THE IMPACT OF CREDIT CRISIS ON THE PERFORMANCE OF COMMERCIAL BANKS IN MALAYSIA

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DECLARATION

We hereby to declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the reference to all sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

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CAMEL	Capital Adequacy, Asset Quality, Management, Earnings and Liquidity
CR	Current Ratio
DEA	Data Envelopment Analysis
DTE	Debt to Equity Ratio
Eviews	Electronic Views
FEM	Fixed Effect Model
FDI	Foreign Direct Investment
GDP	Annual Percentage Changes Gross Domestic Production
GMM	Generalized Method of Moments
IMF	International Monetary Fund
LR	Liquidity Ratio
NBBTZ	Net Profit before Tax and Zakat
NIM	Net Interest Margin
NPL	Non Performing Loans
OLS	Ordinary Least Square
POLS	Pooled Ordinary Least Square
ROA	Return on Asset
ROAA	Return on Average Asset
ROE	Return on Equity
ROAE	Return on Average Equity
SFA	Stochastic Frontier Analysis
SPSS	Statistical Package for the Social Sciences
TA	Total Asset
UAE	United Arab Emirates

US	United States
VIF	Variance Inflation Factor

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PREFACE

Overall, the Bachelor of Business Administration (HONS) Banking and Finance degree lies in the assessment of Final Year Project (FYP) or also known as the research methodology and project that requires graduating students to conduct a paper in the final year.

This paper is conducted under the title of "The Impacts of Credit Crisis on the Performance of Commercial Banks in Malaysia". It is to be accomplished within 30 weeks.

Banking activity has rooted itself in Malaysia for so long but there is only few researches that talks about the impacts of credit crisis on the performance of commercial banks in Malaysia. Therefore, this is the reason why we are conducting this paper, as it is essential to outline the impacts of credit crisis on the performance of commercial banks in Malaysia.

In the context of banking applications in this paper, students are expected to be able to enhance their knowledge in banking even more.

ABSTRACT

The purpose of this study is to investigate the impacts of credit crisis of 2008 on the banking industry in Malaysia context. In the meanwhile, this study also provides result of whether the variable such as the profitability, liquidity, leverage and bank size have significant effect on bank performance.

There are 8 commercial bank had been chosen in the study and the data abstract from the annual report of each bank from the period of 2006 until 2010. This paper uses the pooled Ordinary Least Square (POLS) method to determine the impact of ROA, ROE, current ratio, debt to equity ratio, bank size and credit crisis on the bank performance indicator which is net profit before tax and zakat.

The empirical results have found that the credit crisis of 2008 which originated in US has no impact to Malaysia banking industry. Moreover, the results also imply that the ROA, ROE, debt to equity ratio and bank size has significant effect on the bank performance which means that those variables are important for banker to maintain the bank performance.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This chapter of the study briefly explains and provides an overview of this study context. At the beginning of this chapter, it discusses the research background and explain narrow field of the research. In order to justify the statement of this paper, few previous researches were reviewed so that the result is justifiable.

In sub-section of this chapter, the outline of the fields and aims of the impact of credit crisis on bank performance in Malaysia are stated. Next sub-section will be discussing the question how the credit crisis bring impact on the bank performance and lastly will be determining the performance of bank after the financial crisis in 2008.

Following by the next section, there are five research questions related to this study are being set and will be answered by the end of this study. There are eight hypotheses being developed for this study which will tested whether there exist a relationship between bank performances and profitability, liquidity, leverage, size of bank and also crisis.

The importance and contribution of this study will be described and discussed. Thus, this study is to explore the influence of crisis toward its impact to the performance of bank in Malaysia. In 1.7, this section is an introduction each chapter on this study. In 1.8, this section conclude and summaries the whole chapter 1. Besides that, in the conclusion part of chapter 1 it also provides the linkage to chapter 2.

1.1 Research Background

According to Hidayat and Abduh (2012), the credit crisis 2008 that started in the U.S. in late 2007 has given a wide array of impacts to the operating and financial performance of many banks all over the world. The credit crisis cause many banks around the world reported financial loss on their financial report due to their connections with subprime mortgage in the U.S. While some of the banks' financial loss are affected by the economic recession in their own countries. Further, the crisis have forced around 123 banks in the U.S. to file for bankruptcy in the year, including American giant bank Lehman Brother that was never been expected to fail.

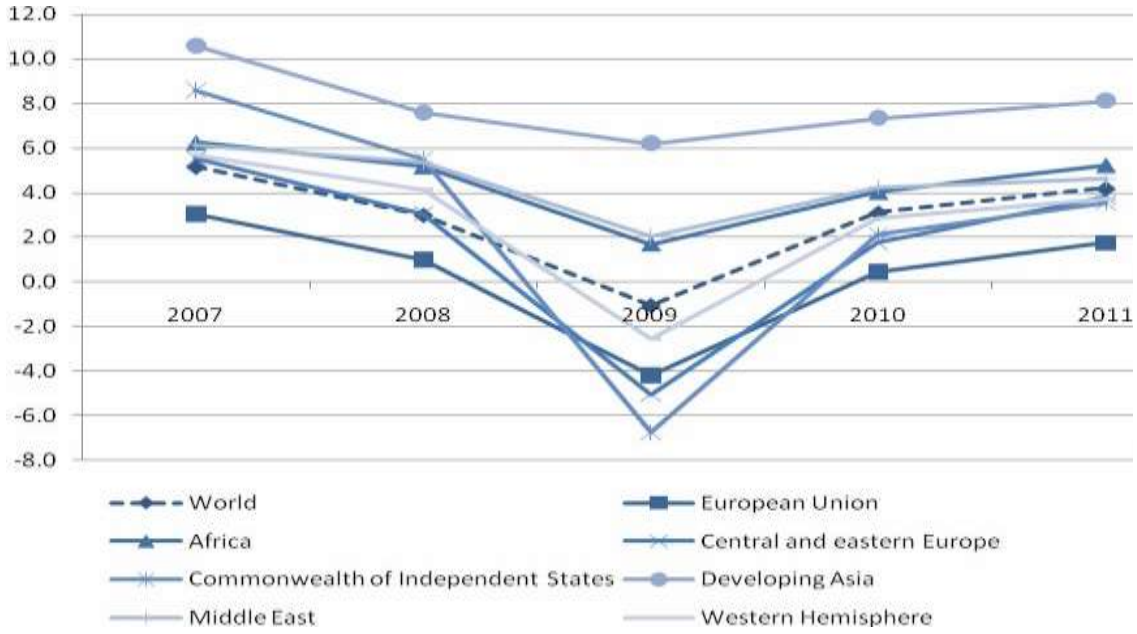
The subprime mortgage market in US started to show an increasing rate of mortgage defaults in the early 2006. Thus, those defaults lead to a decline in US housing price in late 2006. Most of the Americans watched as their primary source of wealth become increasingly depreciate. Then, the subprime mortgage markets in US were showing a higher default rates than normal by late in 2007. This caused huge losses in the mortgage-backed securities and many investment firms and bank started bleeding money.

The collapse of the housing market made Bear began facing very serious financial problems in June 2007. The firm announced its hedge funds that were significantly invested in subprime mortgages were making a huge loss. According to Shorter (2008), Bear Stearns which was the nations fifth largest investment banking institution had facing bankruptcy because has difficulty in raising short-term financing. This is due to firm had large exposure to devalued mortgage-backed securities so its customers begin to withdraw their money. Bear liquidity crisis had brought the intervention from the Federal Reserve which provides loan to Bear to stabilize the firm and avoid financial panic. This action is considered as short-term fix and at the same time, Bear was seeking buyer to purchase its high-leveraged firm. In the March 2008, the firm was sold to JP Morgan Chase with the assistance of Federal Reserve.

After the Bear Stearns case, the failure of Lehman Brothers Holdings which was the fourth largest investment institution in mid-September 2008 was also viewed as the culprit of the global financial crisis of 2007-2009. On September 14, 2008, Lehman filed into bankruptcy after the Federal Reserve refused to lend a helping hand in creating a financial support facility. With over $639 billion in assets and $613 billion in liabilities, the Lehman Brothers' bankruptcy was the largest in United States history. Its collapse cause the global financial markets fall into situation of panic and melt down the credit markets worldwide. Within days, Treasury Department as well as Federal Reserve injected trillions of dollars into the market to keep the financial system from collapsing.

Besides, the credit crisis had causes the stock markets around the world have fallen and those large financial institutions have crumbled or been bought out. Still, the governments in wealthy countries have to arise with rescue packages to bail out their financial systems. For example, in Iceland, the economy was very dependent on the finance sector, thus credit crisis have make them suffer. The banking system nearly collapsed and the Iceland's government had to borrow from other neighbours and IMF to rescue the economy. However, Iceland government fell due to the dissatisfaction of public on the way that the government managing the crisis.

Figure 1.1: Economic growth across the world, real GDP growth (annual % change)



Source: IMF World Economic Outlook Database October 2009.

The impact of the crisis on economies across the globe had shown through the real GDP growth. The Great Recession of 2008-2009 as the worst since 1930s. From the figure above, the impact of the credit crisis of 2008 on developing countries was not so severe as compared to others. The credit crisis brings impacts to the developing world as the high fuels costs, rises in food prices and commodity prices were worrying many developing country analysts.

According to African Union Commission (2009) bank failures have been rare in Africa, largely because most African banks do not have any significant exposure to the sub-prime mortgage market and asset-backed securities. However, they exposed to contagion effects arising from the high rate of foreign ownership of banks in several countries in the region. To the extent that foreign-owned banks reduce their support of local banks or sell their assets, it will have serious negative consequences for the financial sector in Africa.

Impact to Malaysia

The global financial crisis on 2008 which originated from US had brought significant effect on world economy. The economic openness of Malaysia to the global economy has turned Malaysia as one of a country that might get hit from this crisis, in financial or even real sector themselves.

Given Malaysia depend highly on exportation trade which contributed to high Gross Domestic Product (GDP) ratio, the reduction in external demand is the most serious factor pulling down the economy in Malaysia. The recession of the economy also leading to the contraction happened in Foreign Direct Investment (FDI) inflows. Malaysia's FDI inflow fell from RM23.4 billion in 2008 to RM4.43 billion in 2009 because of the financial crisis which also aroused a warning signal to the country for the first time in 15-years.

According to Goh and Lim (2010), the impact of the crisis in Malaysia banking system was relatively modest because domestic financial institution had less exposure to the US subprime loan products. With slowdown of economic activities, the overall loan application showing a declining trend. Although crisis trigger, Abidin and Rasiah (2009) found that the liquidity levels in the country remain high with low Non Performing Loans (NPLs), which have promise a considerable level of financial stability. There are prudent and conservative regulations designed to reduce NPLs after the 1997-98 crisis on investment banks and finance houses have been retained to good effect.

Based on a publish on July 2010 done by Wong and Kanesalingam, the recent 2008 global financial crisis not impacting Malaysia as severe as other markets like US. The China and India as an economic force to Malaysia also reduce the crisis impact on Malaysia since the investments had been diversified and were no longer primarily dependant only on the US economy.

Since Malaysia is a developing country, the credit crisis doubts in brought impacts to the Malaysia's financial performance and economy? Thus, this paper aimed at

investigating what are the impacts of the crisis on bank performance and how the Malaysia government handle the credit crisis.

1.2 Problem Statement

2008 global financial crisis has influence economic around the world. It has affected the economic cycle and cause Malaysian banking system entered into Asian Financial Crisis. Due to this financial crisis, most of financial institutions in Malaysia have been affected and are very likely facing insolvency.

Meanwhile, there are many researchers have done the research related to this issue in different country. They found the necessity to know about the impacts of the crisis on bank performance. Many countries were chosen as target to investigate the impacts of this financial crisis to their countries. However, there are few countries in South East Asia are being chosen for relevance study and none have chose Malaysia. Most of the researchers tend to focus their study on those European countries and United States.
According to Said and Tumin (2011), the banking sectors of United States and European had suffered huge losses due to the U.S. sub-prime mortgage crisis. In Asia, the losses in banking sectors are not as serious as United States, but it is also hurting the economy. Thus, this paper is to investigate impacts of the credit crisis on bank performance in Malaysia.

Dietrich and Wanzenried (2011) stated that the determinants of bank's profitability during and after the credit crisis of 2007 and 2008. The determinants of bank's profitability that they suggested include bank-specific characteristics as well as industry-specific and macroeconomic factors. They claimed that the determinants they taken into consideration have not yet been included in previous studies.

According to Said and Tumin (2011), previous studies suggested that bank profitability determinants vary across countries and also among regions of the world. Sufian and Habibullah (2010) found that the Asian financial crisis had brought

negative impact on Indonesian banking sector. There is a sharp decline in the domestic currency had damaging effects on the leading bank's balance sheets.

Besides, many researchers have tried to prove the relationship between the bank's profitability and economic downturn. According to Bolt et al. (2010), bank's total profits and its components such as net interest income, other income, and net provisioning plus other costs must be included while assessing the performance of a bank. They used both aggregate and individual bank panel datasets to confirm that pro-cyclicality of bank profits is the stronger for deep recessions than during mild ones.

According to Beltratti and Stulz (2012), their research focused on observing the reason why some bank perform better during the credit crisis by using stock return as measurement of bank performance. They investigated on variation on the bank balance sheet and income characteristics, regulation, bank-level governance, country-level governance and other macroeconomic variables against the bank performance.
Furthermore, this study used the data from annual reports of 8 commercial banks in Malaysia from year 2006 – 2010 to determine the impacts of the crisis on bank performance. Hence, this study want to determine whether the profitability of bank, liquidity of bank, leverage of bank and size of bank will influence the bank performance before, during and after the financial crisis.

1.3 Research Objective

The objective of this study is to determine the performance of bank after the financial crisis in 2008. This includes the study of possible impacts of financial crisis on commercial banks in Malaysia from different aspect. Relevant researches that had done by other researchers will be reviewed and used to justify the statement of this paper. This study will be using secondary data over a 5 year period from 2006 to 2010 to work out the research.

1.3.1 General Objective

The general objective of this study is to investigate the impact of crisis to the performance of bank. In this sub-section, variables that could bring effect to the profitability and performance of bank will be identified. This study will be examining the profitability of commercial banks in Malaysia. The useful information will be retrieved from the annual reports of all commercial banks in Malaysia to work out the financial ratios.

1.3.2 Specific Objective

The specific objective of this study is to identify which variables have significant to the performance of bank. Besides that, in order to examine the impact of crisis on bank, this study has used financial ratio which included profitability ratio, liquidity ratio, leverage ratio, bank size and some economic approaches to achieve the purpose of this study. The specific objectives are:

- To determine whether the profitability of bank will influence the performance of bank during credit crisis
- To determine whether the liquidity of bank will influence the performance of bank during credit crisis
- To determine whether the leverage of bank will influence the performance of bank during credit crisis
- To determine whether the size of bank will influence the performance of bank during credit crisis
- To determine whether the credit crisis will influence the performance of the bank

1.4 Research Questions

The research question of this study is to answer to question of:

- Is there a significant relationship between profitability of bank and performance of bank during credit crisis?
- Is there a significant relationship between liquidity of bank and performance of bank during credit crisis?
- Is there a significant relationship between leverage of bank and performance of bank during credit crisis?
- Is there a significant relationship between size of bank and performance of bank during credit crisis?
- Is there a significant relationship between the crisis and the performance of the bank?

1.5 Hypotheses of the Study

Profitability

H_0: There is no relationship between profitability and the performance of bank during credit crisis.

H_1: There is a relationship between profitability and the performance of bank during credit crisis.

Leverage

H_0: There is no relationship between leverage and the performance of bank during credit crisis.

H_1: There is a relationship between leverage and the performance of bank during credit crisis.

Liquidity

H_0: There is no relationship between liquidity and the performance of bank during credit crisis.

H_1: There is a relationship between liquidity and the performance of bank during credit crisis.

Size

H_0: There is no relationship between size and the performance of bank during credit crisis.

H_1: There is a relationship between size and the performance of bank during credit crisis.

Crisis

H_0: There is no relationship between credit crisis and the performance of bank.

H_1: There is a relationship between credit crisis and the performance of bank.

1.6 Significant of the Study

The purpose of this study is to explore how the financial crisis can create impact to the performance of bank in Malaysia. According to the researches that have done by other researchers, the financial crisis could bring a lot of effects to the commercial banks from different aspects. The most significant effect to the bank is the profitability of commercials banks in Malaysia had affected by the credit crisis in 2008.

According to Deesomsak, Paudyal and Pescetto (2004), research on Asian bank is important because they are the predominant source of finance for business in the Asian private sector. From the study, the performance of bank can act as guideline for banking user such as investors, borrowers, lenders and so on. It can provide useful information and investigate profitability of a bank due to the impact of crisis.

Besides, Hoffmann (2011) has conducted a research to examine the determinants of profitability of the U.S. banks during the period of 1995 to 2007. He found that there is a statistically significant negative relationship between the size of the bank and its profitability in the polled, fixed effect, and in the system estimator regressions. Further, a bank can always take advantage of the scale economies at a low asset size level, but these scale economies become exhausted as bank's size increases.

This study is to investigate the impacts of the credit crisis on the bank performance in Malaysia. It examines the relationship between the performance of commercial banks in Malaysia and the four variables chosen are profitability, leverage, liquidity and bank size. This study included the eight commercial banks in Malaysia which are Alliance Bank, Affin Bank, Am Bank, CIMB Bank, Hong Leong Bank, RHB Bank, Maybank and Public Bank. The data of this study are collected from the banks' annual reports during the period 2006 to 2010.

1.7 Chapter Layout

This study will follow by following chapter:

Chapter 1 is the introductory chapter with the description of research background and problem statement. Research objectives and research questions will be presented in this chapter as well as the hypotheses that this study is going to test This chapter also describes the significance of this research and end with the research chapter layout and conclusion.

Chapter 2 is the review of literature that related to the impact of financial crisis on banks' performance in Malaysia. These literatures have directly stimulated the researcher to study the impacts of financial crisis on the performance of Malaysia commercial banks.

Chapter 3 describes the methodology and data. It begins with how the research is carried out in terms of research design, source and process of data and ends with the explanation on the analysis of data.

Chapter 4 provides the results and a series analysis that conducted in this study. The data processing steps including descriptive analysis, scale measurement and inferential analyses.

Chapter 5 summaries and concludes all the research findings. By obtaining the research findings, the recommendations for future studies related to the impacts of financial crisis on Malaysia's commercial banks will be suggested and the limitation of this study will also be stated.

1.8 Conclusion

The purpose of this study is to identify the significance the independent variables which include ROA, ROE, current ratio, debt to equity ratio and size of bank that important to dependent variable which is net profit before tax and zakat in order to examine the impact of crisis on the performance of bank over a 5 period years from 2006 until 2010. This paper aimed at examining and answering how financial crisis in year 2008 affected the performance of eight commercial banks in Malaysia.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

In this study, a few researches in the banking field by other authors were chosen to make sure the results of this paper are justifiable. In this chapter, some relevant theories that related to the bank performance were discussed. The possible dependent variables are decided by studying the variables that chosen by the previous researchers as their studies. This study tends to elaborate and explain the impacts which caused by the financial crisis in 2008. According to previous studies, growths of a bank are critically influenced by performance of the bank. Thus, there are total of five main criteria are concluded by reviewing the previous researches which are the capital of bank, bank efficiency, the credit quality of bank, income diversification, bank liquidity and the bank size.

Relevant theoretical models that employed by the previous researcher have also been reviewed. There are few methods or approached that researched chose to carry out their researches and analyzed the data. The theoretical models which employed by most researchers are pooled ordinary least squares (OLS), fixed-effect model and so on. Finally, a theoretical model also known as conceptual framework has been chosen to carry out our research.

The hypotheses development was then carried out in order to investigate the existence of the relationship between the independent variables and the dependent variable that we have proposed. Last but not least, this chapter will be concluded in the next section.

2.1 Review of the Literature

The credit crisis in 2008 has affected most investors in North America, Europe, Australia and Asia. According to Crouhy, Jarrow, Turnbull. (2008), the investors bear the risk of write-offs of losses on securities linked to sub-prime mortgages. They have suggested banks have suffered an enormous liquidity problem; the losses of leading banks in U.S. have reached an unprecedented amount of US$300 billion during this credit. Many studies have tried to prove the impact of this crisis to the financial market. The research done by Meili (2008) was aimed to provide comprehensive information on sub-prime crisis and pointing out its impact on the financial market. Another paper done by Dietrich and Wanzenried (2011) has also stated the determinants of bank's profitability during and after the credit crisis of 2007 and 2008. The determinants of bank's profitability that they suggested include bank-specific characteristics as well as industry-specific and macroeconomic factors. They claimed that the determinants they taken into consideration have not yet been included in previous studies.

Many have tried to prove the relationship between the bank's profitability and economic downturn. According to Bolt, Haan, Hoeberichts, Oordt and Swank (2010), bank's total profits and its components such as net interest income, other income, and net provisioning plus other costs must be included while assessing the performance of a bank. They used both aggregate and individual bank panel datasets to confirm that pro-cyclicality of bank profits is the stronger for deep recessions than during mild ones. They found that each percent contraction of real GDP during recessions leads to a 0.24 percent decrease in return on bank assets.

The standard method in empirical bank studies estimates regression equations with pooled ordinary least squares (OLS), which assumes that the omitted variables are independent of the regressors and are independently, identically distributed. Jeon and Miller (2004) who used the pooled OLS is found to produce biased and inconsistent estimate. However, by using panel data, the fixed-effect model can produce unbiased and consistent estimates of the coefficient. From Ari Aisen and Franken (2010) study,

they estimated the cross-country models in order to examine the main macroeconomic, structural and banking determinants of bank credit growth post Lehman Brothers bankruptcy.

Soteriou and Zenios (1997) have developed a general framework for combining strategic benchmarking with efficiency benchmarking of the services offered by banks. Data Envelopment Analysis (DEA) was implemented to developing the framework in the practical setting of a bank's branches: an operational efficiency mode, a quality efficiency mode and a profitability efficiency mode. They have found some relationship between operational efficiency and profitability, and between operational efficiency and service quality.

Hoffmann (2011) has conducted a research to examine the determinants of profitability of the U.S. banks during the period of 1995 to 2007. He combines bank specific and macroeconomic variables through GMM system estimator. Hamid and Azmi (2011) had done a research on the performance of bank Islam during 2000 until 2009 by abstracting the data from the income statements and the balance sheets from the annual reports. Regression analysis on the profitability ratios, liquidity ratios, risk and solvency ratios and commitment to economy and Muslim community had been done to measure the performance of the banks.

2.1.1 Bank Performance

From the researches that had done before, it proved that financial crisis had brought impacts on the performance of banks. A study had done by Jeon and Miller (2004) to examine the performance of nationwide banks in Korea before and immediately after the financial crisis in 1997. It studied how the profitability of banks being affected and identified the factors which affected the profitability of the banks. From the study, there was sharp decline of the performance in Korean nationwide banks after the financial crisis. In the study of Said and Tumin (2011), which aims to examine the contributions of the

profitability determinants to the performance of Malaysia and China commercial banks, they found both internal determinant and external determinant which affected the bank performance on profitability. The internal determinants include liquidity risk, credit risk, capital and size of the bank whereas the external determinants include inflation, GDP growth and interest rates.

Said and Tumin (2011) also suggested that the main causes of collapse of U.S. economy is because of the poor lending policies and decisions made by U.S. banks such as Citibank, Well Fargo and others. They also stated that the crisis has caused some important corporate borrower turn to default on their loans to the banks. In the case, banks faced serious credit risk when most of their creditors turn default they suffered from severe losses. If the banks failed, central bank intervene to assist in finding merger partners or to take over the failed banks itself. Jeon and Miller (2004) suggested that the financial crisis affected the banks' return on assets and equity dramatically. Besides that, banks exposed to foreign exchange risk due to the holding of foreign-currency loans and foreign-currency deposits. Since the exchange rate is fluctuated during financial crisis, if the foreign-currency loans more than deposits and the currency had weakening, it would increase the foreign-currency loans more than deposits and this would lead to serious losses to the bank.

A study to examine the determinants of the 372 Switzerland's commercial bank profitability before and during the crisis from 1999 until 2009 had been done by Dietrich and Wanzenried (2011) using dynamic model. The bank profitability was measured by the return on average assets (ROAA), return on average equity (ROAE) and net interest margin (NIM). Result shows that there is large difference in the profitability among the banks and the variation can be explained by the factors of operational efficiency, growth of total loans, funding cost and business model that included in the model.

Another research done by Kumbirai and Webb (2010) has showed the performance of commercial banking sector for the period 2005- 2009. They employed financial ratios to measure the profitability, liquidity and credit quality performance of commercial banks. Their study found that overall bank performance increased considerably in the first two years of the analysis. A significant change in trend is noticed at the onset of the global subprime crisis in 2007, reaching its peak during 2008- 2009. They found significant differences in profitability performance for the period 2005-2006 and the period 2008- 2009. The result indicates that profitability deteriorated during the later period.

2.1.2 Bank Capital

The issues regarding the bank capital have been raised since the financial crisis seems to be highly related to the sufficient capital of a bank. The awareness of bank capital sufficiency must be taken into consideration because various studies have proved how capital could affect the bank performances. Existing literature claimed that the effect of capital on bank performance during normal times and have little to say about the effect during financial crises. The research done by Berger and Bouwman (2011) has addressed these issues empirically by formulating and testing hypotheses regarding the effect of capital on three dimensions of bank performance. The three dimensions include survival, market share, and profitability during financial crises and normal times.

After a series of testing, Berger and Bouwman (2011) have stated that capital do helps banks of all sizes during banking crisis. They suggested that higher capital helps these banks increase their profitability of survival, market share, and profitability during such crises. Furthermore, higher capital improves the performance of small banks in all three dimensions during market crises and normal times as well but the effect on medium and large banks during these

periods is less pronounced. They tested their survival hypotheses using logit regressions. The regressed the log odds ratio of the profitability of survival on the bank's pre-crisis capital ratio interacted with banking crisis dummy, a market crisis dummy , and a normal times dummy, plus a set of control variables.

According to Calomiris and Kahn (1991), banking crises are those that originated in the banking sector, and market crises are those that originated outside banking in the financial market. The interaction terms capture the effect of capital in survival during banking crises, market crises, and normal times, respectively. Beltratti and Stulz (2012) who perform research to find out reason why some bank perform better during credit crisis stated that large bank with more Tier 1 capital, more deposits, less exposure to US real estate and less funding fragility are likely to perform better.

According to Dietrich and Wanzenried (2011), the capital ratio which is defined as equity over total assets, does not have significant impact on the bank profitability before the crisis. The result showed that there is negative and significant effect on the bank profitability during the financial crisis of 2007 until 2009. Further by Sufian and Habilbulah (2010) study found that the level of capitalisation is positively related to the bank profitability in Indonesia context. Well-capitalized banks face fewer difficulties in funding because strong capital structure provides additional strength to withstand during financial crisis and maintain the depositors' confidence during unstable macroeconomic conditions.

2.1.3 Bank Efficiency

Dietrich and Wanzenried (2011) stated that the operational efficiency which defined as cost-to-income ratio recorded negative and highly significant impact on the bank profitability for all of the time period. Controls of the cost

such as the administrative costs, staff salaries and property costs over the total generate revenues are crucial to bank efficiency. The more efficient a bank is the higher is its profitability.

Sufian and Habilbulah (2010) had proved that there is negative relationship between the overhead costs and the bank profitability. Increase in the expenses will reduce the profits of the bank that operating in Indonesia. According to Hays, Lurgio and Gilbert (2009), the efficiency ratio is calculated by dividing overhead expenses by the sum of net interest income and non-interest or fee income. It is a measure of how effective a bank is in using overhead expense including salaries and benefits costs and occupancy expenses as well as other operating expenses in generating revenues. Other things being equal, a decrease in the efficiency ratio is viewed as a positive while a rising efficiency ratio is generally undesirable. They suggested the efficiency ratio can rise temporarily when a bank expands facilities.

Viverita and Ariff (2011) have revealed that efficiency performance of a bank is better presented when using data envelopment analysis and stochastic frontier analysis known as SFA. They determined factors affecting cost inefficiency and profit efficiency performance. Banks' cost inefficiency is found to be higher than profit efficiency in the existing literature. In their study, they stated Indonesian banks are about twice as inefficient as banks in developed countries in the overuse of inputs, thus there is huge challenge for management to improve efficiency. After a series of testing for sources of bank efficiency via SFA, Viverita and Ariff (2011) have concluded that there exists a negative relationship between the bank size, non-performing loans or credit risk and cost and profit efficiency.

Heskett, Jones, Loveman, Sasser and Schlesinger (1994) measured a positive effect of the operational efficiency on the return on investment. They clarified the role of operational efficiency in a financial institution. Their arguments are as follows: (i) profit and growth are stimulated primarily by customer loyalty; (ii) loyalty is a direct result of customer satisfaction; (iii) satisfaction is largely

influenced by the value of services provided to customers; (v) value is created by satisfied, loyal and productive employees; (vi) employee satisfaction result primarily from high-quality support services and policies that enable employees to deliver results to customer. The arguments have indicated the efficiency in operating an organization can directly influence its performance or profitability.

Banks in most bank groups are sensitive in varying degrees to credit, interest rate, and term-structure shocks. Large and more diversified banks seem to be less sensitive to interest-rate and term-structure shocks, but more sensitive to credit shocks. Hanweck and Ryu (2005) have investigated the impact of net interest margin on the banks' performance. They suggested that the sensitivity of net interest margins to interest-rate volatility for different groups of banks varies across subsample periods; this varying sensitivity could reflect interest-rate regime shifts as well as the degree of hedging activities and market competition. They reported that banks of all specializations tend to try to offset adverse changes in net interest margins so as to mute their effect on reported after-tax earnings.

Kumbirai and Webb (2010) stated that increasing in bank operating costs and reduced incomes amid the global financial crisis. Besides, corporate and private clients find it hard to service their debt during such recessionary times, while the level of the provision for loan losses and bad debts increased.

2.1.4 Credit Quality

A loan loss provision is a charge to commercial banks' profit and loss statements that creates a reserve on their balance sheets. In other words, it can be viewed as cushioning mechanisms which may ensure that bank do not unexpectedly lose their entire outstanding loan balances. One of the previous studies investigated the process of loan loss provisioning within the

commercial banking system was done by Craigwell and Elliott (2011). They stated that the need for closer control and supervision on lending institution is one of the major consequences pertaining to the financial crisis of 2007. They suggested that loan loss provisions are heavily dependent upon the performance of the real economy and competition in international markets is shown to have serious implications for the banking sector n both short and long run.

The research of Craigwell and Elliott (2011) proposed that commercial banks are using loan loss provisions to smooth income in the short run. It indicates that as income falls, profits will decline, and tax revenue, will follow suit. They suggested that banks must hold enough reserves to lessen the impact of adverse shocks to the economy. Based on economic principles, loan loss reserves should not be added back as capital because they are accrued loan losses. However, Ng and Roychowdhuryb (2011) found that bank failure risk during 2008-2010 is associated negatively with Tier 1 capital, but positively with Tier 2 capital. Tier 2 capital is more highly associated with failure risk when banks report unusually large increase in loan loss reserves. They identify the extent to which abnormal loan loss increase are likely to reflect upward capital management incentives. In other words, Tier 2 capital does not necessarily provide a buffer against the risk of failure during times of economic crises and is in fact associated with higher failure risk, in contrast to conventional notions of capital.

According to Dietrich and Wanzenried (2011), the credit quality which is defined as loan loss provisions relative to total loans ratio do not have significant on the bank profitability before the crisis but recorded negative and significant effect during the crisis. The yearly growth of deposits has a significant and negative impact on the bank profitability and the effect mainly driven by the crisis year. This is because the increasing deposits are not able to generate the higher earnings in Switzerland bank. Also, faster growing loan volume had increase the risk and lower down the credit quality.

The health of the local financial sector can influence investment activity and regional economic growth by affecting a region's ability to fund local projects. According to Samolyk. (1992), the health of the local financial sector can be defined in term of the credit quality of local banks and nonbank borrowers. The paper suggests that information costs may cause the relationship between local financial condition and economic growth to be different in financially unhealthy versus healthy regions. In financially distress regions, local banks credit problems may constrain economic activity, whereas no such link need be evident in region with sounder bank balance sheet.

Credit view also emphasizes the importance of banks in identifying, evaluating, and funding information-intensive investment projects. However, Samolyk. (1992) stated that the ability of a bank to supply credit depends on its capacity to raise funds. Therefore, the capacity of a bank is affected by an institution's financial strength, as measured by its equity capital and the credit quality of its loan portfolio.

2.1.5 Income Diversification

Wheelock and Wilson (1995) stated that the federal regulators evaluate banks on five criteria: capital adequacy, asset quality, management, earnings and liquidity (CAMEL). They identified a number of characteristics significantly affecting the likelihood that a bank will disappear because of failure and acquisition. Not surprisingly, we find that highly leveraged banks, banks with low earnings, low liquidity, or risky asset portfolios are more likely to fail than other banks. Holding other factors constant, they found that banks located in states that permits branching are less likely to fail, indicating perhaps the benefits of income diversification.

Based on Gamra and Plihon (2011) research, shaped by structural forces of change, banking in emerging markets has recently experienced a decline in its

traditional activities, leading banks to diversify into new business strategies. They examine whether the observed shift into non-interest based activities improves financial performance. By assessing 714 banks across 14 East-Asian and Latin-American countries over post 1997-crisis changing structure, they found that diversification gains are more than offset by the cost of increased exposure to the non-interest income, specially by the trading income volatility. However, this diversification performance's effect is found to be no linear with risk, and significantly not uniform among bank and across business lines. In other words, banking institution can reap diversification benefits as long as they well studied it depending on their specific characteristics, competence and risk levels, and as they choose the right niche.

According to Gamra and Plihon (2011), issues regarding diversification of sources of banks income improve the resilience of banks during the period of distress. They analyze the impact of income diversification on the performance of Italian banks during the recent financial crisis. Throughout the research, they were able to show that institutions were diversified before the crisis experienced the largest decline in the performance during the financial crisis. This result applies to both diversification within broad activity classes and diversification between activity classes such as lending and capital market activities. Therefore, support recent supervisory calls to refocus the scope of banking services on lending based activities.

According to Sufian and Habibullah (2010), the income diversification which defined as net interest income over total asset is positively related to the bank profitability. This was agreed by Jin and Lobo (2011) who also found that the loan diversification (defined as loan mix) is statistically significant in influencing the performance of a bank. The probability of bank failure is highly depending on the source of income in the recent crisis.

2.1.6 Bank Liquidity

Based on the research done by Hamid and Azmi (2011), the measure the performance of the bank based on the criteria such as profitability, liquidity, risk and solvency and community involvement of the bank. In terms of liquidity, instead of four ratios they were using, there are two which included cash deposit ratio and current ratio are significant in indicating the performance of the bank. Afonso,Kovner and Schoar (2011) examine the importance of the liquidity holding and counterparty risk in the US overnight interbank market during financial crisis of 2008 found that there is no evidence shown that riskier lenders were not likely to hoard liquidity at the height of the crisis. The worse performing bank during credit crisis do not hoard liquidity.

Adebayo, David and Samuel (2011) come out with conclusion stated that commercial banks should not compromise efficient and effective liquidity management. They are expected to maintain optimal liquidity level in order to satisfy their financial obligations to customers or depositors and maximize profits for the shareholders. They concluded that liquidity is inversely related to profitability. That means as liquidity increases, profitability decreases and vice versa. This was agreed by Ariffin's (2012) findings which show that the relationship between liquidity risk and financial performance is not always predicted by the conventional financial theory of "high risk-high return" .

The studies of Qin and Pastory (2012) come out with the analysis indicated that the liquidity level for the commercial banks is not uniform as change over years. The trend demonstrates that the performance of commercial banks was strong and this gives a reasonable assurance of the economic stability. The hypothesis tested was on the significant differences in liquidity positions for In other words, the liquidity of a commercial bank is not significant in determining a bank performance.

According to Shen, Chen, Kao and Yeh (2009), liquidity risk may lower bank profitability which measured using return on average assets (ROA) and return on average equities (ROE). Liquidity risk is negatively related to bank performance in market-based financial system while it has no effect on bank performance in bank-based financial system. Bank-based financial systems have greater reliance on bank finance. Banks play a leading role in mobilizing savings, allocating capital, overseeing the investment decisions of corporate managers and providing risk management. For market-based financial, it has greater reliance on stock market finance and securities markets in terms of getting society's savings to firms, exerting corporate control, and easing risk management.

2.1.7 Bank Size

Dietrich and Wanzenried (2011) treated the bank size as dummy variable and they found that the larger and smaller commercial banks were more profitable than medium-sized banks before the crisis. However, large bank in Switzerland were less profitable compared to small and medium-sized bank during the past three year of the financial crisis. The negative relationship exists between the bank size and the bank profitability is because the large banks have relatively higher loan loss provision but lower net interest margin than smaller bank. This was agreed by the earlier study by Sufian and Habilbulah (2010) who found the negative coefficient between the bank size and the profitability.

Hoffmann (2011) found that there is a statistically significant negative relationship between the size of the bank and its profitability in the polled, fixed effect, and in the system estimator regressions. In other words, a bank can always take advantage of the scale economies at a low asset size level, but these scale economies become exhausted as bank's size increases. His results are justifiable when referring to the research by Berger and Humphrey (1997).

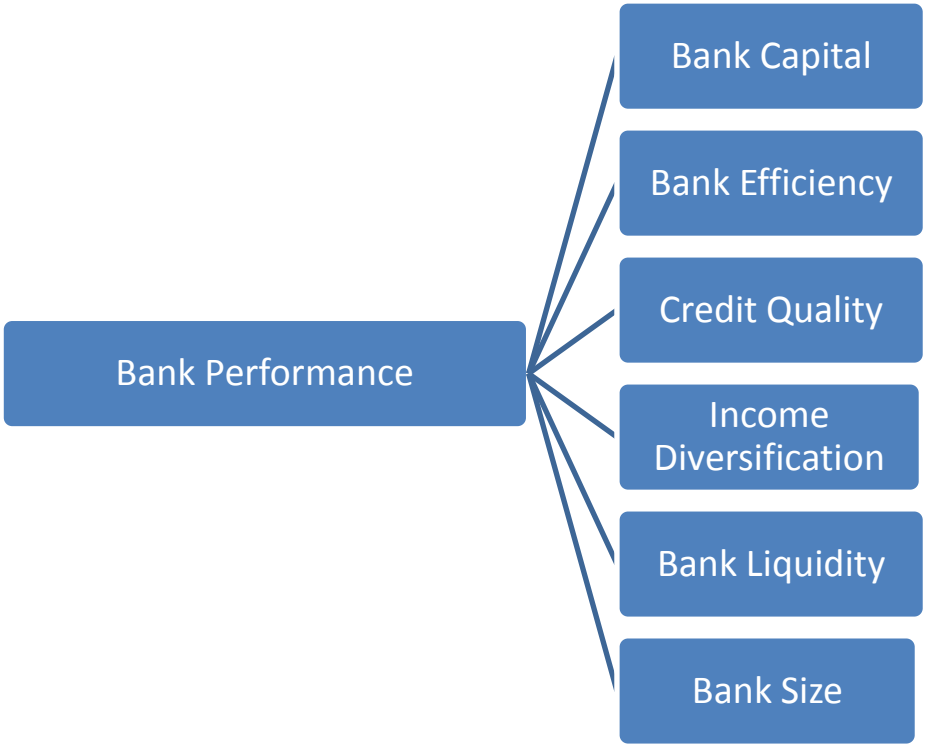
They suggested the bank's profitability is more likely to improve by emulating best practices in the banking industry, for instance, applying a new technology - than by increasing the size per se.

However, the research done by Goddard, Molyneux and Wilson (2004) has claimed that a bank size can affect the profit positively through several channels due to the facts that banks with higher assets benefits from economies of scale and also larger banks may benefits from their market powers generating abnormal profits. Generally, the effect of a growing bank size on profitability has been proved to be positive to a certain extent, yet, for banks that become extremely large, this could trim turn into negative due to bureaucratic and inflexible operations.

According to Beltratti and Stulz (2012), they found that there is evidence shown that size of the bank is negatively related to the bank performance during credit crisis. In other word, the banks which rewarded with the large stock returns in 2006 are the banks which suffered the largest losses during the credit crisis.

2.2 Review of Relevant Theoretical Models

Figure 2.1: Independent variables to measure bank performance



From the previous studies, the bank capital, bank efficiency, credit quality, income diversification, bank liquidity and bank size will affect the performance of bank. Berger and Bouwman (2011), Calomiris and Kahn (1991), Dietrich and Wanzenried (2011) and Sufian and Habilbulah (2010) has proved that there is relationship between the bank capital and the bank performance.

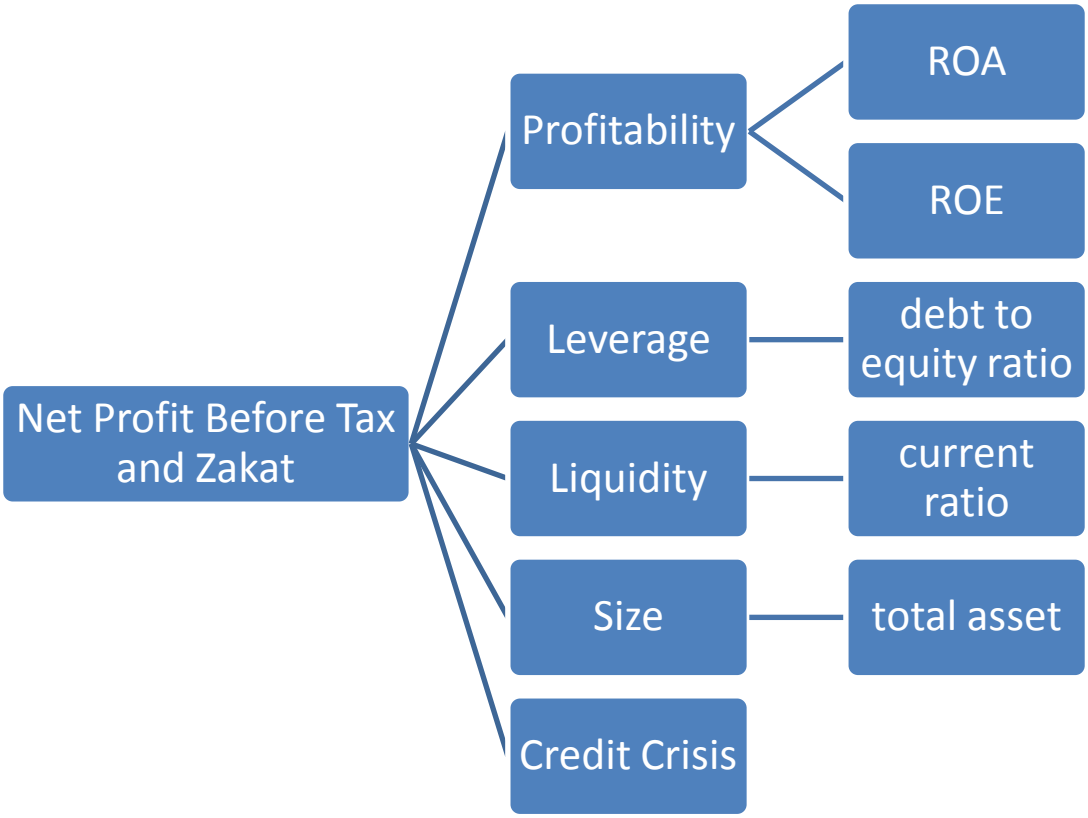
Furthermore, the bank performance will be affected by the efficiency of a bank which has proved by Dietrich and Wanzenried (2011), Sufian and Habilbulah (2010), Hays et al. (2009) and others. There are researchers which included Craigwell and Elliot (2011), Ng and Roychowdhuryb (2011) and Samolyk (1992) found that the credit quality of a bank is important to determine whether the bank perform well or not.

Gamra and Plihon (2011) suggest that the portion of income diversification which categories the source of income to the bank in interest and non-interest income will

influence the performance of a bank. The bank liquidity was proved to have impact on the bank performance by Hamid and Azmi (2011) and Adebayo et al. (2011). Then, the bank size which is has significant impact on the bank performance had been proved by Hoffman (2011), Berger and Humphrey (1997) and Goddard et al. (2004).

2.3 Proposed Theoretical / Conceptual Framework

Figure 2.2: Conceptual framework of study



After reviewing previous studies of different researchers, the conceptual framework was then formed and the dependent variable as the net profit before tax and zakat were chosen which can represent the bank performance.

Meanwhile, some ratios were picked up in this study which included the Return on Asset (ROA) and Return on Equity (ROE) which categories under profitability,

current ratio which categories under liquidity, debt to equity ratio which categories under leverage and bank size which represents by the total asset and the existence of credit crisis as the determinants of studies.

2.4 Hypotheses Development

In this section, existing literature has been reviewed to formulate hypothesis about the effects of the bank profitability, liquidity, leverage and size on the performance of the bank during the financial crisis of 2008 and normal time.

Profitability

H_0: There is no relationship between profitability and the performance of bank during credit crisis.

H_1: There is relationship between profitability and the performance of bank during credit crisis.

The relationship between bank's profitability and the performance of bank was tested by Dietrich and Wanzenried (2011) by using dynamic model. They measure Switzerland's commercial bank profitability by return on average assets and return on average equity. They found that difference in bank profitability among banks can be explained by the factors of operational efficiency. Furthermore, Kumbirai and Webb (2010) have also proved significant differences in profitability performance for the period 2005-2006 and the period of 2008-2009.

Leverage

H_0: There is no relationship between leverage and the performance of bank during credit crisis.

H_1: There is relationship between leverage and the performance of bank during credit crisis.

According to Wheelock and Wilson (1995), banks located in states that permit branching are less likely to fail, indicating perhaps the benefits of income diversification. They managed to identify a number of characteristics significantly affecting the likelihood that a bank will fail which are highly leveraged banks, banks with low earnings, low liquidity, or risk asset portfolios.

Liquidity

H_0: There is no relationship between liquidity and the performance of bank during credit crisis.

H_1: There is relationship between liquidity and the performance of bank during credit crisis.

The mortgage lenders tend to shift the related risk to the third party investors through securitized products. Meili (2008), stated that the interbank market could eventually lost the ability to withstand the enormous liquidity pressure and therefore create huge impact to the bank's performances. In the meantime, banks are reluctant to help each other due to widespread dispersion of credit risk.

Size

H_0: There is no relationship between size and the performance of bank during credit crisis.

H_1: There is relationship between size and the performance of bank during credit crisis.

Dietrich and Wanzenried (2011) stated that the larger or smaller commercial banks were more profitable than medium sized banks before the crisis. However, they found that large bank in Switzerland were less profitable compares to small and medium-sized bank during the past three year of the financial crisis. They suggest the negative relationship exist between the bank size and the bank profitability due to higher loan loss provision but lower net interest margin than smaller banks.

Crisis

H_0: There is no relationship between credit crisis and the performance of bank.

H_1: There is a relationship between credit crisis and the performance of bank.

In assessing the performance of the Islamic bank through the ROE, Ariffin (2012) suggests that there is a general decline in the ROE which treated as dependent variable of the Islamic banks from 2006 to 2008, indicating that the crisis has an adverse effect on the Islamic banks' profitability. This means that when there is crisis happen, the bank profitability will reduce.

2.5 Conclusion

In conclusion, the dependent variable that this paper suggests is the performance of bank and the independent variables which are highly correlated with the performance of bank are capital, bank efficiency, credit quality, income diversification, bank liquidity and bank size after reviewing the existing literature. There are researchers who done research and study about the bank performance before and after the financial crisis happen. There is study about the performance of banks in Korea from Jeon and Miller (2004), Malaysia and China banks from Said and Tumin (2011), Switzerland bank from Dietrich and Wanzenried (2011), Indonesian bank from Sufian and Habilbulah (2010).

Those researchers have used different methods to collect data to conduct their research. After review the previous studies that has been done, the next section discusses the sample selection which covered the data that chosen and the methodology that applied to continue the research.

CHAPTER 3 : METHODOLOGY

3.0 Introduction

This study aimed at investigating the determinants of bank performances during a crisis. This chapter describes the methods that this study applied in collecting information and the data for the purpose of research study. According to McIntyre (2005), methodology can be defined as the theory or study of how research ought to be done. Thus, this section aimed at defining the research design by specifies type of research that has been used. Therefore, the data collection method that employed by this paper will be then discussed in the following sub-section as well as deciding the research method for this study. Additionally, this chapter will have a further explanations on the sampling design which defining the target population and specify the sampling size. Last but not least, this chapter also equipped with the explanation of data processing and data analysis that used to evaluate the impact of crisis on the performance of bank.

3.1 Research Design

This study used quantitative research to examine the performance of bank among local commercial banks. According to McIntyre (2005), quantitative research defined as a research strategic that gather data which can be expressed in numbers and generally, the research that seeks the test of particular hypotheses. Accounting approach and econometric approach are the methods that used to conduct this study. Financial ratios are one of the accounting approaches that always apply to determine the profitability of bank. Those financial ratios commonly used includes profitability ratio, liquidity ratio, and leverage ratio and bank size. Furthermore, the econometric

approaches which including regression analysis, descriptive analysis were also commonly used in the literature.

There are several types of research design, such as exploratory, descriptive, casual, historical and others. In this study, casual design has been chosen for the purpose of research. Casual design usually used to measure the impact or causes that brought when there are changes in the event. Therefore, casual design is used in this study in order to test the casual effect between dependent variable (net profit before tax & zakat) and independent variable (profitability ratio, liquidity ratio, and leverage ratio and bank size).

3.2 Data Collection Method

Data is the most essential information for a study. Therefore data collection plays an important role in a research. This is because accuracy of result or information depends on the precision of the data. Researchers will always have to interpret the results or information based on the data that collected for the analysis purpose. Data can be expressed in term of words, numbers, figures or diagrams.

Furthermore, data can be divided into two categories which are primary data and secondary data. Different type of data required different type of collection method. Primary data is the first-hand-data also known as information which has not been published. The method of collection of primary data includes surveying, experiment, testing or observations. Some of the researchers preferred to use primary data due to its validity. Primary data is more credibility compare to secondary data because of its process of conducting is based on the target population.

On the other hand, data that has been published or available to public known as secondary data. Secondary data can be gathered from books, journals, newspapers, electronic sources such as website, e-journals and etc. By comparing secondary data to primary data, secondary data is less costly and more efficient because it only

gathers the information that is available from the previous analysis by other researchers.

This study is employed secondary data in order to evaluate the bank's performance among local commercial banks in Malaysia. Kulathunga and Rehman (2011) had used secondary data to investigate the importance of critical market for the bank soundness in Europe. Besides, Sufian and Habibullah (2010) collected financial statement from Bankscope database of Bureau van Dijik's company in order to examine the impact of financial crisis on bank performance in Indonesia.

3.2.1 Secondary data

Secondary data can be defined as the collection of data which is previous published or available to public. It is the most essential information for the research purpose in order to answer the problem statement of the analysis. The data that used in this study is secondary data which compile on the performance indicator of eight local commercial banks in Malaysia, consisting 40 observations over a five years period from 2006 to 2010. The data for each bank directly collected from published reports, financial statements, bank websites and database of Bank Negara. Those data are used to evaluate the performance of local commercial banks by using financial ratio analysis and test the hypotheses between each other.

3.3 Sampling Design

Sampling design is the design or plans that specific target population or sample size for the purpose of sampling in order to determine the characteristic of the sample.

3.3.1 Target Population

Due to the Eon bank had merged with Hong Leong Bank, therefore sample data in this study were only targeted on the rest of the local commercial banks in Malaysia. Those local commercial banks were included Affin Bank, Alliance Bank, AM Bank, CIMB Bank, Maybank, RHB Bank, Hong Leong Bank and Public Bank. In order to conduct the investigation of the impact of crisis on the performance of bank, sample data were split into three time periods: the period of year 2006, the pre-crisis period; year 2007 and year 2008, the crisis-period; from year 2009 to 2010, after the crisis period.

3.3.2 Sampling Technique

The collected data are used to calculate financial ratios including profitability ratio, liquidity ratio, efficiency ratio, and leverage ratio in order to compare the performance of bank during the selected periods. In this study, Electronic Views (Eviews) software has been employed as the sampling technique to analyze the data by running some regression analysis such as multicollinearity. Besides, correlation between dependent variable and independent variables will be tested in order to find out the existence relationship between each others.

3.3.3 Sampling Size

Sampling size indicated the number of populations that have been chosen for the purpose of the analysis. Sampling size imply the accuracy of the research. In this study, eight local commercial banks in Malaysia are selected to evaluate the impact of profitability of bank from 2006 to 2010. There were a

total of 40 observations for this study. Those data will be presented in the table form.

Table 3.1: Value of NPBTZ, ROA, ROE, DTE, CR, TA & CRISIS of 8 Commercial Banks from year 2006 – 2010

		NPBTZ	ROA	ROE	DTE	CR	TA	Crisis
Alliance	2006	-243,370	0.0309	0.3538	10.1303	0.4228	21,687,615	0
Alliance	2007	156,262	0.0337	0.4114	10.8036	0.4891	24,337,863	1
Alliance	2008	508,410	0.0348	0.3617	8.9834	0.4284	25,821,950	1
Alliance	2009	314,052	0.0299	0.3209	9.4046	0.4378	28,486,604	0
Alliance	2010	253,220	0.0288	0.2848	8.5817	0.3660	26,937,995	0
Affin	2006	218,459	0.0305	0.3583	10.2316	0.3726	26,167,063	0
Affin	2007	251,209	0.0327	0.3561	9.5194	0.4136	26,233,528	1
Affin	2008	409,553	0.0332	0.3563	9.5103	0.3678	27,730,474	1
Affin	2009	385,139	0.3462	0.3462	9.5101	0.3678	30,333,116	0
Affin	2010	474,794	0.0279	0.3179	10.1065	0.3701	35,453,667	0
Ambank	2006	710,109	0.0396	0.4667	10.1003	0.4142	72,260,637	0
Ambank	2007	23,120	0.0405	0.5235	11.0707	0.4231	78,622,673	1
Ambank	2008	1,194,437	0.0405	0.4641	9.5176	0.3844	83,191,707	1
Ambank	2009	1,217,636	0.0364	0.4134	9.3514	0.3803	89,892,881	0
Ambank	2010	1,376,659	0.0371	0.3634	7.7841	0.3435	96,480,303	0
CIMB	2006	1,201,223	0.0319	0.3962	10.3729	0.4070	127,779,828	0
CIMB	2007	1,767,939	0.0395	0.5080	11.0343	0.4500	139,987,541	1
CIMB	2008	2,184,696	0.0361	0.4484	10.6424	0.3325	147,069,901	1
CIMB	2009	1,937,069	0.0325	0.3513	9.3812	0.3848	160,221,618	0
CIMB	2010	2,365,868	0.0329	0.3569	9.4318	0.3852	170,823,022	0
RHB	2006	697,119	0.0265	0.3373	11.4958	0.5930	55,139,095	0
RHB	2007	759,444	0.0243	0.3573	13.1909	0.6123	66,161,398	1
RHB	2008	949,021	0.0268	0.3814	12.8034	0.6022	69,992,756	1
RHB	2009	886,395	0.0264	0.3513	11.8546	0.5866	70,732,513	0
RHB	2010	961,005	0.0243	0.3250	11.6879	0.5756	77,730,208	0
HLB	2006	577,764	0.0291	0.5749	18.0699	0.3209	85,948,893	0
HLB	2007	885,267	0.0323	0.6573	18.6894	0.3876	85,063,579	1
HLB	2008	1,285,004	0.0358	0.4806	12.2211	0.2851	84,238,533	1

HLB	2009	1,357,344	0.0326	0.4269	11.8330	0.2789	94,045,473	0
HLB	2010	1,740,757	0.0327	0.4099	11.2763	0.2407	105,179,231	0
Maybank	2006	3,535,390	0.0371	0.4784	11.6004	0.3750	197,057,006	0
Maybank	2007	4,151,847	0.0357	0.4652	11.7149	0.4332	227,447,240	1
Maybank	2008	3,118,575	0.0341	0.4346	11.3112	0.3772	219,172,485	1
Maybank	2009	383,079	0.0324	0.3425	9.1106	0.4031	238,277,142	0
Maybank	2010	4,786,544	0.0367	0.3610	8.3948	0.4004	248,392,266	0
Public	2006	2,440,137	0.0287	0.4296	13.5996	0.4548	134,267,022	0
Public	2007	2,850,783	0.0280	0.4738	15.5766	0.4618	158,471,100	1
Public	2008	2,897,716	0.0276	0.4900	16.2888	0.4688	166,698,854	1
Public	2009	2,789,170	0.0256	0.4321	15.3379	0.3999	176,576,601	0
Public	2010	3,677,657	0.0295	0.4464	13.9418	0.3358	186,409,862	0

NPBTZ = Net Profit Before Tax and Zakat

ROA= Return on Asset

ROE= Return on Equity

DTE= Debt to Equity Ratio

CR= Current Ratio

TA= Total Asset

*All the figures express in RM thousands

3.4 Data Processing

Data processing is the part where the description or explanation of the data preparation will be conducted. In order to investigate the performance of the selected banks, financial ratios have been used in this study for the examination of relationship between dependent variables and independent variables. Therefore, a mathematical model will be formed in this study for the purpose of running several tests.

The mathematical model:

$$\gamma = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 DTE + \beta_4 CR + \beta_5 TA + Crisis + \varepsilon$$

γ = net profit before tax and zakat

β_0 = the intercept of the mathematical model

$\beta_1\beta_2\beta_3\beta_4\beta_5$ = the partial regression coefficients

ROA = return on asset

ROE = return on equity

DTE = debt to equity

CR = current ratio

TA = total asset

Crisis = credit crisis

ε =error term of regression

3.4.1 Profitability Ratios

Bilss (2003) stated that profitability ratios are values used to determined profitability of a company by using calculation to calculate company's performance. In order to examine the profitability of bank, the profitability ratios used are stated below:

1. Return on Asset (ROA) = net income / total asset
2. Return on Equity (ROE) = net income / equity capital

ROA is used to measure the profitability on the business based on the total asset of a bank, whereas ROE used to calculate the profit that a bank can earn based on their equity capital. ROA measures the profit earned per dollar from assets. It shows how well a bank manages the investments resources to generate profits. ROE shows how well a company uses investment funds to generate earnings growth. Both approaches are important and useful for the

comparison between two banks. The higher the ratio indicates the bank has more ability to generate profit. Throughout the calculation of these profitability ratios, this study can easily identify the most soundness of bank and compare the relationship between each other. Jeon and Miller (2004) examined the effect of the Asian financial crisis on the performance of Korean nationwide bank by calculated return of asset and return of equity for the research purpose.

3.4.2 Liquidity Ratios

1. Current ratio = current asset / current liability

Liquidity ratios are the ratio that usually used to examine the ability of a company to generate funds to meet its short term debt obligation. As Henthon (2003) said that liquidity ratio also can define as working capital ratios that used to measure the relationship between current asset and current liabilities. Current ratio can be defined as cash ratio that used to measure a company's ability to pay its obligations. Higher ratio indicates that the bank has more capable to pay for its obligation. Adebayo et al. (2011) had calculated liquidity ratio for the purpose of investigate liquidity management and commercial banks' profitability in Nigeria.

3.4.3 Leverage Ratio

1. Debt to equity = total debt / total equity

Financial risk ratio such as debt to equity is used to analyze financial position of a bank. This ratio measure the proportion of debt used based on total asset or

total equity of a bank. In other words, higher ratio indicates the bank has higher probability to encounter risk compared to bank with lower ratio. Thus, bank tends to maintain their funds management so that the ratio reflects the best condition of the bank

3.4.4 Bank Size

1. Bank size = total asset

The bank size can be known by calculating the total asset of a bank, which means that the total asset belongs to bank after deducting all the liability. Size of bank can influence the ability of bank in handling their funds so that obligation can be met. Larger banks are better than smaller banks in economies of scale in transactions to the as they tend to enjoy a higher level of profits. Higher total asset indicate larger of the bank size and higher soundness of the bank. Dietrich and Wanzenried (2010) measured bank size by using total asset of bank in order to determine the bank profitability before and during the crisis in Switzerland.

3.5 Data Analysis

After processing the data, the data analysis will be then carried out. This study applied some statistical techniques for the purpose of examining the impact of crisis on the performance of Malaysia's banks during the crisis period. Econometric approaches that applied were trend analysis, descriptive analysis, correlation analysis, regression analysis, multicollinearity and autocorrelation.

3.5.1 Trend Analysis

Trend analysis is a techniques analysis that applied the use of past records of a company in order to predict the future movement of the company that would likely happened. This study employed this technique to predict the growth rate of net profit before tax and zakat of bank based on the past financial statement by calculate the percentage change for a period.

3.5.2 Descriptive Analysis

Samad (2004) was applied descriptive financial ratio analysis to describe the performance of Islamic and conventional commercial bank in Bahrain for period 1991-2001. Descriptive analysis which summarizes the collected data is way which users can have a better understanding on the results of this study. Thus, this study used descriptive statistics including tables and graphs to describe and analysis data.

3.5.3 Correlation Analysis

The correlation analysis defines as Pearson's correlation that used to measure the relationship between two variables. The correlation coefficient with +1 indicates that there is a positive relationship between two variables, whereas correlation coefficient with -1 indicates the two variables are in negative relationship. There is no linear relationship between two variables if the correlation coefficient equal to 0. Lee and Hsieh (2012) were used correlation analysis to investigate the relationship among capital, profitability and risk for Asian banks during 1994 – 2008. This study will applied this correlation analysis to examine correlation coefficient between two variables.

3.5.4 Regression Analysis

Regression analysis is used to examine the relationship between a dependent variable and independent variables. Sufian (2008), Sufian and Habibullah (2010) and Sufian and Habibullah (2012) had used regression model to determine the relationship between bank efficiency and the explanatory variables. Thus, in this study, few regression models have been ran in order to investigate the impact of crisis on the performance of bank.

3.5.5 Multicollinearity

Multicollinearity is used to test the relationship between two independent variables. A model considers has multicollinearity if there was a correlated between independent variables. Problems of multicollinearity can bring some effects to the model and reduce accuracy of the model. In this study, multicollinearity has been used to examine the relationship between independent variables in order to avoid the existence of the problems and obtain an unbiased model.

3.5.6 Inferential Analysis

This study also applied inferential analysis to determine the significant impact of crisis on the performance of bank. T-test is performed for each model to ensure there is significant between dependent variable and independent variables. Besides, J-curve test was conducted to test the model specification.

3.6 Conclusion

Data that collected from the financial statement for 8 local commercial banks were used to compute the financial ratios that listed in 3.4 Data Processing. By completing the data collection and computation of financial ratios, various types of data analysis that listed in 3.5 will be then applied by using Electronic Views (Eviews) software in order to examine the crisis effects on the performance of bank. The next chapter which is chapter 4 will proceed with the discussion and details on the test and measurement.

CHAPTER 4 : DATA ANALYSIS

4.0 Introduction

Introduction of research methodology which described research design, data collection methods, sampling design, data processing and also data analysis had been discussed in chapter 3. Due to the purpose of determine the profitability of local banks, this study need to have a validity model. Thus in chapter 4, several tests such as correlation analysis, multicollinearity, heteroscedasticity, autocorrelation, model specification and regression analysis will be carried out by using data that had been collected using Eview. Further analyses and elaboration will be done in following section in this chapter based on the result in order to check for validity of model.

4.1 Scale Measurement

This section will explain and elaborate result of the model after this study had run for several tests.

4.1.1 T-Test

First of all, t-test for each variable will be tested in the study in order to determine the impact of crisis on the performance of bank in Malaysia. This study will using OLS model for the testing.

Ho: β_i is equal to 0, where $_i$ is 1, 2,3,4,5,6

H_1 : β_i ia not equal to 0, where $_i$ is 1,2,3,4,5,6

Decision Rule: Reject Ho if the t-statistic is lower or greater than critical value (α) , otherwise do not reject.

Table 4.1: Results of T-test among variables

	T-statistic	Decision rule
β_1 (ROA)	2.367158	**Reject**
β_2 (ROE)	-2.497128	**Reject**
β_3 (DTE)	2.520550	**Reject**
β_4 (CR)	-0.121592	Do not reject
β_5 (TA)	8.431417	**Reject**
β_6 (Crisis)	0.180233	Do not reject

Ho: β_i is equal to 0, where $_i$ is 1, 2,3,4,5,6

H_1 : β_i ia not equal to 0, where $_i$ is 1,2,3,4,5,6

Decision Rule: Reject Ho if the p-value is greater than critical value (α) , otherwise do not reject.

Table 4.2: P-value among variables

	P-value	$\alpha = 0.05$
β_1 (ROA)	0.0239	**Reject**
β_2 (ROE)	0.0177	**Reject**
β_3 (DTE)	0.0167	**Reject**
β_4 (CR)	0.9040	Do not reject
β_5 (TA)	0.0000	**Reject**
β_6 (Crisis)	0.8581	Do not reject

The null hypothesis is $\beta_i = 0$, where $_i$ equal to 1,2,3,4,5, and 6. Critical value $t_{0.05, 40} = \pm 1.684$. This study reject H_0 if the test-statistic is greater than upper critical value or lower than critical value, otherwise do not reject. According to the result, this study rejects H_0 for $\beta_{1,}$ $\beta_{2,}$ $\beta_{3,}$ $\beta_{5,}$ but do not reject for H_0 for β_4 and $\beta_{6.}$ It indicated that $\beta_{1,}$ $\beta_{2,}$ $\beta_{3,}$ β_5 are significant at the level of 5% and significant to the model. In other way, β_4 and β_6 are not significant at the level of 5%, which also mean that this both variables are not significant to the model.

T-test also can be explained by using the p-value. This study had same outcome even used different methods to test for the significant of variables to the model. By using p-value, this study does not reject β_4 and β_6 because their p-value is larger than significant level, 0.05.

4.1.2 Multicollinearity

Multicollinearity occurs when there is a relationship between independent variables. Thus, this study had conducted some test to investigate the relationship between independent variables.

Table 4.3: Correlation between variables

	NPBTZ	ROA	ROE	DTE	CR	TA	Crisis
NPBTZ	1.000000	0.107754	0.258455	0.213342	-0.137006	0.852682	0.017402
ROA	0.107754	1.000000	0.345585	-0.421128	-0.475589	0.165270	0.240439
ROE	0.258455	0.345585	1.000000	**0.700249**	-0.236443	0.275633	0.406344
DTE	0.213342	-0.421128	**0.700249**	1.000000	0.119292	0.169941	0.217899
CR	-0.137006	-0.475589	-0.236443	0.119292	1.000000	-0.144912	0.180182
TA	0.852682	0.165270	0.275633	0.169941	-0.144912	1.000000	-0.034089
Crisis	0.017402	0.240439	0.406344	0.217899	0.180182	-0.034089	1.000000

From the result above, there is high correlation between Return on Equity (ROE) and Debt to Equity (DTE) which is 0.700249 if compare with other independent variables. Thus, the both independent variable are significantly influence each other. It mean that when one of the independent variable increase or decrease, it will affect another independent variable.

In order for the further checking on multicollinearity, this study will conduct Auxiliary Independent Variable and Variance Inflation Factor (VIF) between the highly correlated variables.

4.1.2.1 Auxiliary Independent Variable

Due to the purpose of estimate and analyses the R-square between each independent variable, this study will assign independent variables into one-to-one match.

Table 4.4: R^2 between variables

		R^2
X_1	X_2	0.119429
X_1	X_3	0.177349
X_1	X_4	0.226185
X_1	X_5	0.027314
X_1	X_6	0.057811
X_2	X_3	**0.490349**
X_2	X_4	0.055905
X_2	X_5	0.030998
X_2	X_6	0.024694
X_3	X_4	0.199491
X_3	X_5	0.336423
X_3	X_6	0.000858
X_4	X_5	0.019471
X_4	X_6	0.010560
X_5	X_6	0.004807

X_1 = ROA

X_2 =ROE

X_3 = DTE

X_4 = CR

X_5 = TA

X_6 = Crisis

According to the result, the Return on Equity and Debt to Equity have highly correlation between each other if compare with other independent variables. Thus, this both independent variables are significantly influence each other.

4.1.2.2 Variance Inflation Factor

After that, both significantly correlation between Return on Equity and Debt to Equity will conduct Variance Inflation Factor, VIF in order to estimate how much the variance inflated in the model. The formula of VIF is :

Variance Inflation Factor, VIF $_{x1,x2}$

$$\text{VIF} = \frac{1}{(1-Rx1,x2)}$$

$$= \frac{1}{(1-0.490349)}$$

$$= \mathbf{1.9621}$$

Since the VIF is equal to 1.9621 which is not more than 10, thus there is not serious multicollinearity problem exist in the model. So, this study will not drop any independent variable and it still consider as is unbiased, efficient and consistent.

4.1.3 Model Specification

4.1.3.1 Jarque-Bera Test

This study use Jarque-Bera Test (JB-test) to determine the normality of the model. The null hypothesis is the error term is normally distributed. This study reject H_0 if the p-value for JB-test is lower than 0.05, otherwise do not reject. The result was show as below:

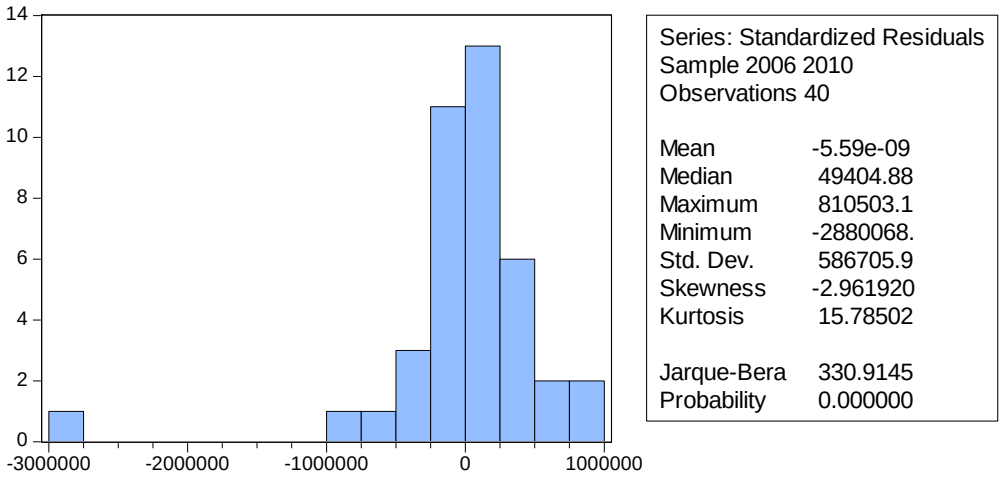


Diagram 4.1: Results of Jarque-Bera Test

From the result, the probability is 0.000000, which lower than 0.05, thus this study reject H_0 at significant level of 5%. There is sufficient evidence to conclude that the error term is not normally distributed.

4.2 Inferential Analysis

According to chapter 3, the mathematical model for this study is :

$$\gamma = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 DTE + \beta_4 CR + \beta_5 TA + Crisis + \varepsilon$$

After run for several test, the regression model became :

$$NPBTZ = \beta_0 + 4.57E{+}08ROA + 33690435ROE + 1083780DTE - 184165.5CR + 0.014420TA + 46550.22Crisis + \varepsilon$$

Dependent variable = NPBTZ		
	Coefficient	Prob.
ROA	4.57E+08	0.0239
ROE	33690435	0.0177
DTE	1083780	0.0167
CR	-184165.5	0.9040
TA	0.014420	0.0000
Crisis	46550.22	0.8581
R-squared	0.777369	
Adjusted R-square	0.736891	

Table 4.5: Panel Least Square results among variables

R^2 equal to 0.777369 which mean 77.74% of the variation in the dependent variable can be explained by variation in the independent variables.

4.2.1 Return of Asset (ROA)

Based on the result, return of asset is significant in this model. This statement is support by previous study which done by Dietrich and Wanzenried (2011). According to Dietrich and Wanzenried (2011), they found that return of asset (ROA) had effect on the performance of bank and the variation can be explained when there is a change in the value of asset.

Beside, Kumbirai and Webb (2010) also found that there is a significant change of performance of bank during the crisis trend in their research. In their research, they had clearly indicated the difference in profitability of bank before and after the crisis.

4.2.2 Return of Equity (ROE)

In this study, return of equity (ROE) is significant to the performance of bank. Said and Tumin (2011) had showed that profitability of bank can be affected by internal and external determine. In their study, internal determinants such as liquidity risk, credit risk can influence the return of equity, in the fact affect the performance of bank.

Furthermore, the statement of significant of return of equity also proved by Dietrich and Wanzenried (2011) which also used ROE to determine the profitability of bank.

4.2.3 Debt to Equity (DTE)

According to this study, there is significant of debt to equity (DTE) to the performance of bank. As Craigwell and Elliot (2011) said, loan loss provision are heavily dependent to performance of bank, which mean that banking sector had suffer from debt when there is a change in the economy. This statement also proved by Dietrich and Wanzenried (2011) in their research which indicated that loan loss provision is significant effect during the crisis. They found that faster growing loan volume had increase the risk and influence the performance of bank.

In addition, Ng and Roychowdhuryb (2011) had found that bank failure risk change from 2008 to 2010 in their paper. They found that bank failure increase when there is abnormal load loss increase. Increase in loan loss will increase the ratio of debt to equity, in fact influence the performance of bank.

Emmanuel (2012) study focuses on how domestic debt affected bank performance by using micro analysis by using two bank as sample size. His study found that domestic debt do impairs bank performance.

4.2.4 Current Ratio (CR)

According to this study, there is insignificant of current ratio (CR) in explaining the performance of bank. Qin and Pastory (2012) tested on the significant differences in liquidity positions for commercial banks and the result shown that there is no significant difference on the liquidity position. In other words, the liquidity of a commercial bank is not significant in determining a bank performance.

As the sample collected which all the commercial bank were categories under bank-based financial system, and according to Shen et al (2009), bank-based financial systems play a leading role in mobilizing savings, allocating capital, overseeing the investment decisions of corporate managers and providing risk management. Research provided the same result with previous studies that liquidity risk has no effect on bank performance.

Adebayo et al. (2011) come out with conclusion same with the result of the study which coefficient of current ratio is negative in determining the bank performance. They stated that liquidity is inversely related to profitability. That means as liquidity increases, profitability decreases and vice versa.

4.2.5 Total Asset (TA)

Total asset is used to determine the bank size. In this study, total asset is significant to the performance of bank during crisis. It was consistent with previous study which stated that positive relationship between bank size and profitability of bank. Berger and Humphrey (1997) had concluded their paper with the conclusion of there is a positive relationship between bank size and profitability. They also suggested the bank's profitability is more likely to improve by emulating best practices in the banking industry.

Besides, this study had been proved by Goddard (2004) which said that bank size can affect profit positively. He indicated that larger bank has more profit due to it might be benefits from the market. It means that larger bank can earn more compare with smaller bank. This is because larger bank can diversify the income, in turn can earn more from the diversification.

4.2.6 Crisis

Based on the result, there is insignificant of crisis to the performance of bank, which means that crisis is not affect on the Malaysia economy. As Sundaram (2006) said, Malaysian economy and population were not influence by crisis happen compared with other countries such as Thailand, South Korea and Indonesia. This is because Malaysia had implemented some methods to prevent it. Vulnerability of crisis might due to the Malaysia have decided to apply capital controls to support reflationary monetary policies.

Hidayat and Abduh (2012) who tested the impact of financial crisis on Islamic bank performance provide the result said that there is no significant impact of financial crisis upon the financial performance during the crisis period. However, it does affect the financial performance of Bahrain Islamic banking industry after the crisis period.

Mehta (2012) who investigated the impact of the global economic crisis in banking sector of United Arab Emirates also come out with the same result indicating that the recent global crisis has impacted only few UAE bank's profitability, leverage and liquidity ratios. Based on a research done in Affin Bank in Malaysia, Barhim (2009) found that the subprime crisis of 2008 had affected the U.S. economy, but had not affected Affin Bank's performance significantly. The bank also anticipates higher profit in its financial year ending in 2008.

4.3 Conclusion

In conclusion, this study found there are only four significant variables in the model which were have a effect on the profit before tax and zakat (NPBTZ). Those significant variables were return on asset (ROA), return on equity (ROE), debt to equity (DTE), and total asset (TA). However, current ratio (CR) and crisis were not significant to the model. Besides, there was no serious multicollinearity problem in this study, therefore this study do not need to omit those independent variables which were not significant to the model. Furthermore, this study had found that there was some different in the result if compare with previous research paper. Thus, some journals will be used to support those statements.

Next chapter will provide a linkage to the main themes and outline of the aim of this study by doing summary for the statistical analyses and discussed the limitation and implementation of this study.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

In this chapter, all the results and findings from the previous chapter will be summarized. Previously, the research background, problem statement and the research objectives were discussed in the Chapter 1. By suggesting the problem statement and the objectives of this research, the review of the previous researches which are related to this paper was then carried out so that the statements of this paper are justifiable. In other words, in chapter 2, the important information from the previous researches which are related to the performance of banks and the effect of the financial crisis in 2008 was extracted.

For the following chapter, all the methodology that used to carry out the research were discussed and finalized. Data analysis was conducted in Chapter 4 which EViews was used to analyze the collected data. The results were then obtained by the end of Chapter 4 and the summarization for all the statistical analysis in that have been discussed in previous chapters will be then presented in Chapter 5. This chapter was aimed to conclude the discussion of major findings in Chapter 1 to 4 as a whole. In order to do so, the results from the hypothesis testing were once again discussed.

Besides, the policy implications of this study for the policy makers of the central bank, financial institution regulators, and practitioners will be then discussed in the following sub-section. On the other hand, this chapter has also listed down all the limitations that faced by this paper. Nonetheless, this chapter has provided the recommendations regarding the limitations and the space of improvements to the

future researchers. Last but not least, all the chapters will be concluded in the last sub-section of this chapter which also indicating the end of this research paper.

5.1 Summary of Statistical Analyses

Based on Chapter 4, the measurement of the relationships between performances of bank and possible determinants of bank performances were carried out. The independent variables are return on asset (ROA), return on equity (ROE), debt to equity (DTE), current ratio (CR) and total asset (TA). Since the research is to study the impact of the financial crisis on the performances of banks, the financial crisis was therefore considered as a dummy variable in the model.

In previous chapter, return on asset (ROA), return on equity (ROE), debt to equity (DTE), and total asset (TA) were found to have significant effect to the performance of bank. While the current ratio (CR) and the crisis have no significant effect to the performances of banks after a series of tests were conducted.

Furthermore, multicollinearity problem was identified in the proposed regression model. High correlation between the return on equity (ROE) and debt to equity (DTE) was found by performing the EViews. However, these variables were not dropped after calculation of the variance inflation factor (VIF). The results indicate the VIF is not more than 10. Thus, the low seriousness of multicollinearity problem was concluded.

5.2 Discussion of Major Findings

This study used panel regression model analysis to determine the relationship between the performances of bank and its possible determinants which are profitability, liquidity, leverage and size during the financial crisis. This study employed the net

profit before zakat and tax (NPBZT) to represent the performances of bank, while the profitability was represented by return on asset (ROA) and return on equity (ROE). Additionally, the current ratio (CR) represented the liquidity of bank and the debt to equity (DTE) represented the leverage of bank. The data was collected from the financial position and retrieved from the income statement of commercial banks in Malaysia for the period of five years which starts from 2006 to 2010.

After a series of tests in chapter 4, from the results suggested that there was a significant relationship between the return on asset (ROA) and the performances of banks at the level of 5% during the credit crisis period. Therefore, this result had validated the statement that was stated in previous chapter, which there is a relationship between profitability and the performance of bank during the credit crisis. According to Dietrich and Wanzenried (2011), they found that return of asset (ROA) had an effect on the performance of bank in that return of asset ROA reflects the ability of a bank's management on generating profits from bank's assets. Sharma and Gounder (2011) used the return on assets (ROA) to determine the profitability of bank.

Besides, return of equity (ROE) was found to have a significant effect on the performances of banks during the credit crisis. This result had proved and agreed the hypothesis that was suggested in the previous chapter. According to Jahangir et al. (2007), return on equity (ROE) was used as the measurement of profitability of bank. In addition, Dietrich and Wanzenried (2011) Sharma and Gounder (2011) have also used ROE to determine the profitability of bank. These have improved the soundness of the statement that was previously made.

Moreover, the results of this study suggested that a significant relationship was found between the total asset (TA) and the performances of banks during the credit crisis. Since the total asset (TA) was considered as the size of banks, the results of this paper were justifiable when Dietrich and Wanzenried (2011) suggested that larger banks were less profitable than small and medium-sized bank during the past 3 years of the credit crisis. This is because the larger banks had higher loan loss provisions during the crisis and lower net interest margins in times of turmoil than smaller banks. Further, Hoffman (2011) found out that there is a negative relationship between bank

size and profitability. But, the result of this study had been support by Goddard (2004) which the bank size is positively influence the performance of bank. He indicated that larger bank has more profit due to it might be benefits from the market. It means that larger bank can earn more compare with smaller bank. This is because larger bank can diversify the income and earn profit from the diversification strategy.

Additionally, there was a significant relationship between debt to equity (DTE) and performance of bank. According to Dietrich and Wanzenried (2011), the loan loss provisions had a significant effect during the credit crisis. They found that faster growing loan volume had increase the risk and directly influence the performance of bank. Other than that, Mustafa, Ansari and Umair (2012) conclude his research that the loan loss provision is negatively significant on performance of bank. This is because the main activities of banks are borrowing and advancing which lead to high credit risk, thus they use loan loss provisions to reduce the risk. Further, Ng and Roychowdhuryb (2011) had found that the rate of bank failure rise when there is irregular increase in loan loss and this will lead to an increase in debt to equity ratio, indirect influence the performance of bank.

In this study, there is an insignificant relationship between liquidity ratio and the performance of bank during credit crisis. Shahchera (2012) found that there is a non-linear relationship between liquidity ratio and bank's profitability. However, Uremadu (2012) found that liquidity ratio (LR) had highly significant and positive impact on profitability of bank and this lead to bank profits which evidence from Nigeria.

Last but not least, the regression model of this study showed that the dummy variable of credit crisis in 2008 does not have any significant effect on the performances of commercial banks in Malaysia. According to Hidayat and Abduh (2012), they found out that there is no significant impact of credit crisis on the performance of bank in the region of Southeast Asia during the crisis period.

5.3 Implications of the Study

The major findings of this study have several implications for policy makers in emerging economies. The profits of a bank are derived from the high interest rate spread in the emerging economies. Therefore, central bank's policy makers should remove unnecessary restrictions and entry barriers to encourage the establishment of foreign banks. The policy makers play an important role in ensuring the consistency of bank's profit in the face of economic fluctuation. Additionally, in order to increase bank's profitability and stability, a bank manager should always undertake certain measures to maintain the efficiency of bank's cost control and liquidity.

Furthermore, to prevent bank failure, a country's financial institution regulators must limit the systematic risk. The systematic risk could be the problems of a few institution spread to other institution in the same industry that might cause insolvency or bankruptcy. The main reasons of bank's failure are a huge deal of problem loans, low capital position, a weak or negative cash flow, and low quality of management. According to the results, the efficiency of a bank can influence the performance of a bank. Thus, a low performance of a bank is expected when the management quality is low since it would be positively related to efficiency.

Besides, the banks must always hold sufficient amount of reserves to lessen the impact of adverse shocks to the economy. In order to prevent capital from falling below the specified levels, a bank manager should couple adequate capital requirements for banks with early corrective action by regulators. By requiring the banks to hold adequate capital, the bank can have a greater cushion to absorb losses, thus, reduce the possibility of failure. Secondly, banks will have less capital at risk and therefore less incentive to take unnecessary risk. In other words, the banks will not be able to engage in either excessively risky or illegal activities if the central bank's regulator assure that banks hold the requisite amount of reserves.

5.4 Limitation of the study

One of the limitations was faced during the collection of data. The secondary data was used to conduct this research. The balance sheets were extracted from the annual reports of the selected commercial banks. However, the Eon Bank and Hong Leong Bank were merged in year 2010, indicating the annual report of Eon Bank thereafter could not be obtained. Therefore, the processes of financial ratios computation were affected by the reduction in sample size.

The data of this research were classified as panel data, which in order to conduct the analysis, Fixed Effect Model (FEM) or Pooled Least Square method must be applied. However, the limitation was encountered when the employment EViews could not proceed to the test of heteroscedasticity and autocorrelation problem in the case of panel data.

5.5 Recommendations for Future Research

This study has included a total of eight commercial banks in Malaysia from year 2006 to 2010 into the study. Therefore, the total of sample size was 40 which were relatively small to conduct a research. Hence, problems were encountered when running the data analysis. For instance, while concluding Chapter 4, some outliers were found and bring doubt to the reliability of the study. In order to study the possible impacts of financial crisis on the performances of bank, the data collected are based on the years before and after the financial crisis. In the end, the sample size was relatively small for conducting the diagnostic checking. The recommendation for the future research is to include more banks or lengthen the period of study. In order to avoid the mentioned limitation, the future researchers should include more banks to increase the sample size of their study.

Apart from EViews, there are few other similar tools such as Stata and SPSS which allow the users to do the diagnostic checking. All the findings of this paper were found with the employment of EViews. In order to study the variability of the results the future researchers are recommended to conduct their researches by employing different tools to conduct the research.

5.6 Conclusion

This sub-section indicates the summary of all of the sub-sections in Chapter 5. The concepts of all the previous chapters were discussed in the first sub-section of this chapter. This paper has done the analysis in both descriptive and inferential ways. A statistical summary of all the analysis that was discussed in previous chapters was done. The major findings of this paper were also discussed and concluded earlier this chapter. All the findings discussed in this chapter were based on the results from Chapter 4. The results indicate whether there exists a significant or not significant relationship between the proposed determinants of bank performances and the actual bank performances or not. It is important to validate the objectives and hypotheses that were proposed in Chapter 1. The following sub-section of this chapter has provided implications to the policy makers and bank's managers according to the major findings of this study. The practical implications for the particular country's policy makers and bank's managers were discussed. This policy implication was then followed by the limitations that encountered throughout the whole research. By suggesting the limitations of this study, some recommendations were given to the future researchers whoever intends to conduct the research on the similar issues.

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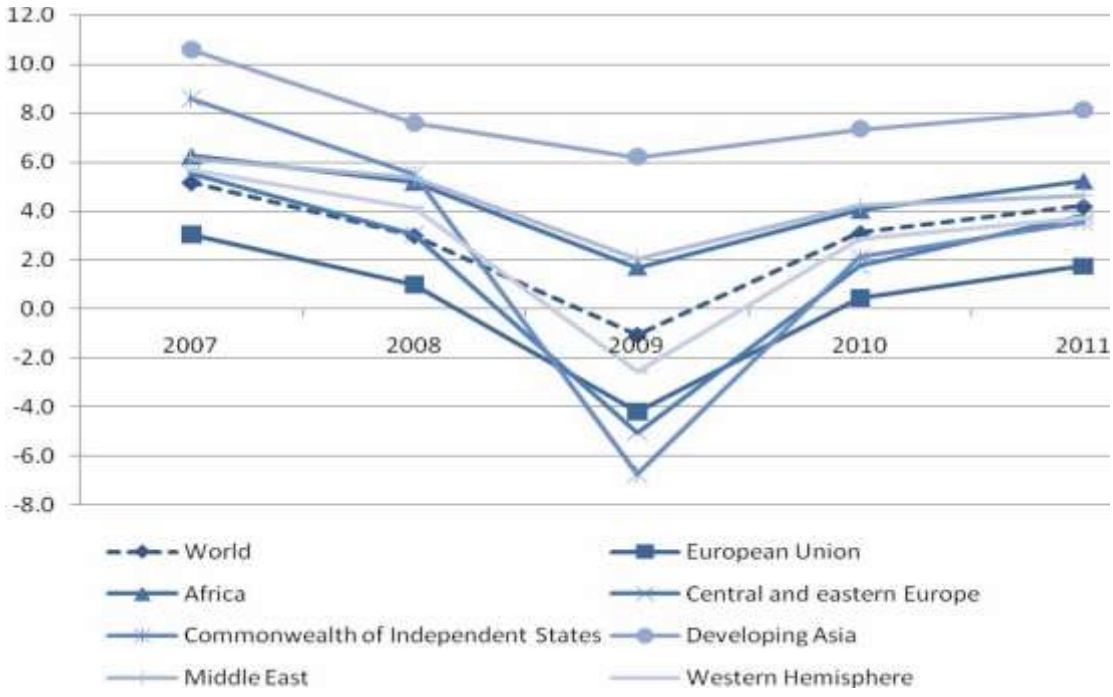
APPENDICES

Appendix 1 : Economic growth across the word, real GDP growth (annual % change)



Source : IMF World Economic Outlook Database October 2009

Appendix 2 : Value of NPBTZ, ROA, ROE, DTE, CR, TA and CRISIS of 8 Commercial Banks form Year 2006-2010

		NPBTZ	ROA	ROE	DTE	CR	TA	Crisis
Alliance	2006	-243,370	0.0309	0.3538	10.1303	0.4228	21,687,615	0
Alliance	2007	156,262	0.0337	0.4114	10.8036	0.4891	24,337,863	1
Alliance	2008	508,410	0.0348	0.3617	8.9834	0.4284	25,821,950	1
Alliance	2009	314,052	0.0299	0.3209	9.4046	0.4378	28,486,604	0
Alliance	2010	253,220	0.0288	0.2848	8.5817	0.3660	26,937,995	0
Affin	2006	218,459	0.0305	0.3583	10.2316	0.3726	26,167,063	0
Affin	2007	251,209	0.0327	0.3561	9.5194	0.4136	26,233,528	1
Affin	2008	409,553	0.0332	0.3563	9.5103	0.3678	27,730,474	1
Affin	2009	385,139	0.3462	0.3462	9.5101	0.3678	30,333,116	0
Affin	2010	474,794	0.0279	0.3179	10.1065	0.3701	35,453,667	0

Ambank	2006	710,109	0.0396	0.4667	10.1003	0.4142	72,260,637	0
Ambank	2007	23,120	0.0405	0.5235	11.0707	0.4231	78,622,673	1
Ambank	2008	1,194,437	0.0405	0.4641	9.5176	0.3844	83,191,707	1
Ambank	2009	1,217,636	0.0364	0.4134	9.3514	0.3803	89,892,881	0
Ambank	2010	1,376,659	0.0371	0.3634	7.7841	0.3435	96,480,303	0
CIMB	2006	1,201,223	0.0319	0.3962	10.3729	0.4070	127,779,828	0
CIMB	2007	1,767,939	0.0395	0.5080	11.0343	0.4500	139,987,541	1
CIMB	2008	2,184,696	0.0361	0.4484	10.6424	0.3325	147,069,901	1
CIMB	2009	1,937,069	0.0325	0.3513	9.3812	0.3848	160,221,618	0
CIMB	2010	2,365,868	0.0329	0.3569	9.4318	0.3852	170,823,022	0
RHB	2006	697,119	0.0265	0.3373	11.4958	0.5930	55,139,095	0
RHB	2007	759,444	0.0243	0.3573	13.1909	0.6123	66,161,398	1
RHB	2008	949,021	0.0268	0.3814	12.8034	0.6022	69,992,756	1
RHB	2009	886,395	0.0264	0.3513	11.8546	0.5866	70,732,513	0
RHB	2010	961,005	0.0243	0.3250	11.6879	0.5756	77,730,208	0
HLB	2006	577,764	0.0291	0.5749	18.0699	0.3209	85,948,893	0
HLB	2007	885,267	0.0323	0.6573	18.6894	0.3876	85,063,579	1
HLB	2008	1,285,004	0.0358	0.4806	12.2211	0.2851	84,238,533	1
HLB	2009	1,357,344	0.0326	0.4269	11.8330	0.2789	94,045,473	0
HLB	2010	1,740,757	0.0327	0.4099	11.2763	0.2407	105,179,231	0
Maybank	2006	3,535,390	0.0371	0.4784	11.6004	0.3750	197,057,006	0
Maybank	2007	4,151,847	0.0357	0.4652	11.7149	0.4332	227,447,240	1
Maybank	2008	3,118,575	0.0341	0.4346	11.3112	0.3772	219,172,485	1
Maybank	2009	383,079	0.0324	0.3425	9.1106	0.4031	238,277,142	0
Maybank	2010	4,786,544	0.0367	0.3610	8.3948	0.4004	248,392,266	0
Public	2006	2,440,137	0.0287	0.4296	13.5996	0.4548	134,267,022	0
Public	2007	2,850,783	0.0280	0.4738	15.5766	0.4618	158,471,100	1
Public	2008	2,897,716	0.0276	0.4900	16.2888	0.4688	166,698,854	1
Public	2009	2,789,170	0.0256	0.4321	15.3379	0.3999	176,576,601	0
Public	2010	3,677,657	0.0295	0.4464	13.9418	0.3358	186,409,862	0

Appendix 3 : Eview result between dependent variable and independent variables

Dependent Variable: NPBTZ
Method: Panel Least Squares
Date: 03/07/13 Time: 15:30
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROA	4.57E+08	1.93E+08	2.367158	0.0239
ROE	33690435	13491675	-2.497128	0.0177
DTE	1083780.	429977.6	2.520550	0.0167
CR	-184165.5	1514621.	-0.121592	0.9040
TA	0.014420	0.001710	8.431417	0.0000
CRISIS	46550.22	258277.9	0.180233	0.8581
C	-13243932	5775839.	-2.292988	0.0284

R-squared	0.777369	Mean dependent var	1435913.
Adjusted R-squared	0.736891	S.D. dependent var	1243448.
S.E. of regression	637816.5	Akaike info criterion	29.72712
Sum squared resid	1.34E+13	Schwarz criterion	30.02267
Log likelihood	-587.5423	Hannan-Quinn criter.	29.83398
F-statistic	19.20456	Durbin-Watson stat	2.421235
Prob(F-statistic)	0.000000		

Appendix 4: Correlation between NPBTZ and ROA, ROE, DTE, CR, TA and CRISIS

	NPBTZ	ROA	ROE	DTE	CR	TA	Crisis
NPBTZ	1.000000	0.107754	0.258455	0.213342	-0.137006	0.852682	0.017402
ROA	0.107754	1.000000	0.345585	-0.421128	-0.475589	0.165270	0.240439
ROE	0.258455	0.345585	1.000000	**0.700249**	-0.236443	0.275633	0.406344
DTE	0.213342	-0.421128	**0.700249**	1.000000	0.119292	0.169941	0.217899
CR	-0.137006	-0.475589	-0.236443	0.119292	1.000000	-0.144912	0.180182
TA	0.852682	0.165270	0.275633	0.169941	-0.144912	1.000000	-0.034089
Crisis	0.017402	0.240439	0.406344	0.217899	0.180182	-0.034089	1.000000

Appendix 5 : Eview result between ROA and ROE

Dependent Variable: ROA
Method: Panel Least Squares
Date: 03/07/13 Time: 15:43
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROE	0.019849	0.008743	2.270201	0.0290
C	0.024047	0.003649	6.590468	0.0000

R-squared	0.119429	Mean dependent var	0.032193
Adjusted R-squared	0.096256	S.D. dependent var	0.004411
S.E. of regression	0.004193	Akaike info criterion	-8.062081
Sum squared resid	0.000668	Schwarz criterion	-7.977637
Log likelihood	163.2416	Hannan-Quinn criter.	-8.031549
F-statistic	5.153811	Durbin-Watson stat	0.359514
Prob(F-statistic)	0.028951		

Appendix 6 : Eview result between ROA and DTE

Dependent Variable: ROA
Method: Panel Least Squares
Date: 03/07/13 Time: 15:43
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DTE	-0.000730	0.000255	-2.862187	0.0068
C	0.040502	0.002973	13.62308	0.0000

R-squared	0.177349	Mean dependent var	0.032193
Adjusted R-squared	0.155700	S.D. dependent var	0.004411
S.E. of regression	0.004053	Akaike info criterion	-8.130119
Sum squared resid	0.000624	Schwarz criterion	-8.045675
Log likelihood	164.6024	Hannan-Quinn criter.	-8.099587
F-statistic	8.192114	Durbin-Watson stat	0.506793
Prob(F-statistic)	0.006807		

Appendix 7 : Eview Result between ROA and CR

Dependent Variable: ROA
Method: Panel Least Squares
Date: 03/07/13 Time: 15:44
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CR	-0.024417	0.007326	-3.332771	0.0019
C	0.042281	0.003090	13.68220	0.0000

R-squared	0.226185	Mean dependent var	0.032193
Adjusted R-squared	0.205822	S.D. dependent var	0.004411
S.E. of regression	0.003931	Akaike info criterion	-8.191319
Sum squared resid	0.000587	Schwarz criterion	-8.106875
Log likelihood	165.8264	Hannan-Quinn criter.	-8.160787
F-statistic	11.10737	Durbin-Watson stat	0.651953
Prob(F-statistic)	0.001925		

Appendix 8 : Eview result between ROA and TA

Dependent Variable: ROA
Method: Panel Least Squares
Date: 03/07/13 Time: 15:45
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TA	1.08E-11	1.05E-11	1.032998	0.3081
C	0.031058	0.001300	23.88258	0.0000

R-squared	0.027314	Mean dependent var	0.032193
Adjusted R-squared	0.001717	S.D. dependent var	0.004411
S.E. of regression	0.004407	Akaike info criterion	-7.962590
Sum squared resid	0.000738	Schwarz criterion	-7.878146
Log likelihood	161.2518	Hannan-Quinn criter.	-7.932058
F-statistic	1.067085	Durbin-Watson stat	0.419735
Prob(F-statistic)	0.308135		

Appendix 9 : Eview result between ROA and CRISIS

Dependent Variable: ROA
Method: Panel Least Squares
Date: 03/07/13 Time: 15:45
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CRISIS	0.002138	0.001400	1.526958	0.1351
C	0.031337	0.000885	35.39610	0.0000

R-squared	0.057811	Mean dependent var	0.032193
Adjusted R-squared	0.033016	S.D. dependent var	0.004411
S.E. of regression	0.004337	Akaike info criterion	-7.994445
Sum squared resid	0.000715	Schwarz criterion	-7.910001
Log likelihood	161.8889	Hannan-Quinn criter.	-7.963913
F-statistic	2.331602	Durbin-Watson stat	0.310705
Prob(F-statistic)	0.135053		

Appendix 10 : Eview result between ROE and DTE

Dependent Variable: ROE
Method: Panel Least Squares
Date: 03/07/13 Time: 15:34
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DTE	0.021131	0.003495	6.046554	0.0000
C	0.169813	0.040742	4.168024	0.0002

R-squared	0.490349	Mean dependent var	0.410370
Adjusted R-squared	0.476937	S.D. dependent var	0.076792
S.E. of regression	0.055538	Akaike info criterion	-2.894776
Sum squared resid	0.117212	Schwarz criterion	-2.810332
Log likelihood	59.89552	Hannan-Quinn criter.	-2.864244
F-statistic	36.56082	Durbin-Watson stat	0.476119
Prob(F-statistic)	0.000000		

Appendix 11 : Eview result between ROE and CR

Dependent Variable: ROE
Method: Panel Least Squares
Date: 03/07/13 Time: 15:46
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CR	-0.211347	0.140892	-1.500067	0.1419
C	0.497695	0.059428	8.374749	0.0000

R-squared	0.055905	Mean dependent var	0.410370
Adjusted R-squared	0.031061	S.D. dependent var	0.076792
S.E. of regression	0.075590	Akaike info criterion	-2.278276
Sum squared resid	0.217127	Schwarz criterion	-2.193832
Log likelihood	47.56552	Hannan-Quinn criter.	-2.247744
F-statistic	2.250201	Durbin-Watson stat	0.725504
Prob(F-statistic)	0.141860		

Appendix 12 : Eview result between ROE and TA

Dependent Variable: ROE
Method: Panel Least Squares
Date: 03/07/13 Time: 15:47
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TA	3.15E-10	1.78E-10	1.767588	0.0852
C	0.377435	0.022068	17.10325	0.0000

R-squared	0.075974	Mean dependent var	0.410370
Adjusted R-squared	0.051657	S.D. dependent var	0.076792
S.E. of regression	0.074782	Akaike info criterion	-2.299762
Sum squared resid	0.212511	Schwarz criterion	-2.215318
Log likelihood	47.99524	Hannan-Quinn criter.	-2.269230
F-statistic	3.124368	Durbin-Watson stat	0.618133
Prob(F-statistic)	0.085160		

Appendix 13 : Eview result between ROE and CRISIS

Dependent Variable: ROE
Method: Panel Least Squares
Date: 03/07/13 Time: 15:47
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CRISIS	0.062894	0.022942	2.741402	0.0093
C	0.385213	0.014510	26.54824	0.0000

R-squared	0.165116	Mean dependent var	0.410370
Adjusted R-squared	0.143145	S.D. dependent var	0.076792
S.E. of regression	0.071084	Akaike info criterion	-2.401209
Sum squared resid	0.192010	Schwarz criterion	-2.316765
Log likelihood	50.02419	Hannan-Quinn criter.	-2.370677
F-statistic	7.515287	Durbin-Watson stat	0.444435
Prob(F-statistic)	0.009274		

Appendix 14 : Eview result between DTE and TA

Dependent Variable: DTE
Method: Panel Least Squares
Date: 03/07/13 Time: 15:49
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TA	6.43E-09	6.05E-09	1.063051	0.2945
C	10.71135	0.749717	14.28720	0.0000

R-squared	0.028880	Mean dependent var	11.38428
Adjusted R-squared	0.003324	S.D. dependent var	2.544816
S.E. of regression	2.540583	Akaike info criterion	4.751371
Sum squared resid	245.2734	Schwarz criterion	4.835815
Log likelihood	-93.02742	Hannan-Quinn criter.	4.781903
F-statistic	1.130077	Durbin-Watson stat	0.361971
Prob(F-statistic)	0.294468		

Appendix 15 : Eview result between DTE and CRISIS

Dependent Variable: DTE
Method: Panel Least Squares
Date: 03/07/13 Time: 15:49
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CRISIS	1.117658	0.812079	1.376292	0.1768
C	10.93722	0.513604	21.29504	0.0000

R-squared	0.047480	Mean dependent var	11.38428
Adjusted R-squared	0.022414	S.D. dependent var	2.544816
S.E. of regression	2.516135	Akaike info criterion	4.732032
Sum squared resid	240.5756	Schwarz criterion	4.816476
Log likelihood	-92.64064	Hannan-Quinn criter.	4.762564
F-statistic	1.894181	Durbin-Watson stat	0.338230
Prob(F-statistic)	0.176788		

Appendix 16 : Eview result between CR and TA

Dependent Variable: CR
Method: Panel Least Squares
Date: 03/07/13 Time: 15:51
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TA	-1.85E-10	2.05E-10	-0.902826	0.3723
C	0.432552	0.025412	17.02142	0.0000

R-squared	0.020999	Mean dependent var	0.413180
Adjusted R-squared	-0.004764	S.D. dependent var	0.085911
S.E. of regression	0.086115	Akaike info criterion	-2.017561
Sum squared resid	0.281800	Schwarz criterion	-1.933117
Log likelihood	42.35123	Hannan-Quinn criter.	-1.987029
F-statistic	0.815094	Durbin-Watson stat	0.315013
Prob(F-statistic)	0.372306		

Appendix 17 : Eview result between CR and CRISIS

Dependent Variable: CR
Method: Panel Least Squares
Date: 03/07/13 Time: 15:51
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CRISIS	0.031200	0.027630	1.129198	0.2659
C	0.400700	0.017475	22.93004	0.0000

R-squared	0.032466	Mean dependent var	0.413180
Adjusted R-squared	0.007004	S.D. dependent var	0.085911
S.E. of regression	0.085609	Akaike info criterion	-2.029343
Sum squared resid	0.278499	Schwarz criterion	-1.944899
Log likelihood	42.58685	Hannan-Quinn criter.	-1.998810
F-statistic	1.275088	Durbin-Watson stat	0.299318
Prob(F-statistic)	0.265893		

Appendix 18 : Eview result between TA and CRISIS

Dependent Variable: TA
Method: Panel Least Squares
Date: 03/07/13 Time: 15:52
Sample: 2006 2010
Periods included: 5
Cross-sections included: 8
Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CRISIS	-4621554.	21980176	-0.210260	0.8346
C	1.07E+08	13901484	7.661891	0.0000

R-squared	0.001162	Mean dependent var	1.05E+08
Adjusted R-squared	-0.025123	S.D. dependent var	67263391
S.E. of regression	68103085	Akaike info criterion	38.95965
Sum squared resid	1.76E+17	Schwarz criterion	39.04409
Log likelihood	-777.1930	Hannan-Quinn criter.	38.99018
F-statistic	0.044209	Durbin-Watson stat	0.027110
Prob(F-statistic)	0.834588		

Appendix 19 : Table of Auxiliary Independent variable

		R^2
X_1	X_2	0.119429
X_1	X_3	0.177349
X_1	X_4	0.226185
X_1	X_5	0.027314
X_1	X_6	0.057811
X_2	X_3	**0.490349**
X_2	X_4	0.055905
X_2	X_5	0.030998
X_2	X_6	0.024694
X_3	X_4	0.199491
X_3	X_5	0.336423
X_3	X_6	0.000858
X_4	X_5	0.019471
X_4	X_6	0.010560
X_5	X_6	0.004807

X_1 = ROA

X_2 =ROE

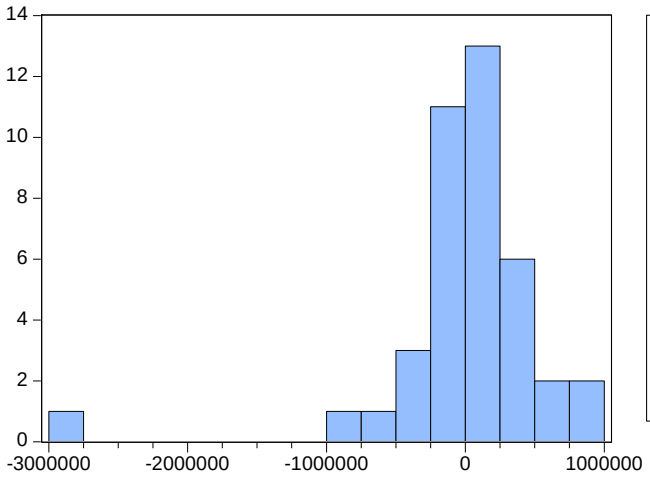
X_3 = DTE

X_4 = CR

X_5 = TA

X_6 = Crisis

Appendix 20 : Diagram of Jacque – Bera test



Series: Standardized Residuals
Sample 2006 2010
Observations 40

Mean	-5.59e-09
Median	49404.88
Maximum	810503.1
Minimum	-2880068.
Std. Dev.	586705.9
Skewness	-2.961920
Kurtosis	15.78502
Jarque-Bera	330.9145
Probability	0.000000