few decades and consequently put increasing pressure on bank returns. Major financial institutions are strategically entering new markets and offering a diverse spectrum of products and services to consolidate their presence and boost their profitability. There are now about 270 Islamic financial institutions worldwide, including banks, mutual funds, mortgage companies, and *Takaful* insurance firms (the concept of insurance based on Islamic banking). However, Islamic finance is not limited to stakeholders with common religious backgrounds. Britain has announced plans to turn London into the world center of Islamic finance (Kerr,2007); and international banks such as Citigroup, BNP Paribas, HSBC, and other are also expanding into this new segment of the industry.

In 2008 the world was confronted by a global economic crisis and Islamic economies began to be known globally. This economic crisis started from the one crisis that struck the United States. It had a huge impact to countries worldwide, even countries which are known for their

strong economic sectors.

Many economists are now responding to the crisis that befell the United States with a variety of solutions. Bad loans which created huge economic problems, until debt levels ballooned substantially over time, according to their applicable percentage rate. Consequently, the inability of individuals and the states to fix the problem has become obvious. Something that causes the loan repayment crisis, and the economic slowdown, is the inability of most middle and upper classes to return the loan and continue production.

Khan (1987) argues that the theoretical model of Islamic banks (IBs) can successfully fill the failure of conventional banks (CBs) in maintaining stability. In fact, IBs are assumed to separate investment fund from demand deposits and apply 100% reserve on the latter. IBs are different from CBs because they operate upon the principles of the Islamic Law (the Sharia) which prohibits the payment or receipt of interest (riba) and encourages risk sharing.

The 2007-2008 financial crisis represent a good experiment to test the divergence between the two models of banking. According to Shamshad & Akhtar, IBs have illustrated a degree of exposure to real estate and their limited reliance on risk sharing or equity based transactions. Hasan and Dridi (2010) analyzed the effect of the recent financial crisis on IBs and CBs. They conclude that IBs contributed to

financial and economic stability during the financial crisis in 2008, given that their credit and asset growth was at least twice as high as that of CBs.

In theory, Islamic finance differs significantly from conventional finance. Specifically Shariah-compliant finance does not allow for the charging of interest payment (*riba*), it allows only goods and services to carry a price, it does not allow for speculation, and it prohibits financing of specific illicit activities. At the same time *sharia* finance relies on the idea of profit and loss sharing and thus risk-sharing on both the liability and asset side and posits that all transactions that involve tangible assets. This would suggest a clear difference in funding and activity structures of Islamic and conventional banks.

Shariah finance products are very attractive for segments of the population demand financial services that are consistent with their religious beliefs. While shariah-compliant financial assets still constitute only a fraction of total global banking assets (1.5%), their importance has been increased rapidly not only in Islamic countries but around the globe. Between 2005 and 2011, total assets in shariah-compliant financial institutions doubled to USD 900 billion (Financial Time, 2011; Thorsten, Kunt, Merrouche, 2012).

In addition, Islamic financial institutions have a relatively high market share in several emerging market, such as in Indonesia within

period of 17 years. The total assets of Islamic industry has been raised 27 times by 1,79 trillion rupiah to 49,6 trillion rupiah as of 2008 (Bank Indonesia, 2009).

Similarly, Indonesia cannot remain unaffected from the effects of global crisis in 2008. Financing exposure of Islamic banking still focused on domestic economic activity and the sophistication level of transactions are considered low. These factors indicate that the Islamic bank has been saved from the effect of global crisis. It was proven that in the first two month of 2009, Islamic banking service network has been increased up to 45 offices.

The growth of financial performance of Islamic banking stayed high until February 2009 with a good financial performance (NPF, Net Performing Financing under 5 %). Distributions of funding by Islamic banks were consistently growing steady up with growth from 33.3% in February 2008 to 47% in February 2009. Whereas, financing disbursed by Islamic banks reached Rp. 40.2 trillion (Source: Bank Indonesia,2009).

Table 1. Growth of Assets of Islamic Banks in Indonesia

Growth of Assets of Sharia Banks In Billion Rupiah (Rp)								
Indicator	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Sharia Commercial Banks	17.111	21.151	27.286	34.036	48.014	79.186	116.93	147.581
Sharia Business Units	3.769	5.571	9.252	15.519	18.076	18.333	28.536	47.437

Source: Indonesia Banking Statistic Dec 2005 - Jan 2013: Bank Indonesia

Table 2. Sharia Bank Office Network

Sharia Bank Office Networks								
Indicator	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Sharia Commercial Bank (BUS)								
Total Banks	3	3	3	5	6	11	11	11
Total Bank Offices	301	346	398	576	711	1.215	1.39	1.734
Sharia Business Units (UUS)								
Total Banks	19	20	26	27	25	23	24	24
Total Bank Offices	133	163	170	214	287	262	312	493
Sharia Rural Bank								
Total Banks	-	-	117	131	139	150	155	158
Total Bank Offices	-	-	185	202	223	286	364	398

Source: Indonesia Banking Statistic Dec 2005- Jan 2013: Bank Indonesia

Nevertheless, despite the arguments the global financial crisis has triggered an increasingly attention questioning the resilience of Islamic banks and their relationship with financial stability. Hassan and Dridi (2010) mentioned that some industry specialists and academics have argued a similar statement as above, but there are others who have argued that some Islamic banks, as well as conventional banks, have relied on leverage and have taken significant risks that make them still vulnerable to the second round effects of the global crisis. For example, this happened in leveraged countries like the UAE (Dubai) and Qatar.

Many studies have been developed regarding the inherent risk in Islamic banks but were generally discussed only from a theoretical point of view (Boumediene and Caby, 2009). Moreover existing theoretical studies have not provided clear view on whether and how banking aspects of Islamic banks, including their stability, differ from conventional banks (Beck, 2010). On the other hand, empirical studies have not been developed nor has theoretical studies.

1.2. Literature review

Some economists have tried to compare the benefits of each system by conventional and Islamic banks from many aspects. Research on the two banks has been done since 1991 by many economists.

Samad (1991) and Hassan (1999) evaluated inter-temporal compares of the performance of BIMB with two conventional banks (one

smaller and one larger than BIMB) as well as with 8 conventional banks over 14 years for the period 1984-1997, which reveals that BIMB is relatively less risky and more solvent as compared to conventional banks. These results also conform to risk-return profile that is BIMB is comparatively less profitable and less risky.

Abdul Samad (2004) in his paper examines the comparative performance of Bahrain's interest-free Islamic banks and the interest-based conventional commercial banks during the Post Gulf war period 1991-2001. The study used nine financial ratios in measuring the performances with respect to (a) profitability, (b) liquidity risk, and (c) credit risk, and applying student t-test to these financial ratios. The paper concludes that there exists a significant difference in credit performance between the two sets of banks. However, the study finds no major difference in profitability and liquidity performances between Islamic banks and conventional banks.

Saleh and Rami (2006) in order to evaluate the Islamic banks' performance in Jordon, they examined and analyzed the experience with Islamic banking for the first and second Islamic bank, Jordan Islamic Bank for Finance and Investment (JIBFI), and Islamic International Arab Bank (IIAB) in Jordon. The study also highlighted the domestic as well as global challenges being faced by this sector. Conducting profit maximization, capital structure, and liquidity tests as performance evaluation methodology, the paper finds several interesting results. First,

the efficiency and ability of both banks have increased and both banks expand their investment and activities. Second, they play short-term investment, and the third is Bank for Finance and Investment (JIBFI) is found to have high profitability. Finally, the study concludes that Islamic banks have high growth in the credit facilities and in profitability.

Cisak and Hesse (2008) in their paper Islamic Banks and Financial Stability: An Empirical Analysis, found that small Islamic banks tend to be financially stronger than small commercial banks, however large commercial banks tend to be financially stronger than large Islamic banks, and small Islamic banks tend to be financially stronger than large Islamic banks, which may reflect challenged of credit risk management in large Islamic banks.

Beck, Kunt, and Merrouche (2012) compared the business model, efficiency, and stability conventional and Islamic banks over the period 1995 to 2009 in countries with both type of bank systems and they found a few significant differences in business orientation. There is evidence that Islamic banks are less cost-effective, but have a higher intermediation ratio, higher asset quality and are better capitalized. The better stock performance of Islamic banks during the recent crisis is also due to their higher capitalization and better asset quality.

Rohaya and Hassan (2012) assess whether there is any differences in the level of financial stability of Islamic banks as compared to commercial banks using z-score and NPL (Non Performing Loan) as

proxies for financial stability with the data from 17 Islamic banks and 21 commercial banks from 2005-2010. They found that Islamic banks are more stable than commercial banks in terms of stability.

Bourkhis and Nabi (2013) with using z-score as an indicator of bank stability to 16 countries, shows that there is no significant difference in terms of the effect of the financial crisis on the soundness of Islamic Banks and conventional banks. This finding reveals that the same level soundness level even during the crisis.

From several studies above, Cihak and Hesse research is the most appropriate to be used as a reference in the study of stability of banking system. Therefore in this research, author would like to use the methodology by Cihak and Hesse in measuring the stability of conventional banks and Islamic banks in Indonesia. The author would also put the NPL ratio to support the result of stability of bank by z-score, because based on Rohaya & Hassan NPL is the ratio which can be an indicator of risk probability of bank.

1.3. Hypothesis

Islamic banks are more stable than conventional banks. Despite the restrictions that exist on Islamic banks, such as the prohibition of charging interest rates, they have been more stable during and after the 2008 financial crisis. This study will focus on the data of Indonesia's banking industry.

1.4. Main Objectives

This research's objective is to study the stability of Islamic banks and conventional banks in Indonesia. Specific objectives are:

1. To explore the stability of Islamic banks and conventional banks using z-score methodology.
2. To get the evidence of statement about stability of Islamic bank.
3. To prove that Islamic banks can be considered as an alternative banking system for every country, particularly for Indonesia.

1.5. Research Methodology and Data

For this research, the author will be using the data samples of Islamic banks and conventional banks in Indonesia. There are 11 Islamic banks (BUS), 24 Sharia Business Units (UUS) and 120 conventional banks up to 2012. The data are obtained from Banking Statistic of Bank Indonesia from year 2005-2012. The author picked the period because wanting to compare the stability condition of both banking systems in before, during, and after crisis 2008.

The measurement of stability of banks in this period divided by three parts, first, the measurement of stability before crisis in period from 2005-2006, second is measurement of stability during the crisis in period from 2007-2009, and third is the measurement of stability after crisis 2008 in period from 2010-2012.

Based on Cissak and Hesse, the level of bank stability is measured by using an indicator called z-score. The author uses the z-score indicator, because the only available data of Islamic banks are in the form of financial statements as no Islamic banks are listed on the stock market. Furthermore, to determine the stability, the author uses some indicators which picked from previous research that proved to give an impact to z-score. Therefore, z-score will be compared to NPL, because NPL is a ratio used to measure the risk (probability to default) of the bank. The result of this research was from the period of 2005-2012, Islamic banks were more stable than conventional banks, but Islamic banks were less efficient during the crisis.

The rest of the paper will be structured as follows: Chapter 2 provides the understanding of Islamic banks or banking and scenario of banking in Indonesia Chapter 3 presents the evaluation methodology and the data used in this research, respectively. Chapter 4 explains findings from the evaluation, and Chapter 5 containing the conclusion, as well as some suggestions for further studies.

Chapter 2:

The Characteristics of

Islamic bank

2.1. Definition of Islamic Bank

2.2. Criteria of Islamic Banking from a Prudential Perspective

2.3. Differences between Islamic Bank and Conventional Bank

2.4. Islamic Bank and Conventional Bank's Scenario in Indonesia

2.5. Indonesia in Global Crisis 2008

Chapter 2

Characteristics of Islamic Bank

The financial-service industry and banking in particular, is different from other industries. The business of banks is providing liquidity-transformation services.

Islamic banks as a phenomenon in financial world since the mid-20th century have been construed as financial intermediaries that mobilize resources in the direction of projects approved by the Islamic Law (the Shari'ah) using Islamic financing instruments (Siddiqh, 1983).

2.1. Definition of Islamic Bank

Islamic banking has been defined as banking in consonance with the ethos and value system of Islam and governed, in addition to the conventional good governance and risk management rules, by the principles laid down by *Shariah*. Interest free banking is a narrow concept denoting a number of banking instruments or operations, which avoids interest. Islamic banking, the more general term is expected not only to avoiding interest based transactions, which is prohibited in achieving the goals and objectives of an Islamic economy.

As the system of Islamic banking is grounded in Islamic principles and all undertakings of Islamic morals, it could be said that

financial transactions within Islamic banking are culturally-distinct form of ethical investing. Two basic principles behind Islamic banking system are the *sharing of profit and loss,* and significantly, *the prohibition of Usuri* collection and payment of interest commonly called *Riba* (interest) in Islamic discourse. Although collecting and paying interest is not permitted under Islamic law, revenue-sharing arrangements are generally permitted.

The thrust of Islamic banking is founded on the desire to submit to the divine instructions on all transactions, particularly those involving exchange of money for money. However, it would be quite unfair to limit Islamic banking to elimination of *Riba* only. *Riba* is one of the major undesirable elements of an economic transaction, the others being *Gharar* (risk or uncertainty) and *Qimar* (speculation). While elimination of these objectionable aspects in a transaction is indeed a critical aim of Islamic banking, it is by no means its ultimate objective.

According to some, usury or excessive and exploitative charging of interest; while

اللَّ وَمَاآتَيْتُمْمِنْرِبًّالِيَرْبُوَفِيأَمْوَالِالنَّاسِفَلَايَرْبُوعِنْدَاللَّهِۖوَمَاآتَيْتُمْمِنْزَكَاةٍتُرِيدُونَوَجْهَ

هِفَأُولَٰئِكَهُمُالْمُضْعِفُونَ

"*And that which you give in gift (loan) (to others), in order that it may increase (your wealth by expecting to get a better one in return) form other people's property, has no increase with Allah; but that which you*

give in Zakat (sadaqa-charity etc.) seeking Allah's Countenance, then those they shall have manifold increase. ***Sura Ar-rum (30:39)***

خْذِهِمُالرِّبَاوَقَدْنُهُواْعَنْهُوَأَكْلِهِمْأَمْوَالَالنَّاسِبِالْبَاطِلِوَأَعْتَدْنَالِلْكَافِرِينَمِنْهُمْعَذَابًاأَلِوَأَ

يمًا

"That they took riba (usury), though they were forbidden and that they devoured men's substance wrongfully – We have prepared for those among men who reject faith a grievous punishment. ***Sura An-nisa (4:161)***

It has been argued in vain for long in some circles that the prohibition in Islam is excessive interest only or that it is the interest on consumptive loans that has been forbidden, as such loans extended for commercial purposes are entitled to an excess over the principle amount lent. Such tendentious arguing fails to give due understanding to verse ***27 & 279 of Sura Albaqarah***:

يأَيُّهَاالَّذِينَءَامَنُواْاتَّقُواْاللَّهَوَذَرُواْمَابَقِيَمِنَالرِّبَوٰٓإِنكُنتُمْمُّؤْمِنِينَ

"O ye who believe! Be afraid of Allah and give up what remains (due to you) from Riba (usury) (form now onwords) if you are (really) believers. (2:278)."

إِنلَّمْتَفْعَلُواْفَأْذَنُواْبِحَرْبٍمِّنَاللَّهِوَرَسُولِهِوَإِنتُبْتُمْفَلَكُمْرُءُوسُأَمْوَلِكُمْلَاتَظْلِمُونَوَلَاتُظْلَمُونَ

"And if you do not do it, take notice of war from Allah and His

messenger! But if you repent, you shall have your capital sums. (2:279)"

However, this does not mean Islam prohibits any gain on principle sums. In Islam, profit is the recognized reward for capital. When capital employed in permissible business yields profit, that profit (excess over capital) becomes the rightful and just claim of the owner of the capital. As s corollary, the risk of loss also rest exclusively with the capital and no other factor of production is expected to incur it. Another important element of Islamic finance is that profit or reward can be claimed in the instance where either risk of loss has been assumed or effort has been expended. Profit is therefore received by the provider of capital and wages/remuneration by labor/manager.

A depositor in an Islamic bank can therefore make earnings on his or her deposit in several ways:

A depositor in an Islamic bank can therefore make earnings on his or her deposit in several ways:

1. Through return on his capital when that capital is employed in a business venture.
2. Through sharing of profit when his capital is part of capital is employed in a partnership.
3. Through rental earnings on an asset that has been partially financing buy his capital.

Based on the criteria above Islamic bank can do the activities like

a conventional bank in transactional terminology which divided by:

1. *Mudarabah*, "Mudarabah" is a special kind of partnership where one partner gives money to another for investing it in a commercial enterprise. The investment comes from the first partner who is called "rabb-ul-mal", while the management and work is an exclusive responsibility of the other, who is called "mudarib".

Figure.1. System of Mudarabah

Source: Bank BNI Syariah, 2005

The *Mudarabah* (Profit Sharing) is a contract, with one party providing 100 percent of the capital and the other party providing its specialist knowledge to invest the capital and manage the investment project. Profits generated are shared between the parties according to a pre-agreed ratio. Compared

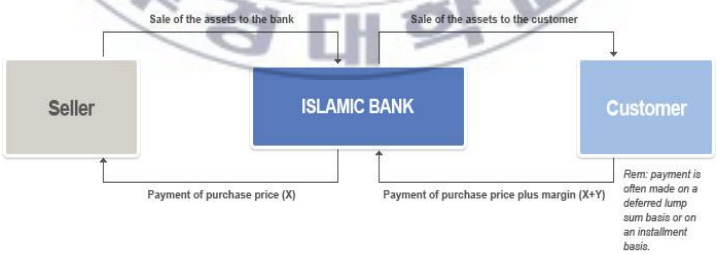
to *Musharaka*, in a *Mudarabah* only the lender of the money has to take losses.

2. *Al-Wadiah* (safe keeping), a bank deemed as a keeper and trustee of funds. A person deposits funds in the bank and the bank guarantees refund of the entire amount of the deposit or any part of outstanding amount, when depositors demand it. The depositor, at the bank's discretion, may be rewarded with *Hibah* (gift) as a form of appreciation for the use of fund by the bank.
3. *Musharakah* (joint venture) is an agreement between two or more partners, whereby each partner provides funds to be used in a venture. Profits made are shared between the partners according to the invested capital. In case of loss, each partner loses capital in the same ratio. If the Bank provides capital, the same conditions apply. It is this financial risk, according to the *Shariah*, that justifies the bank's claim to part of the profit. Each partner may or may not participate in carrying out the business. A working partner gets a greater profit share compared to a sleeping (non-working) partner. The difference between *Musharaka* and *Mudarabah* is that, in *Musharaka*, each partner contributes some capital, whereas in *Mudarabah*, one partner, e.g. A financial institution, provides all the capital and the other partner, the entrepreneur, provides no capital.

Note that *Musharaka* and *Mudarabah* are commonly over lap.

4. *Murabahah*, this concept refers to the sale of goods at a price, which includes a profit margin agreed to by both parties. The purchase and selling price, other costs, and the profit margin must be clearly stated at the time of the sale agreement. The bank is compensated for the time value of its money in the form of the profit margin. This is a fixed-income loan for the purchase of a real asset (such as real estate or a vehicle), with a fixed rate of profit determined by the profit margin. The bank is not compensated for the time value of money outside of the contracted term (i.e., the bank cannot charge additional profit on late payments). However, the asset remains as a mortgage with the bank until the default is settled.

Figure.2. System of Murabahah

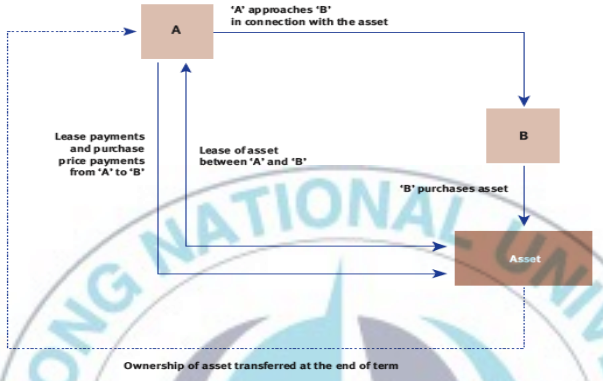


Source: Bank Muamalat, 2001

5. *Ijarah* (lease), rent or wage. Generally, Ijarah concept means selling the benefit of use or service for a fixed price or wage.

Under this concept, the bank makes available to the costumer the use of service of assets/equipment such as plant, office automatic, motor vehicle for a fixed period and price.

Figure.3. System of Ijarah



Source: Bank Muamalat, 2001

Essentially the basic principle of Islamic banking is the sharing of profit and loss, prohibition of *riba* (usury), and this the system of Islamic banking. Common terms used in Islamic banking include profit sharing (*Mudarabah*), safekeeping (*Wadiah*), joint venture (*Musharakah*), cost plus (*Murabahah*), and leasing (*Ijarah*).

2.2. Criteria of Islamic Banking from a Prudential Perspective

Art main of this study is the question of whether Islamic Banks are more or less stable than other banks, in particular conventional banks. View of the existing literature does not provide a clear-cut answer to this

question. In recent study, Choong and Liu (2006) argued that Islamic banking, like in Indonesia, deviates from the PLS (Profit Loss Sharing) paradigm and practice is not very different from conventional banking. The authors therefore suggest that purposes of financial sector analysis, Islamic banks should be treated similarly to their conventional counterparts.

This is a minority view, however, and may be less relevant to other countries. A majority of the relevant literature suggest (using theoretical arguments rather than a formal empirical analysis) that Islamic banks pose risks to the financial system that in many regards differ from those conventional banks.

Authors such as Sundarajanan and Errico (2002); Iqbal and Lewell (2002) and World Bank and International Monetary Fund (IMF) (2005) note that the following features need to be taken into account when assessing stability in a financial system with a significant presence of Islamic banks:

1. The PLS financing shift the direct credit risk from banks to their investment depositors, but it also increase the overall degree of risk on the asset side of banks' balance sheets, as it makes Islamic banks vulnerable to risk normally borne by equity investors rather than holders of debt.
2. Operational risk is crucial in Islamic finance. Operational risk defined as the risk of losses resulting from inadequate or failed

internal processes, people and systems or from external events, which includes but is not limited to, legal risk and sharia compliance risk. According to the theoretical literature reviews here, the importance of operational risk in Islamic finance reflects the complexities associated with the administration of PLS modes, including the fact that Islamic banks often have limited legal means to control the agent-entrepreneur.

3. PLS cannot be made dependent on collateral or guarantees to reduce credit risk.
4. Product standardization is more difficult due to the multiplicity of potential financing methods, increasing operational risk and legal uncertainty in interpreting contract.
5. Islamic bank can use fewer risk-hedging instruments and techniques than conventional banks and traditionally have operated in environment with underdeveloped or nonexistent interbank and money markets and government securities, and with limited availability of an access to lender-of-last-resort facilities operated by central banks. However, the significance of these differences has decreased due to recent developments in Islamic money market instruments and Islamic lender-of-last-resort modes and the implicit commitment to provide liquidity support to all banks during exceptional circumstances in most countries.

6. Non-PLS modes financing are less risky and more closely resemble conventional financing facilities, but they also risks (such as elevated operational risk in some cases) that need to be recognized.
7. Another specific risk in Islamic banks stems from the special nature of investment deposits, whose capital value and rate of return are not guaranteed. Some of the authors quoted above argue that this increases the potential for moral hazard, and creates an incentive for risk taking and for operating financial institutions without adequate capital.

Sundarajana and Errico (2002) and other authors quoted in the previous paragraph argue (but did not do empirical test) that this has most likely effected Islamic banks' competitiveness and resilience to external shocks, with potential system consequences. They note that addressing the unique risks of Islamic banking requires adequate capital and reserves, appropriate pricing and control of risks, strong rules and practice for governance, disclosure, accounting, and auditing rules, and an infrastructure that facilities liquidity management.

Cihak and Hesse (2008) mentioned that there are also several features that could make Islamic banks less vulnerable to risks than conventional banks. For example, Islamic banks are able to pass through negative shocks (e.g *musharaka* loss) on the asset side to the investment depositors (*mudarabah* arrangement). The risk-sharing arrangements on

the deposit side provide another layer of protection to the bank, in addition to its book capital.

Also, the need to provide stable and competitive return on investors, the shareholders' responsibility for negligence or misconduct (operational risk), and the more difficult access to liquidity put pressures on Islamic banks to be more conservative. Furthermore, because investors (depositors) share in the risks (and typically do not have deposit insurance), they have more incentives to exercise tight oversight over bank management. Finally, Islamic banks have traditionally been holding a comparatively larger proportion of their assets than conventional banks in reserve accounts with central banks or in correspondent accounts. Even if Islamic investments are more risky than conventional investments, the question form the financial stability perspective is whether or not these risks are compensated for by higher buffers.

2.3. Differences between Islamic Bank and Conventional Bank

As described above, conventional bank and Islamic bank in some cases have differences, especially on the technical side of profit earnings, and the mechanism of profit sharing. Here are some differences between conventional bank and Islamic bank concerning the legal aspects, dispute settlement institutions, organizational structures, business and fund enterprises, and work environment.

1. *Akad* (agreement) and Legalize Aspects

There are many fundamental differences between the two. Differences were related to the legal aspects, organization structure, business-funded, and work environment (Syafi'I, 2009).

Akad conducted in Islamic bank have consequences worldly because the contracts are made under the law of Islam. Costumers often dared to break the agreement / treaty that have been done if the law is only based in positive law, but not when the agreement has accountability to *yaumil qiyamal* (the justice in the of the world) later. Each contract in Islamic banking, both in terms of goods, the transactions, and other laws must satisfy with contract provisions. Each contract in Islamic banking, both in terms of good, the trader, and other laws, should comply with the contract, such as the following;

1. Principium: seller – costumer – goods – price – agreement
2. Requirement: mentioned below,
   a. Goods and services must to be halal so that the transaction of goods and services which illegitimate (prohibited) will be canceled according to sharia law.
   b. Drop off (delivery) must be clear because will be subjected to transportation fee.

c. Traded goods should be fully in possession and may not sell something that is not owned or controlled, as occurs in short sale transactions the stock market.

2. Dispute Settlement Institutions

Settlement of differences of disputes between bank and costumers in Islamic bank are different from conventional bank. Second parties do not resolve problems on Islamic bank in domestic courts but resolve them according to Islamic law and procedure.

3. Organizational Structure

Elements that distinguished between Islamic banks and conventional banks are the necessity of Sharia Supervisory Board oversees bank operations and products to match the lines of sharia law.

a. Sharia Supervisory Board

The main role of the *ulama* (parson) in Sharia Supervisory Board is overseeing the day-to-day operational bank to keep in accordance with the provisions of *sharia*. Because it applies to transactions in Islamic banking is very special compared to conventional banks. Therefore, it needed the guidelines for govern it. Guidelines are compiled and determined by the National Sharia Board. Sharia Supervisory Board periodically make statements for the

banks that have been running smoothly supervises published in the annual report of the bank.

Another task of the Sharia Supervisory Board is to investigate and make recommendations of new products from bank. Thus, the Sharia Supervisory Board acts as the first filter before the products were investigated and decided upon by the National Sharia Board.

b. National Sharia Board

The main function of the National Sharia Board is overseeing the products of Islamic financial institutions to comply with Islamic law. The Board also overseeing other institutions such as insurance, venture capital funds, and so on. National Sharia Board is to give warning to the Islamic financial institution if the institution in question deviates from the guidelines. If the Islamic financial institutions are not heeding the warning is given. The National Sharia Board may recommend to the competent authority to give penalties for the company who did not develop further than actions that are not in accordance with *sharia*.

4. Business and Fund Enterprises

Business and enterprises that implemented by Islamic bank is inseparable from Islamic ways. This means that Islamic bank will not finance any business which may contain

unlawful elements. There are also some limitations in term of financing. Not all project financing or undertakings can be funded through sharia bank funds, unless they must comply with the rules of *sharia*.

5. Work Environment

   An Islamic bank should have a suitable working environment according to *sharia*. In term of ethics, such as the nature of trusteeship, trust and honest services are integral to the functional the bank. Employees of Islamic bank it must be a professional (*fathanah*), and be able to perform tasks using team work and share information evenly across functional organizations (*tabliqh*). In case of reward and punishment, it is required to be in accordance with the principles of justice sharia.

Table. 3. Significant differences between Islamic and conventional banks are presented in the following table

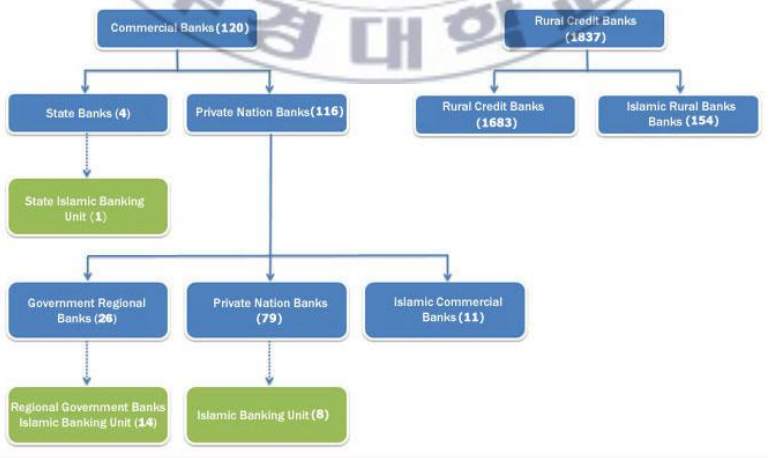
Islamic bank	Conventional bank
Undertake halal investments only.	No investment restrictions between illegitimate or halal.
Based on the principle of sharing, selling, buying, or leasing.	Using the devices of interest.
Profit and *falah* (welfare) oriented.	
Relationship with customers in the form of partnership.	Profit oriented.
Collection of funds shall be in accordance with the edicts of Sharia Supervisory Board.	Relationship with customers in the form of debtor-creditor relationship.
	No similar council.

Therefore, based on explanation above, Islamic and conventional banks have significant differences whether in implementing their financial business or financial services.

2.4. Islamic Bank and Conventional Bank's Scenario in Indonesia

Banks are special, therefore they must run business based on prudential principles. The functions of banks in Indonesia are basically as financial intermediary that take deposits from surplus units and channel financing to deficit units. According to Indonesian banking law, Indonesian banking institutions are typically classified into commercial and rural banks. Commercial banks differ with rural banks in the sense that the latter are not involve directly in payment system and have restricted operational area. In term of operational definition, bank in Indonesia are classified into non-shariah and shariah-based principles commercial banks.

Figure.4. Recapitulation of Banking Institutions in Indonesia October 2011



Source: Bank Indonesia, October 2011

The macroeconomic, more specifically the global economic crisis that has tended to retard the pace of economic growth in many countries around the world, continued to overshadow in 2012 although the impact on the national Islamic banking industry was not significant. This is reflected by relatively solid asset growth in the Islamic banking industry. However, the rate of growth was not as robust as during the same period of the previous year.

A slowdown in asset growth of the national Islamic banking industry began to bite in March and persisted until September 2012 due to a sharp decline in deposit growth, which precipitated a downturn in domestic non-economic conditions. In 2013, however, global economic conditions are expected to rebound and thus catalyze the domestic economy, thereby providing a favorable business environment conducive to stronger national banking industry growth. As a result, Bank Indonesia projects asset growth in the Islamic banking industry for 2013 in the range of 36% - 58% according to three scenarios from pessimistic to optimistic.

Islamic banking industry development over the past year, in particular for Islamic banks (BUS) and Islamic business units (UUS) that continue to dominate the asset composition of the Islamic banking industries remained sound with assets amounting to IDR 174.09 trillion in October 2012. If coupled with the assets of Islamic rural banks in total IDR 4.46 trillion, the total assets of Islamic banks in October 2012

reached around IDR 179 trillion (± 37%). Such asset growth in the Islamic banking industry remains in line with the projected growth corridor determined in the previous year of IDR 177.8 – 205.8 trillion at yearend 2012, especially at the end of the year when assets are predicted to experience significant growth (Bank Indonesia, 2012).

2.5. Indonesia in Global Crisis 2008

The global economic crisis has changed the shape of the world economy. The crisis that began in the United States in 2007 spread worldwide, with no exception to developing countries. Several aggressive policies have been adopted at the global level to promote economic recovery. In the United States, the epicenter of the crisis, the resolve of the new administration in taking bold actions to stem the crisis is a positive factor that could mitigate pessimism over the likelihood of prolonged economic recession and risks of depression. At the same time, the willingness of other industrial countries to coordinate their economic recovery policies is also expected to bolster market confidence. However, the ongoing process among financial institutions and the impact of the crisis from the real sector back to the financial sector. It means that global markets remain beset by heightened risk and uncertainties. In Indonesia, the fallout from the crisis began to take hold towards the end of 2008.

In 3rd quarter 2008, the economy was still charting above 6% growth with continued healthy performance in the financial sector reflected in a stable exchange rate, mounting stock index and declining yield on Government Securities. However, in 4th quarter 2008, the global financial turbulence began to bear down on the Indonesian economy. Weakening exports, pressure on the balance of payments and turmoil on the money market took their toll on Indonesia's economic growth. On the external side, the balance of payments began to accumulate a rising deficit and the exchange rate underwent significant depreciation. On financial markets, global liquidity conditions tightened up in tandem with mounting perceptions of emerging market risks.

This in turn triggered a slide in the Indonesian Stock Market, and Government Securities prices alongside a sharp downturn in the exchange causing the risk spread on Indonesian securities widened considerably. This prompted outflows of foreign capital from the stock market and from Government Securities and Bank Indonesia Certificates (SBIs).

In relative terms, Indonesia's overall position is not as precarious as for many other countries. The Indonesian economy was still able to chart 6.1% growth in 2008. Indonesia's fundamentals in the external sector, fiscal sector and banking industry are also quite strongly positioned to weather the global crisis. However, the crisis will have more pronounced effects on the Indonesian economy. The increasing

integration of the global economy and the deepening of the crisis augurs for the slowing of economies across all countries during 2009. Indonesia is no exception. The Bank Indonesia projects a drop in economic growth in 2009 to around 4.0% with downside risk if the global economic downturn is greater than predicted. The more modest growth in Indonesia cannot be regarded as bad when compared to the many other countries forecasted to record negative growth (Bank Indonesia, 2009).

The resilience of Indonesian economic in the global crisis in 2008 as described above shows the stability of the banking Indonesia since it did not experience shocks that are too heavy. This is because of the experience of Asia crisis in 1997 which was the most sever crisis for Indonesian economy. This can be proved from the result of z-score then compared it with the NPL by the period before and after the crisis in 2008 in the next section.

Chapter 3:

Methodology of Bank's Stability

3.1. Z-score

3.2. Factors Influence the Z-score

3.2.1. The Role of Bank Indonesia

3.2.2. Economic Conditions

3.2. Non-Performance Loan

Chapter 3

Methodology of Bank's Stability

The IMF's Financial Soundness Indicators (FSIs) include, in addition to measures related to bank's capitalization, a number of indicators related to asset quality and profitability which provide complementary information about the health of the bank. In this paper the author used the z-score to measure of bank stability which are mostly part of the IMF Financial Soundness Indicators (FSI, 2006).

This research is focusing on banking industry in Indonesia with observation period of 2005-2012. The number of conventional banks as of December 2012 was 120 while 11 for Islamic banks (BUS), also 24 Sharia Business Units (UUS) (Table.4). The data are collected from Banking Statistic of Bank Indonesia. Based on Cihak and Hesse, the level of bank stability is measured by using the z-score.

Table.4 The number of banks in Indonesia

Bank group	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Conventional bank	131	130	130	124	121	122	120	120
Islamic bank (BUS)	3	3	3	5	6	11	11	11
Sharia Business Unit (UUS)	19	20	20	27	25	23	24	24

Source: Indonesia Banking Statistic Dec 2003 - Jan 2013: Bank Indonesia

3.1. Z-score

Z-score is a formula for predicting a probability of a firm in bankruptcy. It was published in 1986 by Edward I. Altman from New York University. In banking analysis, z-score commonly used indicates a higher bank stability and less overall risk.

Z-Score is a statistically measurement of a score's relationship to the mean in a group of scores. A z-score of 0 means the score is the same as the mean. A z-score can also be positive or negative, indicating whether it is above or below the mean and by how many standard deviations. In addition, to showing a score's relationship to the mean, the z-score shows statistically whether a score is typical or atypical for a particular data set. Z-scores also allow analysts to convert scores from different data sets into scores that can be accurately compared to each other. One real-life application of z-scores occurs in usability testing.

The z-score has become a popular measurement for bank soundness (Boyd and Rungkle, 1993; Maechlar, Mitra, and Woller, 2005). Its popularity stems from the fact that it is inversely related to the probability of bank's insolvency, i.e., the probability that the value of its assets becomes lower than the value of debt. The z-score can be summarized as:

$$z=(k+\mu)/\sigma$$

where k is equity capital and reserves as percent of assets represent with CAR (Capital Adequacy Ratio) (Beck, Kunt, Merrouche, 2012), μ is

average return as percent of assets, and σ is standard deviations of return on assets (ROA) as a proxy for return realization has to fall in order to deplete equity, under the assumption of normality of banks' returns. So, the formula for this study will be:

$$Z_{i,t} = \frac{(CAR_{i,t} + \mu_{i,t}(ROA))}{\sigma_{i,t}(ROA)}$$

Specifically, *z* indicates the number of standard deviations that a bank's return on assets has top drop below its expected value before equity is depleted and the bank is insolvency, $_i$ is the bank and $_t$ is the time of each year. This indicates the distance from insolvency, combining accounting measures of profitability, leverage and volatility, which has been widely used in the recent literature. Thus, higher z-score indicates that the bank is more stable (Hanna & Henwick, 1988; Beck, Kunt, Merrouch, 2012).

An important feature of the z-score is that it is an objective measure of soundness across different groups of financial institutions. It is an objective measure because it focuses on the risk of insolvency, in example, on the risk of a bank (whether commercial, Islamic, or other) runs out of capital and reserves. The z-score applies equally to banks that use a high risk/high return strategy and those that use a low risk/low return strategy, provided that those strategies lead to the same risk-adjusted returns. If an institution "chooses" to have lower risk-adjusted returns, it can still have the same or higher z-score if it has a higher

capitalization. In this sense, the z-score provides an objective measure of soundness (Cihak and Hesse, 2008).

A possible criticism of the z-score as applied to Islamic banks is that the risk-sharing arrangements provide an additional protective buffer in deposit liabilities, meaning that the book values of capital and reserves may underestimate financial strength of these banks. A large portion of Islamic bank's financial liabilities consists of investment accounts that can be viewed as a form of equity investment (generally based on the principle of Mudarabah). Investment accounts are offered in different forms, often linked to pre-agreed period of maturity, which may be from one month upwards, and the funds in the accounts can generally be withdrawn if advance notice of one month is given.

The profits and returns are distributed between the depositors and 20 percent to the bank (Iqbal and Mirakhor, 2007). At the extreme, it could be argued that a bank with only restricted investment accounts would be close to a mutual fund in terms of risk profile, with almost all risk passed to investors. Even with unrestricted investment accounts, much of the risk is in principle borne by investors.

A counter argument against this possible criticism is even conventional banks usually have the ability to pass on risks to their customers, for example through their ability to adjust (and delay adjustment) deposit and loan rates. Only after Islamic bank's layers of protection have been exhausted and after the bank has started to incur

losses, does a shock have an impact on capital and reserves. In other words, these additional layers of protection are ultimately reflected in the banks' returns and capital, and thereby in their z-score.

Moreover, the fact that most of the investment accounts can be withdrawn in a relatively short period of time, as well as the fact that the return distribution between the bank and the depositors/investors is pre-determined, diminished the factual differences in risk profiles associated with the investment accounts, compared with floating-rate deposits and other conventional funding used by commercial banks. So, while the differences between Islamic and conventional banks should be born in mind, capital and reserves are still a reasonable proxy variable to assess the "bottom line" default risk (Cihak and Hesse, 2008).

As a preliminary step in the analysis, the author performed basic statistical tests for z-scores. Then, the z-score of Islamic bank including sharia business units (UUS) will be compared to conventional banks.

3.2. Factors Influence the Z-score

Based on some previous researches, there are some indicators which effect stability of bank. Cihak and Hesse (2008) have used Income Diversity (ID), Loan to Assets ratio and Herfindahl Index (HI) as control variables in regression analyses of banks' stability. Cihak and Hesse did not do a strong prior on the impact of the HI, because the existing literature contains two contrasting views on the relationship between

concentration and stability. For example, Allen and Gale (2004) put forth arguments why more concentrated markets are likely to be more stable, while, Mishkin (1999) suggests that more concentrated systems are characterized by increased risk-taking by banks. Cihak and Hesse were adjusted also for the impact of the macroeconomic cycle by including three macroeconomic variables such as GDP (Growth Domestic Product) growth rate, inflation rate, and exchange rate depreciation for cross-country analysis. Results of regression analysis expressed that was not all indicators have an impact to stability of bank. Cihak and Hesse (2008) result showed that large Islamic banks have on average higher loan to asset ratio than commercial banks, reflecting the fact that Islamic banking prohibits of investment in non-lending operations such as regular bonds in Islamic banks. Large Islamic banks have a higher CIR (Cost Income Ratio) than the large commercial counterpart, but there was no significant for small banks. There was no significant difference in terms of ID between Islamic banks and commercial banks (large or small).

Study done by Chia and Wang (2008) and Dar and Presley have put one way of cyclical fluctuations was due to interest rates. Unlike Islamic economic paradigm, the prohibition of interest contributed less to the business cycle economics. Whereas Kaminsky and Reinhart (1996), study the relationship from macroeconomics perspectives, are including the INF (Inflation) rate and real GDP provide a comprehensive comparative review of the literature of macroeconomic stability, whether

an Islamic banking using profit and loss (PLS) system would replace interest-based transactions applicable by commercial banks (Rohaya & Hassan, 2012).

Hassan and Dridi (2010) cited IMF study reports that Islamic banks have maintained stronger credit growth compared to conventional banks in almost all countries and suggesting that system has great potential for further SHARE (market share) expansion and possible contribution to market stability through the available credit.

Bourkhis and Nabi (2013) have results that HI, exchange rate depreciation and real GDP growth have not a clear linear dependence with the z-score. The net Loan to Assets ratio is negative and statistically significant of risk only for the small banks while the CIR is negative statistically significant different to z-score at 5% level of risk for both banking systems. The ID does not appear significant in all regressions.

Rohaya & Moh. Hassan (2012) has resolved that mostly independent variables are used and its specific impact on Islamic banks rather than conventional banks. The only difference between Islamic and conventional banks is that the Islamic bank has significant results towards risk in terms of CIR, HI, GDP and INF. They also said NPL ratio is an indicator of macroeconomics environment on Islamic bank and conventional bank stability. This revealed supported with Bank Indonesia which shows the NPL to measure stability of bank.

Therefore, based on the result above, the author emphasized to independent variable CIR, INF, GDP, and SHARE has significantly give an impact to z-score. The author also shows the NPL ratio to compare with the z-score results.

Generally, the stability also correlated with the better governance, rule of law, government effectiveness, and controlling corruption (Kaufman, Kraay, and Mastruzzi, 2005). In this perspective, central bank has an important role on it.

3.2.1. The Role of Central Bank

Central bank is an institution that plays an important role in maintaining financial stability, in particular the banking industry. Bank Indonesia (BI), as a central bank of Indonesia carries a three-fold responsibility as monetary authority and the regulatory and supervisory authority for the banking system and payment system. As such, BI's most important task is not only to safeguard monetary stability, but also financial system stability. Whatever BI may achieve in monetary stability without commensurate financial system stability will be of little value in supporting sustainable economic growth. Monetary stability and financial system stability are like two sides of the same coin. Monetary stability has significant impact on financial system stability. Conversely, financial system stability is the pillar of effective monetary policy.

The financial system provides a channel for monetary policy transmission and any financial system instability will prevent monetary policy transmission from operating normally. Conversely, monetary instability will fundamentally impact financial system stability, because the financial system will be unable to operate effectively. This is the background to the inclusion of financial system stability within the responsibilities of Bank Indonesia. Therefore, as the central bank, Bank Indonesia has five major roles.

First, Bank Indonesia safeguards monetary stability through the use of interest rates in open market operations, while also employing other instruments. Bank Indonesia is required to establish an appropriate, well-balanced monetary policy. The reason is that any disruption to monetary stability has immediate impact on all aspects of the economy. Excessively tight monetary policy applied through high interest rates will tend to stifle economic activity, and vice-versa. Therefore, to create monetary stability, Bank Indonesia has adopted a policy known as the inflation targeting framework.

Second, Bank Indonesia has a vital role in building the sound performance of financial institutions, particularly in the banking sector. The performance of banking institutions is promoted through the supervisory and regulatory mechanism. Like in other countries, the banking sector plays a dominant role in the financial system. For this reason, any failure in this sector could lead to financial instability and

disruption of the economy. To prevent such failure, it is essential to uphold an effective system for bank supervision and banking policy.

In addition, market discipline must operate through supervisory and regulatory powers, as well as law enforcement. Evidence suggests that countries applying market discipline benefit from robust financial system stability. Law enforcement actions are also intended to protect the banking system and stakeholders while promoting confidence in the financial system. To build a sustainable level of stability in the banking sector, Bank Indonesia has developed the Indonesian Banking Architecture and plans for implementation of the Basel II Accords.

Third, Bank Indonesia's powers include the maintenance of a robust payment system. Failure to settle problems by any one participant will lead to serious risk of disruption in the payment system. This could trigger contagion and in turn systemic risk. To mitigate this risk in the payment system, Bank Indonesia has developed a specific regulatory framework and launched new mechanisms for payment system operation. One of these mechanisms is the Real Time Gross Settlement (RTGS) system, which offers vastly improved security and speed of payment system transactions. In its position as payment system authority, Bank Indonesia also has access to the necessary information and expertise to identify potential risks in the payment system.

Fourth, Bank Indonesia is able to tap its research and monitoring capabilities to access information on threats to financial stability. Bank

Indonesia employs macro prudential monitoring to monitor vulnerabilities in the financial sector and detect potential shocks that could impact financial system stability. These indicators have been developed at BI, using in-house research capabilities. The information generated by this monitoring is then used to produce recommendations to inform the decisions by the relevant authorities on the most appropriate actions for dealing with disturbances in the financial sector.

Fifth, Bank Indonesia operates the financial system safety net under the central bank lender of last resort (LoLR) function. The LoLR function is a traditional role exercised by Bank Indonesia as the central bank in crisis management with the primary objective of preventing financial system instability. The LoLR function includes provision of liquidity under normal and crisis conditions. This support is extended only to banks faced with liquidity problems that could potentially trigger a systemic crisis. Under normal conditions, the LoLR function may operate for banks experiencing temporary liquidity mismatch, which must still possess adequate repayment capability. In operating the LoLR function, Bank Indonesia must steer clear of moral hazard. For this reason, liquidity can only be provided under strict requirements and subject to assessment of systemic risk (Bank Indonesia: The Roles Of Bank Indonesia).

3.2.2. Economic Condition

The economic condition can be obtained from the bank's annual reports, and consolidated and unconsolidated statement bank statement for various financial institution in Indonesia which is sourced online as well as from published copies (Kaufman, Kraay, and Mastruzzi, 2005; Rohaya & Moh. Hassan, 2012). The period of analysis spans from year 2005-2012 where data are pooled.

3.3. Non-Performing Loan (NPL) Ratio

Based on Rohaya & Moh. Hassan (2012) Non Performing Loan (NPL) indicated the risk probability of bank. Banks usually treat assets as non-performing if they are not serviced for some time. If payments are late for a short time a loan is classified as past due. Once payment becomes really late usually 90 days the loan classified as non-performing. A higher level of non-performing loan values indicate a sign that a bank's currently facing a problem or in order words bank were operating less profit and having a higher risk to default.

As described above, author calculate the z-score from sample data from Bank Indonesia and determine it with some variables above (CIR, INF, GDP, SHARE). Therefore, the results of z-score will comparing with the probability of risk ratio (NPL) to get a certain result.

The author not only looking for data of financial performance, but also consider factors beyond financial performance. These factors are the state of the economy and the indicators stated that influenced to the stability of a bank that will be conducted in the next chapter.

Chapter 4:

Findings

4.1. Findings Statistic Z-score of Islamic and Conventional Banks in Period from 2005-2012

4.1.1. Factors that Influence the Z-score in Period from 2005- 2012

4.1.2. Findings Statistic Z-score of Islamic and Conventional Banks in Period from 2005-2006

4.1.3. Findings Statistic Z-score of Islamic and Conventional Banks in Period from 2007-2009

4.1.4. Findings Statistic Z-score of Islamic and Conventional Banks in Period from 2010-2012

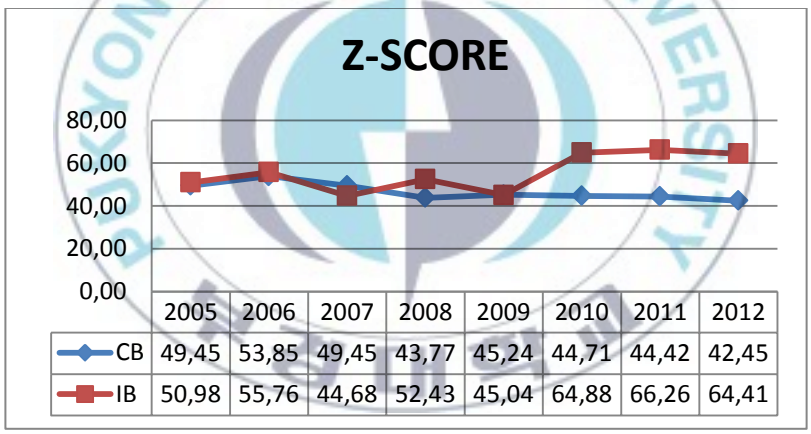
4.2. The Statistic of NPL of Islamic a Conventional Banks in Period from 2005-2012

Chapter 4

Findings

The results of z-score measurement of Islamic banks and conventional banks for the observation period from 2005-2012 are presented in the following Figure 5.

Figure .5. The Statistic from Z-score Measurement of All Data Samples



	2005	2006	2007	2008	2009	2010	2011	2012
CB	49,45	53,85	49,45	43,77	45,24	44,71	44,42	42,45
IB	50,98	55,76	44,68	52,43	45,04	64,88	66,26	64,41

Source: Statictic Data from Bank Indonesia, and author's calculation

4.1. Findings Statistic the Z-score of Islamic and Conventional Banks in Period from 2005-2012

The overall data observation shows that Islamic banks have the higher value of z-score. It can be seen by highest level is 61.87 was in Islamic banks and the lowest is 38.96 was in conventional banks (Table.

6). The average trends of z-score for period 2005-2012 Islamic bank showed that it has a higher value than conventional bank while conventional bank's z-score generally has constant value. There are some significant movement in 2007, 2008, and 2010 from z-score of Islamic banks (Figure.5).

Table .6 Description of Z-score Measurement

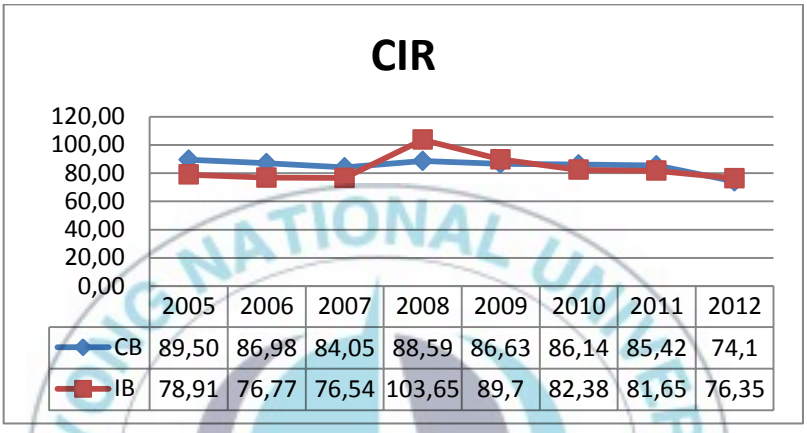
Bank	minimum	maximum	mean	median	std
CB	38.96	50.36	43.18	41.49	3.86
IB	40.30	61.87	51.17	49.71	8.78

Source: Statistic Data of Bank Indonesia, and author's calculation

It also can be seen that for the minimum value of z-score is in conventional banks, and maximum value of z-score is in Islamic banks. Islamic bank z-score has a highest in median. The extreme value of z-score in Islamic bank can be seen in standard deviation which has value 8.78 while conventional bank only has 3.86 (Table.6). It means that the extreme movement of z-score in this period is in Islamic banks.

4.1.1. Factors that Influence the Z-score in period from 2005-2012

Figure 6. Statistic Data of CIR Islamic and Conventional bank in Period from 2005-2012



	2005	2006	2007	2008	2009	2010	2011	2012
CB	89,50	86,98	84,05	88,59	86,63	86,14	85,42	74,1
IB	78,91	76,77	76,54	103,65	89,7	82,38	81,65	76,35

Source: Statistic Data of Bank Indonesia year 2005-2012

The cost-to-income ratio is a key financial measure, particularly important in valuing banks. It shows a company's costs in relation to its income. To get the ratio, divide the operating costs (administrative and fixed costs, such as salaries and property expenses, but not bad debts that have been written off) by operating income. The ratio gives investors a clear view of how efficiently the firm is being run - the lower it is, the more profitable the bank will be.

Changes in the ratio can also highlight potential problems: if the ratio rises from one period to the next, it means that costs are rising at a higher rate than income, which could suggest that the company has taken

its eye off the ball in the drive to attract more business (Money Week, 2013).

In Figure.6, CIR in Islamic banks for each year in period of 2005-2012 is higher than conventional banks. This shows that in early period (2005-2006) Islamic banks is less efficient than conventional banks. But in the end of period in 2012 the value of both banks only differ approximately 1.06 point, that means the Islamic bank's CIR was approached the value of conventional banks' CIR.

In addition, macroeconomic and industry specifics variables also affected to z-score movement (Rohaya & Hassan, 2012). The variables showed the fluctuation progress during the period of 2005-2012.

Table 7. Macroeconomics and Industry Specifics Variable

Variable (%)	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Macroeconomics								
INF (CPI)	17.1	6.6	6.59	11.06	2.78	6.96	3.8	4.3
GDP	5.7	5.5	6.3	6.1	4.6	6.1	6.5	6.2
Industry specifics								
SHARE IB	1.4	1.6	2.0	2.5	2.61	3.37	4.17	4.2
SHARE CB	82.5	85.0	85.0	83.3	80	79.5	8.3	94.2

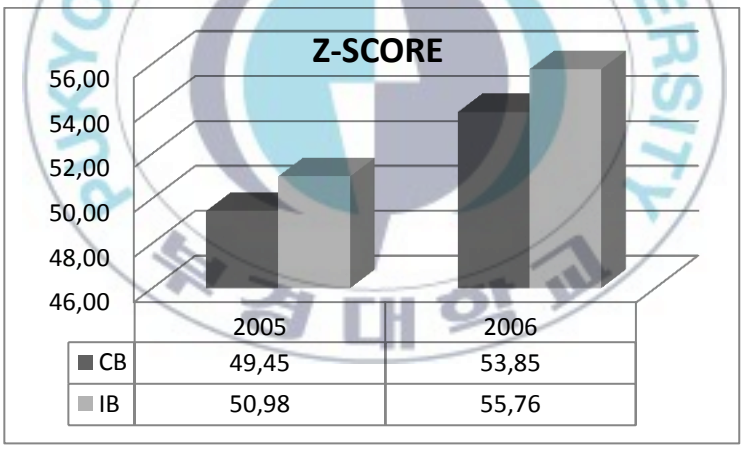
Source : Annual Report of Bank Indonesia, 2005-2012

The early period of 2005 show that the condition of economy in Indonesia was not good. It can be seen in INF has a high value which expressed that the purchasing power were low and it followed by the GDP numbers that were only 5.7%. It also affected to the ability of people on doing their economic activities. It can be seen in SHARE of Islamic and conventional banks were lower than in 2006. In 2008 viewed that global crisis also shocked the economic conditions in Indonesia. It can be seen in INF was sharply increase 4.47 %. However, government succeeded in maintain GDP that only decreased about 0.3% during the crisis which became the third country of Asian countries who can survive the global crisis with GDP 6.1%. Enhancement of Indonesian government to maintaining the economic condition got a rewarded in 2011, where the GDP was increased in the highest reached 6.5%.

Below are the measurements of stability of bank using the z-score divided by the three parts of period. First is measurement of bank's stability in before crisis, second measurement of bank's stability during the crisis, and the third is measurement of bank's stability after 2008 crisis.

4.1.2. Finding Statistic Z-score of Islamic Banks and Conventional Banks in Period from 2006-2006

Figure 8. Z-score of Conventional Bank and Islamic Bank in Period from 2006-2007



Source: Statistic Data of Bank Indonesia and author's calculation

In period 2005-2006, the z-score of conventional banks and Islamic banks have same directions, moving toward to the top. Conventional banks were getting higher 4.40 from 49.45 in 2005 to 53.85 in 2006 and the value of Islamic banks also was higher amounted 4.78 from 50.98 in 2008 to 55.76 in 2006. In this period, Islamic banks have

higher z-score than conventional banks (Figure. 8).

In 2006, two conventional banks have merged (Bank OCB and Bank NISP). The merger process is a process of rational to increase synergies and economies of scale in accordance to a [1]mini crisis at that time. In general, the condition of banks in 2006 show a good performance in the middle increased risk perception of the condition of the bank sector real which was driven by a surge in the price of fuel oil (BBM) in Indonesia. The development also was driven by a surge in the price of fuel oil (BBM) in Indonesia which affected the numbers (Annual Report Bank Indonesia, 2006). Thus, in this period showed that Islamic banks are more stable than conventional banks.

[1] There was a natural disaster tsunami in Aceh, Sumatra Island in the end of year 2005 which has shaken Indonesian economy (Annual Report of Bank Indonesia, 2006).

Table 8. Cost Income Ratio of Islamic and Conventional banks in Period from 2005 - 2006

Variable	**2005**	**2006**
CIR (%)		
CB	89.50	86.98
IB	78.91	76.77

Source: Statistic Data of Bank Indonesia year 2005, 2006

The table above shows that CIR of Islamic banks was decreased 2.14 point from 78.91 in 2005 to 76.77 in 2006. As previous research, CIR has significantly impact negatively to z-score numbers. A lower value of CIR expressed a great efficiency. In 2006, Islamic banks more efficient rather than in 2005. Similarly, conventional banks have a lower CIR in 2006 rather than in 2005. It can be seen that the decreased of CIR amounted 2.52 from expressed a great efficiency. In 2006, Islamic banks more efficient rather than in 2005. Similarly, conventional banks have a lower CIR in 2006 rather than in 2005. It can be seen that the decreased of CIR amounted 2.52 from expressed a great efficiency. In 2006, Islamic banks more efficient than in 2005. Similarly, conventional banks have a lower CIR in 2006 than 2005. It can be seen that the decreased of CIR amounted 2.52 from 89.50 in 2008 to 86.98. The decreasing of CIR in Islamic and conventional banks in 2005-2006 indicated that significantly effected on z-score's value.

Table 9. Variables of Macroeconomics and Industry Specifics in Period from 2005-2006

Variable	**2005**	**2006**
Macroeconomics (%)		
INF (CPI)	17.1	6.6
GDP	5.7	5.5
industry specifics (%)		
SHARE IB	1.4	1.6
SHARE CB	82.5	85.0

Source: Annual Report of Bank Indonesia year 2005, 2006

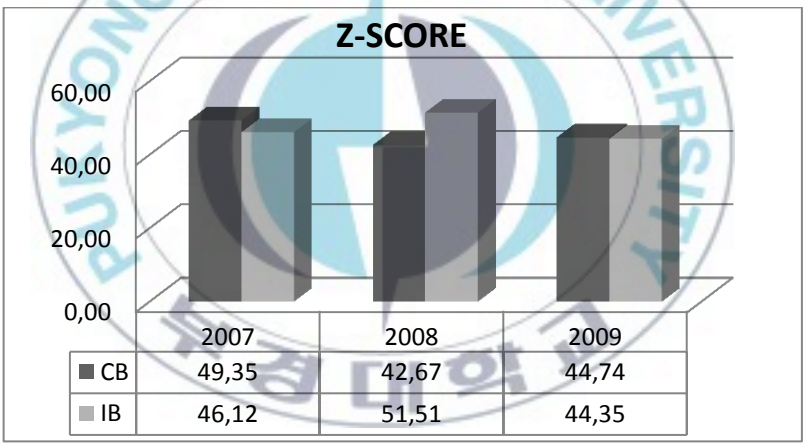
The indicators above showed that decreasing macroeconomic indicators (INF and GDP). Based on Rohaya & Hassan (2012), INF has a negative effect to z-score. If the value of INF high, then the z-score's value is lower and vice versa. In this period INF has decreased amounted 10.5, it makes the z-score of Islamic and conventional banks increased (see, figure.8). But in the value of GDP has insignificantly effected on this period. Because, increasing value of GDP makes increasing value of z-score (Sity Rohaya& Moh. Hassan). In this period GDP was decreased 0.2 while the z-score of Islamic and conventional banks were increased.

In this period, SHARE has an increased value in both banks. As a previous research the higher value of SHARE makes the z-score's value also higher. As we seen (Table. 9) that the value of SHARE whether from Islamic banks or conventional banks were getting higher in 2005 to

2006. Based on Bank Indonesia, SHARE is supported also with a statement of Bank Indonesia that enhancement of Islamic banks in market share does not affected the market share of conventional bank (Bank Indonesia, 2009).

4.1.3. Findings Statistics Z-score of Islamic and Conventional Banks in Period from 2007-2009

Figure.9. Z-score Conventional Bank and Islamic Bank in Period 2007-2009



Source: Statistic Data of Bank Indonesia, and author's calculation

In this period, there is a contrary of z-score movement between conventional banks and Islamic banks (Figure.9). The range of z-score's movement in this period revealed that the resistance of stability in crisis from both banking systems. The movement of Islamic bank's z-score showed the increasing of z-score up to 1.8 point during crisis where the z-score of conventional banks has slight decreased 0.25 point. Otherwise, in 2009 conventional bank's z-score increased 0.25 while Islamic decreased 0.91 point. Over all, in this period Islamic banks were decreased 1.7 point from 46.35 in 2007 to 44.35 in 2009 while conventional decreased amount 4.60 point from 49.35 in 2007 to 44.74 in 2009. It showed that Islamic banks have a higher resistance of stability during the crisis rather than conventional banks.

Table.10. Cost Income Ratio of Islamic and Conventional Banks in Period from 2007 - 2009

Variable	**2007**	**2008**	**2009**
CIR (%)			
CB	84.05	88.59	86.63
IB	76.54	103.65	89.70

Source: Statistic Data of Bank Indonesia year 2007, 2008, 2009

In Table 10, CIR gave inconsistently impact to Islamic banks' z-score. In contras with the CIR value of Islamic banks gave an opposite impact than before. CIR in 2008 showed a higher value while the value of Islamic banks increased 5.39 point. It means that even in the crisis Islamic bank more stable, Islamic banks also have a less efficiency. CIR value to z-score of conventional bank showed the same impact as before crisis. It can be seen from the higher value of CIR in 2008 while z-score of conventional banks also dropped down in 2008 (figure.9).

Table 11. Variables of Macroeconomics and Industry Specifics Ratios in Period 2007-2009

Variable	**2007**	**2008**	**2009**
Macroeconomics (%)			
INF (CPI)	6.59	11.06	2.78
GDP	6.3	6.1	4.6
Industry specifics (%)			
SHARE IB	2.0	2.5	2.61
SHARE CB	85.0	83.3	80

Source: Annual Report of Bank Indonesia year 2007, 2008, 2009

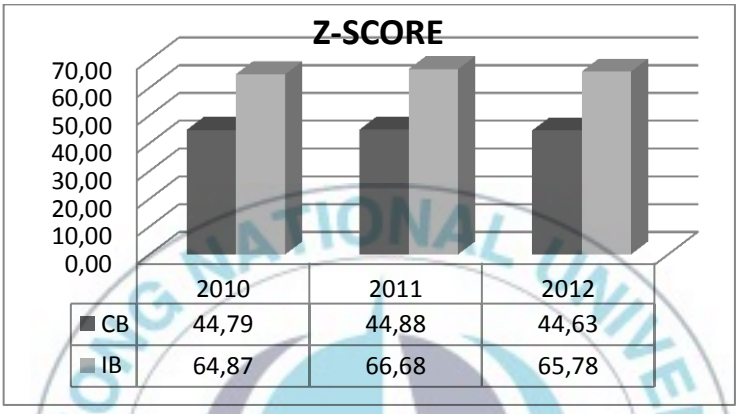
Based on annual report of Bank Indonesia, this is caused by economic turmoil affecting the export and world oil prices which led to inflation of CPI rising sharply approximately 10.4% in May 2008 (Table

11). Based on Siti Rohaya & Hassan, the high INF has been given a negative impact to z-score. This statement proved that in 2008 when INF increased sharply the z-score of conventional banks also decreased 0.09 point. This led increasing of bad loans. In 2008 until well into 2009 that was hit many business performance bank debtors who have difficulties to pay interest and their prime loan. The debtors defaulted and forcing banks to set aside reserves that drain of liquidity to the capital structure was threatened to sag. Interestingly, the z-score of Islamic banks have been increased. This findings confirms the statement of Bank Indonesia about Islamic bank that Islamic bank more resistance to crisis.

GDP in 2008 also did not give a significant impact to Islamic bank's z-score which has a higher value. Based on theory, a high GDP give a positive impact to z-score. In 2008 GDP dropped down amounted 0.2 point from 6.3 in 2007 to 6.1 in 2008. Different with conventional banks' z-score, it showed the decreased. For variable SHARE as previous period, it did not have any effect neither Islamic banks nor conventional bank's z-score.

4.1.4. Findings Statistic Z-score of Islamic Banks and Conventional in Period from 2010-2012

Figure.10. Z-score from Conventional Bank and Islamic Bank in period 2010-2012



Source: Statistic Data of Bank Indonesia, and author's calculation

In period of 2010-2012, conventional banks and Islamic banks have an increased and decreased value of z-score. Z-score of conventional banks were increased about 0.09 point from 44.79 in 2010 to 44.88 in 2011 (Figure. 10) and z-score of Islamic bank increased approximately 1.81 point from 4.27 in 2010 to 4.6 in 2011. There was slight decreasing of conventional banks' z-score 0.25 from 44.88 in 2011 to 2012 in and 0.9 in Islamic banks from 66.68 in 2011 to 65.78 in 2012.

Table.12. Cost Income Ratio of Islamic and Conventional Banks in Period from 2010-2012

Variable	**2010**	**2011**	**2012**
CIR(%)			
CB	86.14	85.42	74.10
IB	82.38	81.65	76.35

Source: Statistic Data of Bank Indonesia year 2010, 2011, and 2012

Slight decreased of CIR in 2011 proved the efficiency of both banking systems and followed by a better stability in 2011. It can be viewed with the point which dropped down about 0.25 in CIR of conventional banks and 0.73 for CIR of Islamic banks. This enhancement also because the condition of Indonesian banking performance was getting better in 2011 showed by ROA reached until 3.0%.

In 2012, CIR showed the contrast direction with z-score of conventional banks (Table.12). CIR should give an impact to higher z-score value, but the z-score's numbers were decreased. This is stated that in 2012 whether Islamic banks or conventional banks have a good efficiency better than in 2011.

Table. 13. Variable of Macroeconomics and Industry Specifics in Period 2010 - 2012

Variable	**2010**	**2011**	**2012**
Macroeconomics (%)			
INF (CPI)	6.96	3.8	4.3
GDP	6.1	6.5	6.2
Industry Specifics (%)			
SHARE IB	3.37	4.17	4.2
SHARE CB	79.5	83.00	94.2

Source: Annual Report of Bank Indonesia year 2010, 2011, 2012

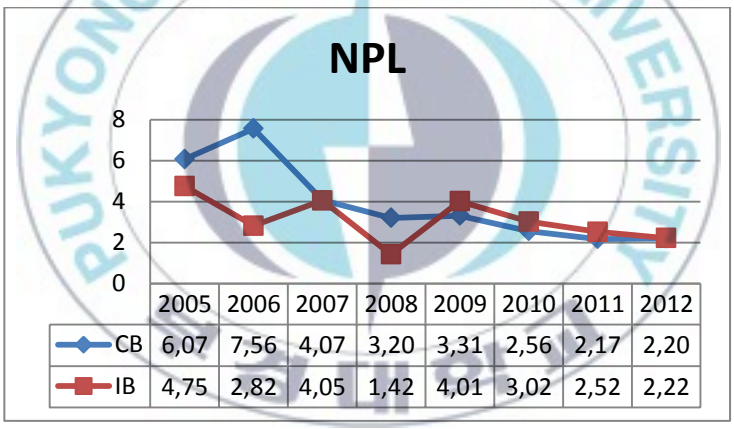
The low value of INF in this period showed the better economic condition in Indonesia after being hit by the global crisis 2008. This statement supported also with enhancement of GDP amount 3.4 from 6.1 in 2007 to 6.5 in 2011 which is the highest value of GDP in last ten years. SHARE in CB had increased quite high up to 3.5 point while SHARE of Islamic banks slightly increased only 0.8 point.

In this period, all of the variables above have a significant impact to z-score particularly to Islamic banks (Rohaya & Hassan, 2012) even though the z-score of conventional and Islamic banks were increased. The increasing of z-score number by both banking systems also caused by Bank Indonesia's policy which drop off the interest rate up to 6.5% in 2nd quarter in 2010 (Bank Indonesia, 2011).

In 2012 INF increased about 1.5 points and GDP decreased about 0.3 point. These causes of the slight decreased of z-score in Islamic and conventional banks in this year. The rising of SHARE in Islamic and conventional banks again was not affected to the movement of z-score.

4.2. The Statistic of Non-Performance Loan (NPL) of Islamic and Conventional Banks in Period from 2005-2012

Figure.11. Statistic Data of Non-Performing Loan (NPL) of Islamic and Conventional banks in Period from 2005-2012



	2005	2006	2007	2008	2009	2010	2011	2012
CB	6,07	7,56	4,07	3,20	3,31	2,56	2,17	2,20
IB	4,75	2,82	4,05	1,42	4,01	3,02	2,52	2,22

Source: Statistic Data of Bank Indonesia year 2005-2012

A higher level of non-performing loan values indicate a sign that a bank's currently facing a problem or in order words, bank were operating less profit and having a higher risk to default. In the early period showed that value of conventional banks' NPL higher than Islamic banks' NPL. But there was changed in 2009 which show that NPL of Islamic banks

higher than NPL of conventional banks amount 0.02 point.

In first period (before crisis year 2005-2006), NPL ratio which was showed that Islamic bank less risky than conventional banks. It can be seen that the value of NPL in 2006 for Islamic banks were getting lower than 2005 in 1.93 from 4.75 point in 2005 to 2.82. Different with conventional banks, NPL in 2006 were higher rather than in 2005. This is indicates that a conventional banks in this period have a higher probability to default.

In the second period (year 2007-2009) NPL of conventional banks still have a higher value rather than Islamic banks' NPL. And NPL of Islamic banks steady below conventional banks especially in crisis 2008 with a range amount 1.78 point. Even in the end of this period NPL of Islamic banks higher than conventional banks but overall in this period, conventional banks still have more risky rather than Islamic banks.

Finally, in the last period of this study (year 2010-2012) NPL value of Islamic banks were higher than conventional banks. Different with previous period, NPL of Islamic banks showed that Islamic banks have more risk than conventional banks. It can be seen that Islamic banks have a higher NPL 0.46 than conventional bank in 2010, and have higher value amounted 0.35. Until in 2012 Islamic banks have 0.02 higher than conventional banks. This period showed that Islamic banks have more probability to default than conventional banks.

Chapter 5:

Conclusion

Chapter 5

Conclusion

This research focuses on the comparison of Islamic banks and conventional bank's stability in Indonesia between the periods of 2005-2012 using methodology called z-score. Methodology of z-score is using profitability ratio ROA and CAR to represent equity of assets.

This study measures the stability of Islamic and conventional banks in Indonesia within three periods. First, to investigate the stability of Islamic and conventional banks before the crisis (2005-2006), second, to investigate the stability of Islamic and conventional banks in the crisis period (2007-2009), and last is to investigate the stability of Islamic and conventional banks after the peak of the crisis (2010-2012). The division of banks stability measurement using z-score is expected to give more information about z-score before, in, or after crisis in period 2005-2012.

Based on some previous researches, the value of z-score can be affected by some factors, and the most influential factor to both banking system is CIR (Cihak & Hesse, 2008; Rohaya & Hassan, 2012; Beck, Kunt, Merroouch, 2012). CIR has a negative impact to z-score.

In the first period, Islamic and conventional banks have high stability and low CIR. It means that both banking systems have a high

stability and high efficiency. But the numbers revealed that Islamic banks have higher stability and more efficient in the period of 2005-2006.

In the crisis, CIR has insignificant impact to z-score particularly in the year 2008. This express the Islamic banks in crisis are more stable but also less efficient compared with conventional banks. It proves some statement in previous research which revealed that Islamic banks are more stable than conventional in facing the crisis.

In the period of 2010-2012, the value of z-score for both banking systems increased especially in Islamic banks. This is because the efficiency in Islamic and conventional banks increased, represented by the decreased of CIR. It is also because Indonesian banking performance was getting better in 2011 proven by ROA reached 3.0% even there was a slight decrease in 2012.

Thus, for the variables of Macroeconomics and Industry Specifically Rohaya and Hassan revealed, all variables (INF, GDP, and SHARE) give an impact to z-score' value. Among those variables, INF is the most influential to z-score and SHARE is not clearly affecting the z-score.

The findings of the study can be concluded that Islamic banks are more stable than conventional banks. Overall, Islamic banks have proven results that they are more stable than conventional banks. The variables

that have been identified as a significant factor toward risk are knowingly affecting the stability of conventional banks particularly affecting Islamic banks' stability significantly. This result is similar with the study case result in Malaysia, which the variables of macroeconomics and banking industry (INF, SHARE and GDP) have more effect on Islamic banks' stability rather than conventional banks.

On the analysis of NPL, conventional banks have higher NPL than Islamic banks which indicate that conventional banks have higher risk (higher probability to default) comparing to Islamic banks. During 2005-2006, the trend shows that conventional banks are less resistant during crisis due to the higher NPL compared to Islamic banks. The same results also appears during the 2007-2008 crisis, which shows that conventional banks have higher NPL (higher probability to default) as compare to Islamic banks. Then in 2009-2011 Islamic banks have a slight increase of NPL that makes Islamic banks have a higher risk at that year. Overall, the findings proved that there were consistent results with the previous assumption.

Overall, the findings in this study show that Islamic banks are more stable than conventional banks. Particularly, during the crisis Islamic banks are more stable but less efficient than conventional banks.

There is limited documentation and research made under this study. First, this study provides only an initial empirical analysis of Islamic and

conventional banks' impact on financial stability using z-score in one country only which in this case is Indonesia. Therefore it is suggested for future research to study cross-country empirical analysis. Second, the development of Islamic banking is growing rapidly but financial data is quite inadequate. For further study, the available of observation data of Islamic banks is expected to be more complete.

GLOSSARY

CAR: Capital Adequacy Ratio. This ratio is used to protect depositors and promote the stability and efficiency of financial systems. Based on Bank Indonesia regulation, it can be calculated by:

$$CAR = \frac{\text{Capital}}{\text{Risk Weighted Assets}}$$

Herifindahl Index (HI): the most used measure of market concentration both in research focusing on the relationship between market structure and firm performance and, particularly, in the assessment of the competitive impacts of proposed mergers. It defined as the sum of squared market shares in term of total assets.

IDR/Rp: Indonesia currency called Rupiah.

Income Diversity: an indicator to measure differences in the structure of the banks' income can be measured by:

$$1 - \left| \frac{\text{Net interest income - Other operating income}}{\text{Total operating income}} \right|$$

Higher values of the variable correspond to a higher degree of diversification.

Inflation: The rate at which the general level of prices for goods and services is rising, and, subsequently, purchasing power is falling. Central

banks attempt to stop severe inflation, along with severe deflation, in an attempt to keep the excessive growth of prices to a minimum. This study is using inflation of CPI (Consumer Price Index) year-on-year (Rohaya & Hassan, 2012).

Market share (SHARE): market share of banks in Indonesia per year.

ROA: Return on Assets is an indicator for calculating z-score. Basically, ROA is the ratio of profitability in financing performance. Based on regulation of Bank Indonesia number 3/30/DPNP December 14th 2001, ROA can be calculated by:

$$ROA = \frac{\text{Profit before tax}}{\text{Total average Asset}}$$

Sharia Business Units (UUS): unit within a conventional bank that operators according to sharia law.

Takaful: product of insurance in Islamic bank.

Top drop below: the ability of ratios (ROA) to influence the movement whether increasing or decreasing of z-score value.

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