IMPLICATION OF FINANCIAL CRISIS AND BANK-SPECIFIC TOWARDS BANK'S PROFITABILITY BETWEEN COMMERCIAL BANK AND ISLAMIC BANK IN MALAYSIA

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references 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.

(4) The word count of this research report is words.

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LIST OF ABBREVIATIONS

BS	Bank Size
CA	Capital Adequacy
CR	Credit Risk
CS	Financial Crisis
Et al	And Others
FEM	Fixed Effects Model
LQ	Liquidity
NII	Non-Interest Income
Pooled OLS	Pooled Ordinary Least Squares
ROE	Return on Equity
REM	Random Effects Model
VIF	Variance Inflation Factor

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PREFACE

Malaysia is one of countries that implemented dual (Conventional and Islamic) banking systems. These two banks operate under different principle and govern by different laws, yet the banks" profitability is likely to be affected by similar factors. For that reason, this study is carried out in order to confirm whether the profitability of both banks is affected by the same determinants. However, this study not only aims to figure the whether the profitability of both banks is affected by the same factors, but it also focuses on finding out the factors that have greatest impact on the performance of both banks respectively. Another reason to explain why this study is carried out is that past studies that examining on the perspective of both Islamic and conventional banks in Malaysia are very less, thus choosing this topic would be more challenging. From the preparatory stage of this study, the authors have put persistent efforts to gather the data and information needed in order to carry out this study. After so much preparation and searching of data, the authors have decided to come out with two sample of 109 and 46 observations each where it comprise of yearly data from year 1999 to 2016 with 6 Commercial Banks and 3 Islamic Banks. Six explanatory variables that could influence the bank profitability are included in this study. The result of this study is expected to be used as reference in further researches as it helps other researchers to better understand the banks' profitability determinants. Furthermore, bank managers could use this study as a guideline in managing and planning their business to achieve higher profit. This study also provides knowledge regarding the banking sector and clearer picture on the difference between commercial and Islamic banks to the readers.

ABSTRACT

Malaysia is one of countries that implemented dual banking systems. The developing of Islamic banking system has made Malaysia become one of the most important hubs in the world. This study aims to examine the whether financial crisis and bank-specific will significantly affect both the commercial and Islamic bank's performance. This study utilizes the secondary data collected from the yearly financial reports of 3 Islamic banks and 6 commercial banks in Malaysia from 1999 to 2016. The explanatory variables are categorized into bank-specific and financial in this study. The bank-specific factors include capital adequacy, bank size, credit risk, liquidity and non-interest income while the financial crisis present as dummy variable. From the result, it is found that bank size, capital adequacy, liquidity and financial crisis have significant impact on the profitability of Islamic Banks. On the other hand, profitability of Commercial Banks are determined by bank size, capital adequacy, credit risk, liquidity and non-interest income but not financial crisis. Besides that, the result also implies that the factors that have significant impact on the profitability of commercial banks will not necessary affect the profitability of Islamic bank.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

There are many commercial banks and Islamic banks in Malaysia. Those banks play a significant role in a country that able to promote the sustainable growth and stability of economy by providing financial services to the public. Therefore, a strong position and good performance of commercial banks and Islamic banks are significant. In this chapter, there are 8 sections to be discussed which are research background, problem statement, research objectives, research questions, hypothesis, significance of study, chapter layouts and a short conclusion. First there will be a briefly explained about the commercial and Islamic banking sector in Malaysia in research background and the description of issues currently existing in the banking sector also will be explained in problem statement. Next, the objectives, questions, hypothesis and significance of this research will be defined. Moreover, chapter layouts will briefly discuss the outline of this whole research which included 5 chapters. Lastly, a summary of chapter 1 will be held in conclusion.

1.1 Research Background

The banking sector was always recognized to be the most vital segment in enabling the economy to function well. It plays a very important role as the "lifeblood" of economic activity, in collecting deposits and providing credits to states and people, households and businesses by channelling the saved excess of funds from economic units to those that are lack of funds. A sound and competitive banking system can ensure the health of the country's economy. There is plenty of academic research has stated that a well-developed banking sector plays a critical role in facilitating economic growth. According to Jamal, Karim & Hamidi (2012), it is important to have a vigorous and stable profitable banking institution to prevent collapsing when facing any negative shocks and contribute to the stability of the economy.

During the past 20 years, Malaysia has been through a huge restructuring as well as consolidation in the banking sector especially after experienced the financial crisis in 1986,1998 and 2008 to create a core group of strong and well capitalized banking institutions to achieve a more efficient and competitive banking system. In 2010, the banking institutions finally being consolidated and has been reduced to 8 local anchor banking groups namely Affin Bank, Alliance Bank, AmBank, CIMB Bank, Hong Leong Bank, Malayan Banking, Public Bank, and RHB Bank.

The banking sector is considered as the mainstay of a country's economy as banks' performance can create a massive impact on every sector. According to Dietrich & Wanzenried (2010), the profitability of banks is mainly being affected by both external and internal factors over time. To understand the underlying mechanisms, it is necessary to identify the determinants of bank profitability and their changing over time. This knowledge is essential to allow the responsible managers and board members in the banking industry to build strong banks and helps policy makers in developing effective and efficient regulatory rules for the banking sector. Therefore, the determinants of bank profitability are always attractive to academic research as well as the interest of bank management, financial markets, and bank supervisors.

In our research, we have selected the local commercial bank and Islamic bank as our research target. The commercial bank including Affin Bank, Alliance Bank, AmBank, CIMB Bank, Hong Leong Bank, Malayan Banking, Public Bank, and RHB Bank whereas Islamic bank including Affin Islamic Bank Berhad, Alliance Islamic Bank Berhad, AmBank Islamic Berhad, Bank Islam Malaysia Berhad, Bank Muamalat Malaysia Berhad, CIMB Islamic Bank Berhad, Hong Leong Islamic Bank Berhad, Maybank Islamic Berhad, Public Islamic Bank Berhad, and RHB Islamic Bank Berhad which are stated in table 1.1 and 1.2. However, due to the limitation of obtaining data, we only choose top 6 out of the 8 Commercial Banks and 3 out of the 10 Islamic Banks to conduct our research. The chosen Commercial Banks included AmBank, CIMB Bank, Hong Leong Bank, Malayan Banking Berhad, Public Bank, RHB Bank whereas Islamic Banks included Affin Islamic Bank Berhad, Alliance Islamic Bank Berhad and Bank Islam Malaysia Berhad.

Table 1.1 Lists of Commercial banks in Malaysia

No.	List of Malaysian banks (domestic commercial banks)
1	Affin Bank
2	Alliance Bank
3	AmBank
4	CIMB Bank
5	Hong Leong Bank
6	Malayan Banking Berhad
7	Public Bank
8	RHB Bank

Source: Bank Negara Malaysia, 2013

Table 1.2 Lists of Islamic Banks in Malaysia

No.	List of Malaysia banks (domestic Islamic banks)
1	Affin Islamic Bank Berhad
2	Alliance Islamic Bank Berhad
3	AmBank Islamic Berhad
4	Bank Islam Malaysia Berhad
5	Bank Muamalat Malaysia Berhad
6	CIMB Islamic Bank Berhad
7	Hong Leong Islamic Bank Berhad
8	Maybank Islamic Berhad
9	Public Islamic Bank Berhad
10.	RHB Islamic Bank Berhad

Source: Bank Negara Malaysia, 2013

In this research, the explanatory variables are categorised in bank-specific factor to have a clearer view on the determinants of bank's profitability. Fundamentally, bank-specific variables emerged from the internal control by the bank management itself. The return on equity (ROE) has been chosen as a dependent variable since it is most significant and appropriate to investigate the bank's profitability. The bank-

specific variables are bank size, capital adequacy, credit risk, liquidity, and non-interest income. The research tend to focus on the profitability of the commercial banks and Islamic bank in Malaysia and the data is set from year 1999 to 2016 to provide updated finding.

Commercial bank and Islamic bank have been selected in this research as the field of study due to severe competition between both banks caused by a significant number of operating commercial bank and Islamic bank. Other than that, Malaysia is one of the countries that implemented dual (Conventional and Islamic) banking systems. These two banks operate under different regulation and principle, therefore, the banks' profitability is believed to be affected by various factors. For that reason, this research is carried out to confirm the factor affecting the Islamic Bank and Commercial are the same or different. After the Asian financial crisis 1997, which caused fatal impact to the bank-specific factors that affect both banks performance. The consolidation and restructuring of the banking industry have succeeded to reform banking sector, such as the improvements in governance structure and risk management framework to maintain economic stability of Malaysia during Subprime crisis in 2008.

1.2 Problem Statement

Banks act as a significant in the financial system which represent a very crucial role in the economy of every country. In today's world, banks provide a variety that more than hundreds of services to the customers that able to enhance the financial system in countries. The occurrence of financial crisis in 2008 had seriously impacted to the majority of countries' economy. Based on the research, the economic downturn is majority due to the terrible performance by the banks. This indicates that the well-performed banks able to transform the economic conditions to be better (Hamedian, 2013). Therefore, banks have to enhance their products and services quality to reach a better capability that helps to maintain or even better performance in the economy.

In Malaysia, there is a major difference in the banking sector which are conventional banks and Islamic banks. In commercial banking, they used to take deposits from the depositors and paying them a certain interest as their investment yield return. Consequently, commercial banks able to make profits between the rates they pay to the depositors and the rate they received from borrowers (Cheng & Hassani, 2014). Other than commercial banking, Islamic banking has been introduced a remarkable growth in this era finance world with holding more than USD 900 billion assets in 2011 and operating over 75 countries which included Malaysia. Unlike commercial banks, Islamic banks operate based on Shariah law, with the system of interest-free that depositors share the risk from a part of the investment instead of receiving a fixed return so-called 'interest' (Rod, Alhussan, & Beal, 2015).

Today, there is a certain number of commercial banks and Islamic banks operate in Malaysia and this build up to a significant competitive advantage in the banking field. For this reason, a study on the determinants of commercial banks and Islamic banks is a must (Sufian & Chong, 2008). Through this study, banks have to restructure collectively with more responsive system of governance, risk management system, framework as well as practices to solve banking failure based on the bank-specific factors. Moreover, operating in a diversified financial system provides the banking system more potential to endure downturn (Ibrahim, 2010).

The primary sources of funds for long-term investment and economic growth are from banking sector. For this reason, a stability and profitable banking sector ensure the enhancement of financial soundness and economic development (Kamarudin et al., 2016). Moreover, its also indicates the performance of banking sector is essential and not to be easily influenced by the existence of the financial crisis. Thus, this research is to study the stability and profitability of commercial banks and Islamic banks by evaluating the bank specific determinants which will be included bank size, capital adequacy, credit risk, non-interest income, liquidity and financial crisis that affect the performance of banks in Malaysia. This included 6 commercial banks and 3 Islamic banks in Malaysia and the research data are taken from years 1999 to years 2016.

1.3 Research Objectives

1.3.1 General Objective

The general objective stated in this paper is to determine the bank-specific and financial crisis determinants that influence the profitability of commercial banks and Islamic banks in Malaysia.

1.3.2 Specific Objectives

I. To determine the relationship between bank size and profitability of commercial banks and Islamic banks in Malaysia.
II. To determine the relationship between capital adequacy and profitability of commercial banks and Islamic banks in Malaysia.
III. To determine the relationship between credit risk and profitability of commercial banks and Islamic banks in Malaysia.
IV. To determine the relationship between non-interest income and profitability of commercial banks and Islamic banks in Malaysia.
V. To determine the relationship between liquidity and profitability of commercial banks and Islamic banks in Malaysia.
VI. To determine the relationship between financial crisis and profitability of commercial banks and Islamic banks in Malaysia.

1.4 Research Questions

The aim of the research is to identify the variables that will influence the return of equity of domestic commercial banks and Islamic banks in Malaysia.

i. Does the bank size significantly influence the bank's profitability in Malaysia?
ii. Does the capital adequacy significantly influence the bank's profitability in Malaysia?
iii. Does the credit risk significantly influence the bank's profitability in Malaysia?
iv. Does the non-interest income significantly influence the bank's profitability in Malaysia?
v. Does the liquidity significantly influence the bank's profitability in Malaysia?
vi. Does the financial crisis significantly influence the bank's profitability in Malaysia?

1.5 Hypothesis of Study

1.5.1 Bank Size

H_0: There is an insignificant relationship between bank size and bank's profitability.

H_1: There is a significant relationship between bank size and bank's profitability.

1.5.2 Capital Adequacy

H_0: There is an insignificant relationship between capital adequacy and bank's profitability.

H_1: There is a significant relationship between capital adequacy and bank's profitability.

1.5.3 Credit Risk

H_0: There is an insignificant relationship between credit risk and bank's profitability.

H_1: There is a significant relationship between credit risk and bank's profitability.

1.5.4 Non-Interest Income

H_0: There is an insignificant relationship between non-interest income and bank's profitability.

H_1: There is a significant relationship between non-interest income and bank's profitability.

1.5.5 Liquidity

H_0: There is an insignificant relationship between liquidity and bank's profitability.

H_1: There is a significant relationship between liquidity and bank's profitability.

1.5.6 Financial Crisis

H_0: There is an insignificant relationship between financial crisis and bank's profitability.

H_1: There is a significant relationship between financial crisis and bank's profitability.

1.6 Significance of Study

In this study, the main purpose is to analyse the determinants of bank profitability and how they affect the bank performance by using the variables that are listed. In this study, the dependent variable is bank performance while the independent variables are capital adequacy, liquidity, bank size, credit risk and non-interest income. Selective formulas are used to calculate the variables to get more accurate and strong figures.

This study will allow the investors and shareholders to understand more about the financial activities that they engage with the banks. Besides that, government can make some modifications to the existing policy. It is very important for the investors to know the bank's performance well, therefore, they can make a precise decision. On the other hand, precise decision can make them earn more profit on their investment.

Lastly, it is also handy for the banks to know and understand more that determinants will influence the bank's profitability. By understand well all the independent variables, banks can earn a higher profit or return to the investors.

1.7 Chapter Layout

Chapter 1- Research Overview

This chapter presents research background, problem statement, objective, the hypothesis of study and contribution of study.

Chapter 2- Literature Review

This chapter presents the literature on all chosen variables. It consists of theoretical background, review of the models, conceptual framework and developing hypotheses.

Chapter 3- Methodology

This chapter describe how the methodology and data that used in the research paper.

Chapter 4- Data Analysis

This chapter consists of further explanation on the results which are related to the significant and insignificant effect of bank-specific variables on the banks.

Chapter 5- Discussion, Conclusion and Implications

This chapter shows the findings of research from chapters one to four. It also presents the limitations and suggestions for future studies.

1.8 Conclusion

The objective of doing this study is to determine the factors that affect the profitability of commercial banks and Islamic banks in Malaysia. By this way, the research will make a comparative analysis on the performance of commercial banks and Islamic banks in Malaysia. In next chapter, the related variables and theoretical framework will be further explained.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

The comprehensive review of the journals that we studied from secondary sources will be included in this chapter. The sections that will be discussed in this chapter is separate into different part which are review of the literature, review of relevant theoretical models, proposed theoretical/ conceptual framework, hypothesis development and conclusion. The effective literature review that related to our research will be provided in the early part. Furthermore, proposed theoretical/ conceptual framework will be built according to the relationship between the dependent variables which is ROE and explanatory variables (bank size, capital adequacy, credit risk, liquidity noon-interest income and financial crisis). Next, hypothesis related to the relationships among the relevant variables will be constructed. Lastly, conclusion of Chapter 2 will be provided.

2.1 Literature Review

2.1.1 Return on Equity

In this study, we take into account return of equity (ROE) to investigate about the bank's profitability. The formula for ROE is the net income divided by total equity and it is found useful by computing the bank's profitability. The shareholders are more concern on how much the bank make the profit on their investment. According to Bandt et al. (2014), they found out that an increase in ROE will lead to an increment in the capital. One of the method to increase capital by raising equity won't affect the result. Due to efficiency, ROE and bank profitability has a positive relationship. According to Sufian (2011), his study found out in the Korean banking,

ROE and bank profitability has a positive relationship among each other's. According to Aymen (2013), the studies show that return on equity (ROE) and bank profitability is significant and has a positive relationship in Tunisia between the periods of 2000-2009. The studies had been conducted by using a sample of 19 banks in Tunisia on the period of 2000-2009. According to Moussu (2013), return on equity (ROE) acts as the bank performance indicator. If the measurement include risks, ROE will be a good performance measurement. Over focalisation on ROE will lead the managers to expose with higher risks.

2.1.2 Bank Size

According to (Aladwan, 2015), there is a negative relationship between bank size and the bank's profitability, meaning that the smaller the bank size, the bigger the profitability of the bank. This statement can be proved by several reasons. First, the larger the size of the banks, the higher the start-up costs. Banks will purchase computer mainframes which consume a large amount of money and this action will decrease their profitability. Besides that, another main problem that will decrease the bank profitability is the bank's research and development costs. On top of that, we found out that there are high political costs in the larger banks compare to smaller banks. Those reasons will lower the profitability for the larger banks.

According to (Kagecha, 2014), three sets of theories included which are: agency theory, stewardship theory and inverted U-curve theory. By using the agency theory, the bank's profitability will have negative relationship between bank size. By using the stewardship theory, there is a positive relationship between bank size and bank's profitability. For the inverted-U curve theory, at first when the bank size increases, bank's profitability will start to increase, and will start to decline when the size of the bank's become larger.

According to Arif et al. (2013), bank size has a significant relationship with the bank's profitability. Bank size has a significant relationship between the banks' profitability of commercial banks in Pakistan. Regression analysis shows that for a larger bank, there is a positive impact between bank size and bank's profitability and there is a negative impact occurs in bank size and bank profitability for a smaller bank.

According to Haan and Poghosyan (2011), the bigger the bank, the lower the bank's profitability. Large size of banks are "too big to fail" because they are exposed to more risks and vice versa. During the financial crisis, this negative relationship becomes stronger when ROA is dependent variable instead of using ROE as dependent variable. According to Rahaman, Akhter (2015), bank size has an inverse relationship on the bank profitability of Islamic banks. Banks will earn less profits if compare to the smaller banks.

2.1.3 Capital Adequacy

The capital requirement rules was establish from Basel Accords, that minimum 8% of capital adequacy ratio must be maintain by both commercial and Islamic bank (BCBS, 2010). The ratio of equity to total assets is to measure the capital adequacy ratio by most of the researchers. The equity to total assets ratio also represent for risk and the regulatory expenses toward the bank (Wasiuzzaman & Tarmizi, 2010). According to the Bankruptcy theory, more capitalized banks are less risky, increase creditworthiness and face lower costs of funding compare to those low capitalized banks. The higher equity to asset ratio allows banks to absorb any uncertainties that they may experience (Goddard et al., 2004).

There is an argument about the risk-return trade off, which a higher capital ratio which indicate a lower profitability because the more risk-averse banks could potentially be ignoring profitable opportunities. Empirical evidence on the issue is

varied. Athanasoglou et al. (2005) and Goddard et al. (2004) defined that the most profitable banks are those who maintain a high capital adequacy ratio. However Dietrich and Wanzenried (2011) and Curak et al. (2012) finds that more equity relative to total assets implies lower profitability, stating that banks are overly cautious.

Athanasoglou et al. (2005), Nacuer (2003), Flamini et al (2009) and Goddard et al. (2004) had evaluated the European banks' profitability. The result showed a positive impact of capital ratio on the banks profitability. Highly capitalized banks come with a good creditworthiness, thus allow the bank giving the savers with a lower interest rate and lower cost of funding need which turned the cost down and enhanced the bank's profitability.

Curak et al. (2012) and Dietrich and Wanzenried (2011) were studying the determinants of bank profitability during the financial crisis 2008, found that high equity to total assets are showed a negative impact on the banks performance. Furthermore, banks with highly capitalized are less risky, but the caution decision in banking business will reduce the bank revenue. Hence, capital adequacy is negatively correlated.

From the Islamic banks perspective, Wasiuzzaman and Tarmizi (2010) have done a research on profitability of Islamic bank in Malaysia during 2005 to 2008. This result reported a negative effect of equity-to-asset ratio and bank profitability. It showed that the higher equity-to-asset ratio resulting a lower bank performance. Izhar and Asutay (2007) studied find out negative insignificant toward the bank.

Yap et al. (2012) and Bashir (2003) also studying the Islamic bank profitability but found out difference result with Wasiuzzaman and Tarmizi (2010), capital adequacy is positive significant. Al-Qudah and Jaradat (2013) who study the ROA and ROE of Islamic banks found it is positive significant toward the bank.

Lastly, Asma et al. (2011) studying Islamic banking institutions' profitability in Malaysia find out that equity to total assets not having significant impact on bank profitability, result found to have positive relationship with bank profitability. It is due to equity is only a small proportion of total assets.

In conclude, there is no way to estimate in advance for the relationship between capital adequacy and bank profitability.

2.1.4 Credit risk

Credit risk is the one of the major risk that banks are concerned. The banks loan loss reserves divided by total loans is the most common way to measure the credit risk of a loan portfolio (Ana, Blanka & Roberto, 2011). Schipper and John (2013) described the credit risk would be a negative relationship toward the bank because the greater a bank exposure to risky loans, the higher the default rate, thus lower profitability.

The studies that determine profitability of bank, Trujillo-Ponce (2012) and Athanasoglou et al. (2005) found that the credit risk ratio is negatively affects the profitability. The credit risk ratio showing a default rate on loan portfolio of a bank. Thus, the higher the ratios would indicate the lower the bank profitability. Since non-performing loans usually will default.

Secondly, the studies of Curak (2012) that included the crisis period finds out that credit risk is negatively significant to the bank's profitability. Credit risk increase the bank's profitability will decrease. But there is no significant relationship toward the banks. This mean that the credit risk is not enough to study bank profitability.

Dietrich and Wanzenried (2011) find out that there is no significant relationship during the pre-crisis period due to Switzerland bank had very low loan loss provisions, although they find a significant and negative relationship during crisis years as during the crisis year the default of loan increase.

Lastly, some of the researcher find out that credit risk have positive relationship toward the bank. Boahene, Dasah & Agyei (2012) agree that the credit risk is positively related to bank's profitability. There find out that Ghanaian banks tend to benefit from higher credit risk. As a high credit risk will lead to a higher income. Researchers agree that the result in line with the risk-return theory.

From the Islamic banks perspective, the studies of Asma et al. (2011) and Masood & Muhammed (2012) claimed that credit risk is negative relationship toward bank's profitability. Researcher found that that the increase in credit risk will reduce the bank's profitability.

2.1.5 Non-Interest Income

Non-interest income is characterized as non-traditional income of a bank or creditor and it is not included in banks' main profit activities. It helps to boost up additional income of a bank in order to meet their pursuit of profitability. It is a strategy of a bank that diversify away the traditional activities' income such as fee income, service charges, trading and securitization revenue, brokerage commission and so forth (Singh1, Singh2, Upadhyay, & Singh3, 2016).

Brunnermeier, Dong, and Palia (2012) stated that non-interest income usually raise the risk of individual bank however have not concentrated on a bank's commitment to systemic risk. In other words, they found the association between non-interest income and volatile bank returns are increasing and the fee-based activities caused a higher revenue at the same time also caused higher risk and earnings inconstancy.

In contrast, Altunbas, Manganelli, and David (2011) discovered that non-interest income decreases the probability of trouble problem during financial crisis, therefore it can mitigate the bank risk. Besides that, Smith, Staikouras, and Wood (2003) said that it reduces bank risk by expanding the banks' activities, which gains the risk-reduction from non-interest income activities. . Becvarikova (2016) explained that non-interest income become very important for the bank's income due to non-interest income is very impactful after critical damaged by the financial crisis in banks' profitability. He stated that non-interest income is an additional source of income apart from the traditional activities that able to recover the profitability losses from the financial crisis.

Sun, Wu, Zhu, and Stephenson (2017) pointed out that non-interest income able to enhance the performance of commercial banks by expanding the source of diversify income. They also mentioned non-interest income has a positive correlation with ROE. Other than that, it is important about the development of non-interest income in order to stabilize the bank profitability which has been done by international banks (Sun et al., 2017). In the aspects of Islamic banks, Bashir (2003) explained that all the incomes from Islamic banks are considered as non-interest income so it corresponded to the total operating income. He also stated that if all the banks able to undertake to a better non-interest activities and offer more new services, it could help to decrease the failure in banking sector.

2.1.6 Liquidity

According to Kumar, Yadav (2013), liquidity define as a bank's ability to boost its assets to meet unexpected and expected cash and also short-term obligations without suffering any loss. Liquidity will not just rely on quantity of liquid assets only, but take into account in borrowing power and profit expectations. Liquidity can be explained by ability of banks to fund increases in their assets in order to comply with their obligations when due. The inability of the financial institutions to repay its short term obligations are known as liquidity risk. In liquidity part, we

use current ratio to calculate on how liquidity affects the bank profitability. Current ratio can be define as the ability of bank to pay its obligations or short term debt when due.

According to Alshatti (2015), by measuring return on equity (ROE), it will affect the liquidity towards the Jordanian commercial banks profitability. Using the ROE, the Jordanian commercial banks profitability has a positive effect towards the liquidity management. Besides that, there is a positive effect from liquidity management of capital ratio towards the bank's profitability by using the ROA to measure. The finding shows that by increasing the quick ratio and investment ratio will cause an increment in the profitability by increasing the ROE. Decreasing in invested funds will cause an increasing in the Jordanian commercial banks' profitability by using ROE to measure.

According to Khan and Ali (2016), liquidity and bank profitability of commercial banks in Pakistan shows that there is a positive relationship between them. This means that an increasing in liquidity will cause an increment in the banks' profitability. Thus, banks are encouraged to reserve certain amount of liquid assets to earn more profit. According to Bordeleau and Graham (2010), between the periods of 1997 to 2009 for the Canadian and U.S banks, the empirical evidence shows that there is nonlinear. Profitability can be increase if banks hold more liquid assets. On the other hand, holding liquid assets will decrease the bank's profitability, ceteris paribus. By holding liquid assets, it will decrease the liquidity risk. Example like rewards a bank by funding markets.

According to Dahiyat (2016), there is a negative impact on liquidity over profitability. If the quick ratio of the bank increased, there will be a decreasing in the bank's profitability. The researcher explains that it may due to the bank's liquidity is too high and cause the bank unable to handle its current assets efficiently. According to Bassey and Moses (2015), the study shows profitability and liquidity

has a significant relationship by taking 15 Nigerian banks into account when return of equity (ROE) is used to measure the profitability.

According to Simai (2013), for the research on Islamic banks, the outcome are vary. They found out that there is significant relationship between liquidity and bank profitability. This is due to Islamic banks have different signs with the commercial banks on the profit and loss sharing basis.

2.1.7 Financial Crisis

Financial crisis is any of a wide range of circumstance that could affect the nominal value of a financial asset in a sudden. In Claessens and Kose (2013) studies, they said it was an excruciating indication of the multifaceted nature of crises for the global financial crisis in 2008. Moreover, they described as "financial crises are an equal opportunity menace" as the financial crisis hits rich as well as the poor countries. Banking panics are related to the financial crises and it coincided with many recessions and it is one of the concerned variables for banking sector.

Zivko and Kandzija (2013) stated the quality of bank assets and bad loan shares in total loans or total assets which in the banking sector were affected by the financial crisis. Besides that, Olaniyi and Olabisi (2011) mentioned that banks, companies, investors and government have essential implication from the current financial crisis. The stable sources of funds which carried by bank intermediation role are the main implication to commercial banks. Commercial banks in Pakistan were faced the worst knocks of financial crisis that affected their credit policies and banking reforms in the last two decades ago. It was fortunate that no bank collapse in this crisis yet it seriously affected the pattern, performance as well as the operation policies of commercial banks in Pakistan (Nazir, Safdar, & Akram, 2012). However in the same study, they found that Chilean banking had tiny impacts by the global

financial crisis. The crisis risk shocks had nothing serious caused to the Chilean banking that lead to global and other local banking institutions (Nazir et al., 2012).

Shafique, Faheem, and Abdullah (2012) pointed that global financial crisis has led to a new financial system in developed countries that purpose of dealing with crisis problems. Developed countries forced to be changed base on Islamic principles such as lowering down the bank rates and introduce new financial system regarding to Islamic concepts due to the recent global financial crisis. Shafique et al. (2012) discovered that Islamic banks be affected by the global crisis in 1998-1999 but Islamic banks performed as usual or even better after the crisis. They also stated that the reason why Islamic banks are financially sound and stable after the crisis since Islamic banks got their financing from deposits as opposed to from borrowing.

2.2 Review of Relevant Theoretical Models

2.2.1 Theory of CAMEL

CAMEL is a recognized international rating system that used of bank supervisory authorities in order to evaluate the bank's performance according to the 5 factors. These factors indicate capital adequacy, asset quality, management quality, earning ability and liquidity. Supervisory authorities relegate every bank score on a scale. In the rating, one is considered the best and five is considered the worst for every factor. Due to these ratings are important for bank's performance, so it became a very significant internal factors in banking sector. From the research that studied by Ahsan (2016), he used the CAMEL rating analysis approach to capture the important internal factors and this study found all the selected Islamic Banks are in strong position on their composite rating system.

2.2.2 Credit Rationing Theory (1969)

"Credit Rationing Theory" supports the negative relationship between credit risk (loan loss reserve-to-total loans ratio) and bank's profitability (Kundid et al., 2011). When level of loan loss provisions are too high, this will reduce the bank's ability to supply loans to customers and this situation is known as credit shortage, thus it reduce bank's lending activities and reduce the profits. This is in line with "Credit Rationing Theory" which is a situation whereby lender fail to supply credit to the borrowers who demand for funds, this also means demands of credit exceed supply of credit. In other words, even though borrowers willing to pay higher interest rate for credit, but bank is not able to supply credit due to the credit shortage that arise from high loan loss reserve.

2.2.3 Financial Ratio Analysis

Financial ratios are the most well-known and across the broad instruments used to examine the performance of organization. Financial ratios are used to compare of financial statements of organization in mathematic form. The financial Ratios info able to help the investors, creditors, and the internal management of organization in their performance as well as knowing the parts which are needed for improvement. Ratios allow us to compare the size of firm, and also to distinguish between the strengths and weaknesses (Arkan, 2016). In this study, financial ratios are divided into several categories which are profitability (ROE), bank size, capital adequacy, credit risk, non-interest income, and liquidity.

According to Kumbirai and Webb (2010), financial ratio analysis is compelling in recognizing high performing banks from others, has a tendency to makes up for differences and controls for any size impact on the financial variables being studied. Therefore, financial ratio analysis is more interested compared to extant literature. Besides that, financial ratios empower us to distinguish the difference of bank

strengths and weaknesses, which is able to enhance the performance of bank such as bank profitability, liquidity and credit quality (Kumbirai & Webb, 2010). Stanko and Zeller (1994) stated that financial ratios currently be involved in the CAMEL rating system. CAMEL stand for capital adequacy, asset quality, management, earnings, and liquidity. According to Stanko and Zeller (1994), an establishment's financial condition can be determined go by these standards which is concluded by financial regulatory agencies. Stanko & Zeller (1994) stated the characteristic and importance of financial ratio analysis towards the bank's performance evaluation, future profit estimation, competitor analysis, and credit worthiness.

2.2.4 Panel data regression model

Panel data regression model has been widely applied to study the factors of banks' profitability. Panel data refer to the combination between time series data and cross section data and there are time dimensions and space exist in the data. There are several advantages of using panel data including large sample size, study of dynamic changes in cross-sectional units over time and study of more complicated behavioral models, including study of time-invariant variables. In addition, panel data regession models consists of Fixed Effects Model (FEM) and Random Effects Model (REM) as well as Pooled Ordinary Least Squares (Pooled OLS) model.

Some of the researchers used FEM to conduct their study. According to Staikouras & Wood (2004), the researchers examined how the performance of the EU banking industry being affected by internal determinants and external factors as a whole from 1994 to 1998. In addition, Sufian & Habibullah (2009) conducted the study to examine the performance of 37 Bangladeshi commercial banks between 1997 and 2004. The researcher also stated that fixed effect model appeared to be unbiased and evaluations of the coefficients is constant.

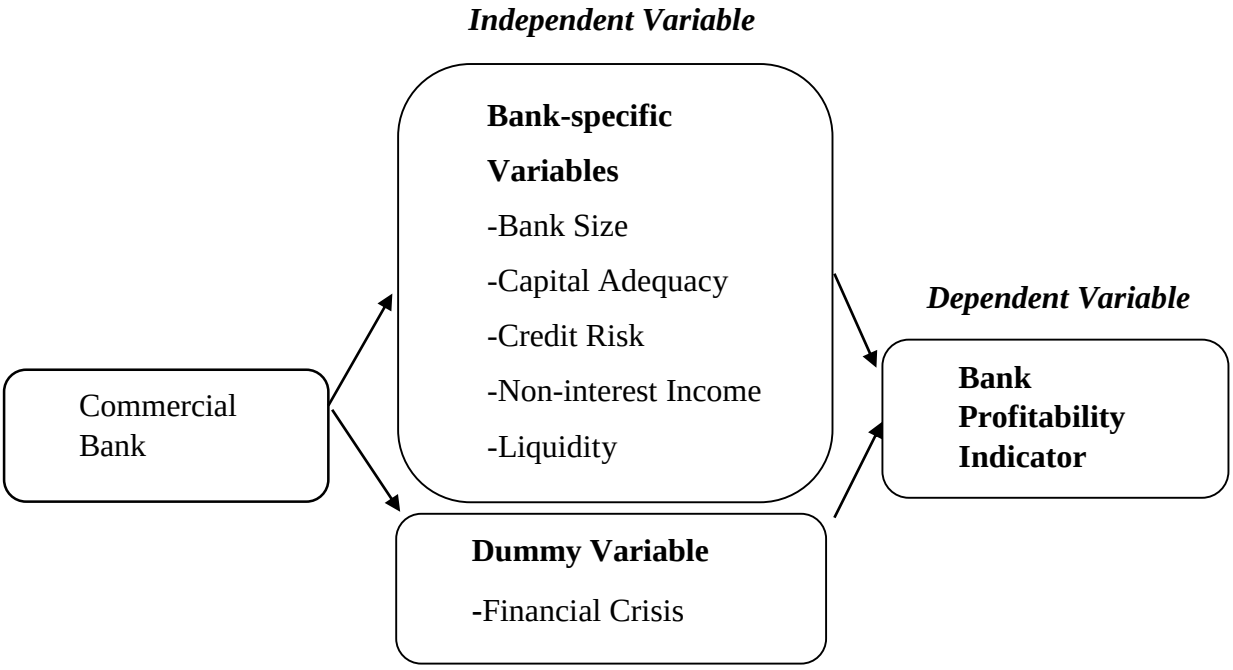
If the cross section numbers are greater than the number of parameter, REM is more appropriate to be used. REM is also more suitable to be used if N individual being selected randomly from a huge population. According to Alexiou & Sofoklis (2009), the researchers investigates the effects of bank-specific and macroeconomic determinants of bank profitability of 6 greek banks by adopting and applying panel data approach.

Hausman (1978) stated that the random effects estimators should be compared with the fixed effects estimators to examine if significant differences occur before employing the method in the empirical analysis. The researcher used hausman test to test null hypothesis of no difference in the two models which is FEM and REM. (Ahmad, Nafees & Khan, 2012) According to Staikouras & Wood (2004), method suggested by Hausman is being used to conclude that fixed effects estimator is the appropriate choice in the study.

Lastly, there is another type of regression model which is Pooled OLS Model (POLS) where all the data is connected together without taking time series and cross section into considerations. According to Gul,Irshad & Zaman (2011), the researchers used pooled Ordinary Least Square (POLS) method to examine the relationship between bank-specific and macro-economic characteristics over bank profitability by using top 15 Pakistani commercial banks from 2005 to 2009. Besides that, the researchers stated that the advantage of pooling is that more reliable estimates of the parameters in the model can be obtained.

2.3 Conceptual Frameworks

Figure 2.2: Determinants of bank's profitability in Malaysia



Source: Developed for the research

Figure has displayed the bank-specific variables (bank size, capital adequacy, credit risk, non-interest income and liquidity) and dummy variable (financial crisis) that used to identify the bank profitability (return-on-equity). Thus, this study is trying to study the relationship between the above variables and the bank's profitability.

2.4 Hypothesis Development

H_0 explained that there is no significant relationship between dependent variables and the independent variables while **H_1** explained that there is a significant relationship between dependent variables and the independent variables. We will reject **H_0** if there is enough evidence to prove that there is a not true about **H_0** and this means that there is a significant relationship between dependent variables and independent variables.

2.4.1 Bank Size

H_0: There is no significant relationship between bank size and bank's profitability.

H_1: There is a significant relationship between bank size and bank's profitability.

2.4.2 Capital Adequacy

H_0: There is no significant relationship between capital adequacy and bank's profitability.

H_1: There is a significant relationship between capital adequacy and bank's profitability.

2.4.3 Credit Risk

H_0: There is no significant relationship between credit risk and bank's profitability.

H_1: There is a significant relationship between credit risk and bank's profitability.

2.4.4 Non-interest income

H_0: There is no significant relationship between non-interest income and bank's profitability.

H_1: There is a significant relationship between non-interest income and bank's profitability.

2.4.5 Liquidity

H_0: There is no significant relationship between liquidity and bank's profitability.

H_1: There is a significant relationship between liquidity and bank's profitability.

2.4.6 Crisis

H_0: There is no significant relationship between crisis and bank's profitability.

H_1: There is a significant relationship between crisis and bank's profitability.

2.5 Conclusion

In the nutshell, chapter 2 includes literature review that discuss previous studies of bank-specific factors towards commercial bank and Islamic bank's performance across different countries. The dependent variable and 6 explanatory variables have been discussed as well. Furthermore, the relevant theoretical models and conceptual framework have been discussed to investigate the relationship between the relevant variables followed by hypothesis development. Lastly, the empirical model that used in this research will be introduced in next chapter to test whether the hypothesis is stated correctly.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

In chapter 3, data collection method, data analysis, data descriptions will be explained in further details. Five bank specific factors are getting involved in this study that are capital adequacy, liquidity, bank size, credit risk and non-interest income as well as financial crisis as the dummy variable. There are total of six commercial banks and three Islamic banks in Malaysia are getting involved. The commercial banks getting involved in Malaysia are AmBank, CIMB Bank, Hong Leong Bank, Malayan Banking Berhad, Public Bank, RHB Bank while the Islamic banks getting involved are Affin Islamic Bank Berhad, Alliance Islamic Bank Berhad and Islamic Berhad.

3.1 Research Design

The objective for this research is to study the implication of financial crisis and bank specific towards profitability of commercial bank and Islamic Banks. The determinants of bank profitability are bank size, capital adequacy, credit risk, non-interest income, liquidity and financial crisis. The dependent variable for this study is the bank profitability and they are affected by the independent variables such as bank size, capital adequacy, credit risk, non-interest income, liquidity and financial crisis. We defined quantitative data as numerical data because this will let the user to compute.

3.2 Data Collection Method

We used secondary data to conduct this empirical test. Five determinants of bank performance such as capital adequacy, liquidity, interest rates, bank size, credit risk and crisis are collected. Those data are collected from the "Bloomberg" database (for the year 1999-2016) and they are downloaded from the internet.

Table 3.1 Data Sources

TYPES OF DATA	DATA SOURCES
Dependent Variable	
Bank Profitability	Bloomberg Data
Bank-Specific Factors	
Bank Size	Bloomberg Data
Capital Adequacy	Bloomberg Data
Credit Risk	Bloomberg Data
Non-Interest Income	Bloomberg Data
Liquidity	Bloomberg Data
Dummy Variable	
Financial crisis	Bloomberg Data

3.2.1 Return on Equity (ROE)

Return on equity (ROE) indicates the efficaciousness of bank management in taking care of shareholders' funds in order to be produced profits. Higher ROE is preferred due to it implied the management is proficient in dealing with the shareholders reserve and create to incomes to shareholders. Therefore, shareholders are advantages from capital investment by the bank (Ong & Teh, 2012). ROE is chosen as a dependent variable and it defined as net income over by average total equity.

$$\text{ROE} = \frac{Net\ Income}{Average\ total\ Equity}$$

3.2.2 Bank Size

Bank size refers to the volume of the asset in a bank and it is one of the practical ratio for measuring the performance of banks. In the research of Aladwan (2015), he studied about the effect of bank size on bank profitability for Jordanian from year 2017 to year 2012. He categorized the bank into 5 categories base on their bank size. The result revealed that there is a negative relationship between bank profitability and bank size. Besides that, he also stated small banks revealed higher performance compare to the large banks. However, in the study of Arif, Khan, and Iqbal (2013), the result revealed that the bank size has a positive effect on bank profitability for the commercial banks in Pakistan. Other than that, they also revealed the larger bank size is positive impact to the profitability while smaller bank size tend to have negative impact. Moreover, George (2015) stated that larger banks are more leveraged than smaller banks before and after the financial crisis. Therefore bank size has been chosen as one of the bank specific variables in this research.

$$\text{Bank Size} = \text{Log (Total Assets)}$$

3.2.3 Capital Adequacy

Capital adequacy refers to the adequacy measure of banks value to assimilate any stuns that the bank may confront. Equity-to-asset ratio (EA) reflects the capacity of the bank to undergo losses or financial risk ((Ong & Teh, 2012). Other than that, Staikouras and Wood stated that the overall capital strength can be also measured by EA, so it ought to catch the general average safety and soundness of the financial institutions. This ratio is measured by total equity over by total asset.

$$\text{Capital Adequacy} = \frac{Total\ Equity}{Total\ Asset}$$

3.2.4 Credit Risk

Credit risk is a risk that occurs when the bank borrower fail to make the repayment on their debt. In the research of Gizaw, Kebede and Selvaraj (2015) about the study of commercial banks in Ethiopia for the last 12 years, the results revealed a critical problem in the banking sector which is the stack of non-performing loan. It showed that credit risk has a significant impact to the bank profitability. Berrios (2013) stated that there is a negative relationship between ROE and credit risk so it indicates that if a bank holding high debt levels, at the same time it might also facing with high credit risk. Berrios (2013) also discovered that higher credit risk caused bad profitability of banks because of the uncertainties of borrowers' repayment to the amount of debts. In this study, credit risk ratio is measured by the loan loss provision over by total loans.

$$\text{Credit Risk} = \frac{Loan\ Loss\ Provision}{Total\ Loans}$$

3.2.5 Non-Interest Income

Non-interest income refers to the income of a bank that primarily focus on 'fee income' that related to transaction and deposit earnings which helps to boost up the revenue of banks. Besides from the traditional banking services, Mndene (2015) stated that recently there are new sources for earning non-interest income such as insurance and mutual fund sources. In the research of Mndene (2015), he clarified that non-interest income is likewise among the significant factor that would affect the bank profitability. In Ngendo's study, it become more awareness of the positive relationship between bank profitability and non-interest income. Since the growth of non-interest income, it brings to a positive effect to bank profitability (Ngendo, 2012). Non- interest income ratio is measured by non-interest income over by total asset. This ratio shows that the amount of earning on assets through non-interest income.

$$\text{Non-Interest Income} = \frac{Non{-}Interest\ Income}{Total\ Assets}$$

3.2.6 Liquidity

Bank is needed to hold adequate liquid assets which can rapidly convert into cash in order to maintain a strategic distance from insolvency problems. Bank liquidity is indicated through liquid assets to Deposit and Short-Term Funding ratio (LIQ). The ability of bank to meet its current obligations is showed by LIQ (Ong & Teh, 2012). Besides that, Rengasamy (2014) stated that the bank liquidity can be measured by loan-deposit ratio. This ratio is calculated by the total loans over by total deposits.

$$\text{Liquidity} = \frac{Total\ Loans}{Total\ Deposits}$$

3.2.7 Financial Crisis

Financial crisis is considered as one of the impactful variables towards profitability of banks. Financial crisis caused the banking sector to have potential loss in mortgage defaults, interbank lending to freeze, and credit to individuals, businesses and government to be confined (How did, 2015). Therefore, financial crisis is chosen as one of the independent variables which analyse as dummy variable which means it will be selected 1 for financial crisis and 0 for no financial crisis.

3.3 Sampling Design

3.3.1 Target Sampling

The secondary data is collected in this study to carry out the empirical test. The data is collected through commercial banks and Islamic banks stated in below:

List of Malaysia banks (domestic commercial banks)

1 Affin Bank

2 Alliance Bank

3 AmBank

4 CIMB Bank

5 Hong Leong Bank

6 Malayan Banking Berhad

7 Public Bank

8 RHB Bank

Lists of Malaysia banks (domestic Islamic banks)

1 Affin Islamic Bank Berhad

2 Alliance Islamic Bank Berhad

3 AmBank Islamic Berhad

4 Bank Islam Malaysia Berhad

5 Bank Muamalat Malaysia Berhad

6 IMB Islamic Bank Berhad

7 Hong Leong Islamic Bank Berhad

8 Maybank Islamic Berhad

9 Public Islamic Bank Berhad

10 RHB Islamic Bank Berhad

3.4 Data Analysis

3.4.1 Panel Data Regression Model

The data is known as panel data or longitudinal data which refer to data containing time series observations of a number of individuals. Therefore, observations in panel data involve at least two dimensions which is cross-sectional dimension and time series dimension. (Hsiao, 2007) In the study, the researcher stated that benefits of using panel data including more accurate inference of model parameters as panel data normally contain more degrees of freedom and more sample variability than cross-sectional data or time series data. Thus, the efficiency of econometric estimates can be improved. Besides, it can also simplifies computation and statistical inference. There are three common types of models which known as Fixed Effects Model, Random Effects Model and Pooled Panel regression. Since the cross section of our research model is less than the number of coefficients of regressor estimator, the Random Effects Model will not be employed to carry out the test. Therefore, there is only Pooled panel regression and Fixed effect model seem to be appropriate to be used. Thus, poolability hypothesis testing will be carried out to identify which panel data regression model is more appropriate.

The model specification of this research can be shown as follow:

$$ROE_{it} = \alpha + \beta 1\ CA_{it} + \beta 2\ CR_{it} + \beta 3\ LQ_{it} + \beta 4\ NII_{it} + \beta 5\ BS_{it} + \beta 6\ CS_{it} + \varepsilon_{it}$$

Table 3.2 Symbols and Measurements

Symbol	Definition	Unit measurement
ROE	Return on Equity	Total net income / Total Equity
CA	Capital Adequacy	Total equity / Total Asset
CR	Credit Risk	Loan loss provision / Total Loan
LQ	Liquidity	Total Loan/ Total deposit
BS	Bank size	Log(Total Loan)
NII	Non-interest income	Non-interest income/ Total asset
CS	Financial Crisis	Dummy variable, where 07-08 financial crisis = 1, otherwise = 0

3.4.2 Poolability Test

According to Kunst(2009), the poolability test is used to test whether the individual effect is present or not. According to Baltagi, Hidalgo and Li (1996), poolability test was conducted in order to test which empirical model, Pooled OLS model or FEM is more appropriate to estimate the model.

The poolability test follows a restricted F-test distribution, and its F-value is computed as follow:

$$F=\frac{(R^2_{FEM}-R^2_{POOL})\div(K_{FEM}-K_{pool})}{(1-R^2_{FEM})\div\{n-(K_{FEM}+1)\}}$$

Where

R^2_{FEM} = R-squared of fixed effects model

R^2_{POOL} = R-squared of pooled OLS model

K_{FEM} = Number of independent variables of fixed effects model

K_{pool} = Number of independent variables of pooled OLS model

n = Number of observations

Our decision rule is based on the computed value of the F-statistic whether to reject the null hypothesis. The null hypothesis will be rejected if the F-statistic probability value is less than the level of significance.

3.4.2.1 Diagnostic Test

The purpose of conducting diagnostic test in this research is to detect whether the econometric problems exist or non-exist for this model. The potential problems that may occur in the model are normality, autocorrelation, multicollinearity, heteroscedasticity and model specification error. However, due to limitation of E-view system, autocorrelation, heteroscedasticity and model specification error test is unable to be tested for panel data.

3.4.2.2 Normality Test

Jarque-Bera (JB) test is conducted in order to investigate does the error terms meet the normal distribution, (Gujarati & Porter, 2009). If the error term is normal distributed, it indicate that there is no model specification error, or vice versa.

H_0 : Error terms is normally distributed.

H_1: Error terms is not normally distributed.

Decision Rule: Reject H_0 if p-value for Jarque-Bera test statistic is less than 0.05. Otherwise, do not reject the H_0.

3.4.2.3 Multicollinearity

There is Multicollinearity problem if two or more of the independent variables in the model are encountered as highly correlated with each other (Gujarati & Porter, 2009). When multicollinearity exists, it will destroy the analysis and thereby limit the subsequent conclusions. Multicollinearity can be detected by using high pair-wise correlations between regressors. When the pair-wise correlation among two independent variable is more than 0.8, it means a serious multicollinearity problem is exist as implied by rule of thumb. Variance inflation factor (VIF) examined how much the variance is inflated. If the VIF obtained is equal or less than 1, indicates that multicollinearity problem does not exist in the model. However, if VIF obtained is between figures 1 to 10, it indicates that no serious multicollinearity problem exist in the model. Hence, it is not necessary to solve multicollinearity problem if the VIF is less than 10.

Formula: $VIF\varepsilon = \frac{1}{(1-R^2)}$

3.5 Conclusion

In this chapter, we adopt quantitative data and secondary data to estimate the determinant factors. Besides, various type of econometric diagnosis tests will be conduct to provide empirical result of our study. In the following Chapter 4, the regression result would be explained and discussed in details.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

In this chapter, we tend to focus on interpreting and presenting the empirical results derived from the methodologies explained in Chapter 3 through hypothesis testing. Meanwhile, the overall result of the research will be discussed in the descriptive analysis section. The main highlights of this chapter are the results for scale measurements such as the tests for normality, multicollinearity, and Poolability F-test. Eview 9.0 is being used to conduct all of the tests.

4.1 Descriptive Analysis

Table 4.1: Descriptive statistics for Commercial Bank in Malaysia from 1999-2016

	ROE	BS	CA	CR	LQ	NII	CS
Mean	12.53152	5.117095	0.083593	0.009208	0.914406	0.015863	0.111111
Maximum	38.18212	5.866852	0.144061	0.068367	1.971909	0.053850	1.000000
Minimum	-76.12341	4.389863	0.036591	-0.001867	0.527764	0.005810	0.000000
Std.deviation	10.43391	0.329481	0.017568	0.009041	0.198031	0.010739	0.315735

Source: Developed for the research

Table 4.2: Descriptive statistics for Commercial Bank in Malaysia from 1999-2016

	ROE	BS	CA	CR	LQ	NII	CS
Mean	-6.440153	4.412326	0.092041	0.014098	0.757949	0.018027	0.111111
Maximum	58.71996	4.838133	0.229996	0.174319	1.087953	0.041741	1.000000
Minimum	-573.3678	2.936640	-0.019023	-0.003670	0.383337	0.000139	0.000000
Std.deviation	84.78015	0.368097	0.033009	0.027773	0.147934	0.011086	0.317221

Source: Developed for the research

Table 4.1.1 and Table 4.1.2 above summarize the dependent variable (ROE) and independent variables which are Bank Size, Capital Adequacy, Credit Risk, Non-interest income, Liquidity, and Financial Crisis descriptive statistics for commercial banks and Islamic banks. On average, the mean value of ROE for the 6 selected Commercial banks is 12.53152.The minimum value is 76.12341 and maximum value is 38.18212. However, the mean value of ROE for 3 selected Islamic banks is -6.440153 with the -573.3678 of minimum value and 58.71996 of maximum value. It indicate that Islamic banks' profitability is lower than the profitability of commercial banks as the mean value of ROE for commercial banks is outperformed Islamic banks greatly. The standard deviation of ROE for commercial banks is 10.43391 whereas the standard deviation Islamic Bank is of 84.78015. This shows that the volatility of profitability between commercial banks is lower than the volatility of Islamic banks profitability. It indicates that the profitability for commercial bank is less fluctuated compare to Islamic banks. On the other hand, bank size shows the highest mean value for both of the commercial banks and Islamic among the explanatory variables which are 5.117095 and 4.412326 respectively with the highest standard deviation of 0.329481 and 0.368097. Nevertheless, credit risk consists of lowest mean value for both commercial banks and Islamic banks which are 0.009208 and 0.014098 respectively. Same goes to standard deviation as well which is 0.009041 for commercial banks and 0.027773

for Islamic banks. This result implies that the credit risk for Islamic banks is highly fluctuated than commercial banks.

4.2 Normality Test

Table 4.3: Normality Test

Normal Residuals (Errors) Test		
Commercial Bank	Jarque-Bera Test Statistic = 22.74967	Probability = 0.000011
Islamic Bank	Jarque-Bera Test Statistic = 19.69058	Probability = 0.000053

Source: Developed for the research

Hypothesis:

H_0 = The Error terms is normally distributed

H_1 = The Error terms is not normally distributed

Level of Significance, α = 0.05

Decision Rule: Reject the $H_0$when p-value of Jarque-Bera statistics is higher than the level of significance, α. Otherwise, do not reject H_0.

Conclusion: Since p-value of Jarque-Bera statistics for both commercial bank and Islamic bank is 0.000011 and 0.000053, which is lower than α = 0.05, we reject the null hypothesis which indicates that the error term is not normally distributed and normality problem is exist for both banks.

However, according to central limit theorem, Gujarati and Porter (2009) suggested that error term is assumed to distribute normally when the sample size is more than 100. Since the sample size of the estimation model is 109, the error is assumed to be normally distributed.

4.3 Multicollinearity

Table 4.4 Correlation Analysis for Commercial Bank

	Bank Size	Capital Adequacy	Credit Risk	Liquidity	NII	Crisis
Bank Size	1.000000	0.031781	-0.551324	-0.111394	-0.197917	0.013247
Capital Adequacy	0.031781	1.000000	-0.269828	-0.138953	0.108462	-0.205148
Credit Risk	-0.551324	-0.269828	1.000000	0.614068	0.280443	0.008744
Liquidity	-0.111394	-0.138953	0.614068	1.000000	0.633080	-0.168759
NII	-0.197917	0.108462	0.280443	0.633080	1.000000	0.016303
Crisis	0.013247	-0.205148	0.008744	-0.168759	0.016303	1.000000

Source: Developed for the research

Table 4.5 Correlation Analysis for Islamic Bank

	Bank Size	Capital Adequacy	Credit Risk	Liquidity	NII	Crisis
Bank Size	1.000000	0.540834	-0.416505	0.350325	-0.423887	-0.109652
Capital Adequacy	0.540834	1.000000	-0.676699	0.351637	-0.467531	-0.018942
Credit Risk	-0.416505	-0.676699	1.000000	-0.050986	0.259304	-0.040124
Liquidity	0.350325	0.351637	-0.050986	1.000000	-0.796292	-0.275184
NII	-0.423887	-0.467531	0.259304	-0.796292	1.000000	0.132033
Crisis	-0.109652	-0.018942	-0.040124	-0.275184	0.132033	1.000000

Source: Developed for the research

The correlation is being measured between -1 and 1. The positive sign of the coefficient of correlation signifies that the slope of variables is upward sloping and both variables are moving toward a same direction whereas the negative sign of the coefficient of correlation signifies that the slope of variables is downward sloping and it has an inverse relationship between two variables. However, when the coefficient of correlation equals to 0, it means that there is no relationship between the two variables. The table 4.3.1 shows the correlation analysis of the independent variables for commercial bank while table 4.3.2 shows the correlation analysis for Islamic Bank. Based on rule of thumb, a serious multicollinearity problem could be exist if the pair-wise or zero-order correlation coefficient between the two independent variables is greater than 0.8 Since the pair-wise correlation coefficients among the independent variables are not more than 0.8, we can conclude that there is no serious multicollinearity problem among the independent variables.

4.4 Panel Data Regression

Commercial Bank

Table 4.6 Regression Results for commercial bank (Dependent Variable = ROE)

Independent Variables	**POLS**		**FEM**	
	Coefficients	**Probability**	**Coefficients**	**Probability**
BS	-3.140837	0.2730	-16.27435	0.0000***
CA	-103.3161	0.0167**	-181.0553	0.0000***
CR	-749.8084	0.0000***	-1066.803	0.0000***
LQ	-20.02434	0.0032***	-10.62616	0.0612*
NII	318.8489	0.0009***	1074.037	0.0000***
CS	-0.872065	0.7109	-0.922517	0.5828
R^2	0.578416		0.806941	
Adjusted R^2	0.553372		0.784820	
Prob(F-statistics)	0.000000		0.000000	

*Note: BS= Bank Size, CA= Capital Adequacy, CR= Credit Risk, NII=Non- interest income, LQ= Liquidity, CS= Financial Crisis P-value in parentheses *, **, and *** indicates significant at 10%, 5%, and 1% significance level respectively*

Source: Developed for the research

Islamic Bank

Table 4.7 Regression Results for Islamic bank (Dependent Variable = ROE)

Independent Variables	**POLS**		**FEM**	
	Coefficients	**Probability**	**Coefficients**	**Probability**
BS	-84.15937	0.0058***	-95.48997	0.0054***
CA	171.6163	0.5796	-182.5623	0.6823
CR	-2977.059	0.0000***	-3231.474	0.0000***
LQ	108.8226	0.0760*	111.2745	0.0849*
NII	341.9193	0.6789	727.8661	0.6839
CS	25.67127	0.0993*	23.70954	0.1835
R^2	0.877961		0.883449	
Adjusted R^2	0.859186		0.858249	
Prob(F-statistics)	0.000000		0.000000	

*Note: BS= Bank Size, CA= Capital Adequacy, CR= Credit Risk, NII=Non- interest income, LQ= Liquidity, CS= Financial Crisis P-value in parentheses *, **, and *** indicates significant at 10%, 5%, and 1% significance level respectively*

Source: Developed for the research

4.5 Panel data Analysis

4.5.1 Poolability test

Commercial Bank

Table 4.8: Result of Redundant Fixed Effect

Bank	Effect Test	Statistic	Degree of freedom (d.f)	Probability
Commercial Bank	Cross-Section Chi-square	84.350370	5	0.0000
Islamic Bank	Cross-Section Chi-square	2.116557	2	0.3471

Source: Developed for the research

Hypothesis:

H_0 = POLS model is appropriate

H_1 = FEM model is appropriate

Level of Significance, α = 0.05

Decision Rule: Reject the null hypothesis when p-value of Cross-Section Chi-square is lower than the level of significance, α. Otherwise, do not reject H_0.

Conclusion: Since p-value of Cross-Section Chi-square for commercial bank is 0.0000 which is lower than α = 0.05, we reject the null hypothesis and it indicates that the FEM model is more appropriate than POLS to test for commercial bank. However, for Islamic Bank, the p-value is 0.3471 which is higher than α = 0.05, we do not reject the null hypothesis. Hence, POLS model is more appropriate than FEM to test for Islamic Bank.

4.6 Inferential Analysis

In order to study the relationship between bank size, capital adequacy, credit risk, non-interest income, liquidity and financial crisis towards return on equity (ROE), data collected from 6 domestic commercial banks and 3 domestic Islamic banks from year 1999 to 2016 were run by E-views 9.0. The following Tables show the coefficient and r-squared value for Commercial Bank and Islamic Bank.

Table 4.9: Regression Results (Dependent variable = ROE)

Independent Variables	**Commercial Bank (FEM)**		**Islamic Bank (POLS)**	
	Coefficients	**Probability**	**Coefficients**	**Probability**
BS	-16.27435	0.0000***	-84.15937	0.0058***
CA	-181.0553	0.0000***	171.6163	0.5796
CR	-1066.803	0.0000***	-2977.059	0.0000***
LQ	-10.62616	0.0612*	108.8226	0.0760*
NII	1074.037	0.0000***	341.9193	0.6789
CS	-0.922517	0.5828	25.67127	0.0993*
R^2	0.806941		0.877961	
Adjusted R^2	0.784820		0.859186	
Prob(F-statistics)	0.000000		0.000000	

*Note: BS= Bank Size, CA= Capital Adequacy, CR= Credit Risk, NII=Non- interest income, LQ= Liquidity, CS= Financial Crisis P-value in parentheses *, **, and *** indicates significant at 10%, 5%, and 1% significance level respectively*

Source: Developed for the research

4.6.1 R-square

The value of R-square determines the degree of variation of ROE that can be explained by the Bank Size, Capital Adequacy, Credit Risk, Non- Interest Income, Liquidity and Financial crisis. Based on Table 4.3.1, the R-square value for Commercial Bank is 0.806941, which indicate that there is 80.69% of ROE variation can be explained by Bank Size, Capital Adequacy, Credit Risk, Non-interest income, Liquidity and Financial crisis from year 1999-2016. For Islamic Bank, the R-square value is 0.877961which indicated that there is 87.80% ROE variation can be explained by the deviation of explanatory variables from 1999-2016.

4.6.2 Adjusted R-square

This value show that the ROE degree of variation which explained by independent variables after taken degree of freedom into account. The value for Commercial Bank is 0.784820, indicates that 78.48% variation of ROE can be explained by Bank Size, Capital Adequacy, Credit Risk, Non- interest income, Liquidity and Financial Crisis after taken degree of freedom into account from 1999-2016. Furthermore, adjusted R-square for Islamic Bank is 0.859186, it shows that 85.92% variation of ROE can be explained by explanatory variables from 1999-2016.

4.6.3 F-statistics

F-test statistic is another method to test the overall model significance. In this study, the probability of the F-test value for both Commercial Bank and Islamic Bank is 0.0000 which is less than the significance level of 5%. Therefore, we can conclude that the overall model for both banks is significant.

4.6.4 Bank Size

For the bank size in Commercial Bank, the p-value of 0.0000 is lesser than the significance level of 1%, which means that Bank size is strong significant in determining the ROE . The coefficient of -16.27435 indicates an inverse correlation between bank size and ROE. Thus, if bank size increases by 1 %, the ROE reduces by 16.27%, on average, ceteris paribus. According to (Aladwan, 2015), bank size and the bank's profitability has a negative relationship. The smaller the bank size, the bigger the profitability of the bank. This statement can be justify by several reasons. First, the larger the size of the banks, the greater the start-up costs. Banks will purchase computer mainframes which consume a large sum of money and this action will decrease their profitability. Besides that, another problem that will decrease the bank profitability is the bank's research and development costs. On top of that, we found out that there are high political costs in the larger banks compare to smaller banks. Those reasons will lower the profitability for the larger banks. Bank size and bank's profitability has a strong significant relationship in commercial banks.

According to Rahaman, Akhter (2015), the bank size and bank's profitability has a negative relationship in Islamic banks. The smaller the bank size, the bigger the profitability of the bank. Greater size of banks will cause the banks earn less profit there are a variety of costs need to incur in order to maintain the banks such as bank's research and development costs. Besides that, deposit often treated as a liquidity but actually it is a liability for the banks and it will reduce the profit of the Islamic banks because they need to provide additional costs to fund it.

4.6.5 Capital Adequacy

For the Capital adequacy in Commercial Bank, the p-value 0.0000 is lesser than the significance level of 1%, hence it means that CA is strong significant in determining the ROE for Commercial Bank. The coefficient of -181.0553 indicates an inverse relationship between capital adequacy and ROE. When capital adequacy increases by 1 %, on average, the ROE reduces by 181.10% ceteris paribus. The result obtained is in line with the researchers Curak et al. (2012) and Dietrich and Wanzenried (2011) that capital adequacy and bank profitability are negatively linked. The higher equity capital in banks are generally perceived excessive caution in banking business thus the profits earned are expected to be lower. The result is consistent with the risk-return theory. Therefore, an increase in capital adequacy will decrease bank profitability, by holding other variables constant.

Nevertheless, p-value for capital adequacy in Islamic Bank is 0.5796 which is greater than the significance level of 10%, Hence, CA is insignificant in determining the ROE for Islamic Bank. The result conclude that capital adequacy has no influence on profitability of banks. This result is in line with Asma et al. (2011) which they agree that there is positive but insignificant relationship between capital adequacy and bank's profitability. The higher equity ratio on Islamic banks due to Islamic banks prohibited to involve in any risky activities and to avoid bank failure. However, the insignificant association showing that it have high equity to total asset but they were not able to create earnings. It only helps to maintain the soundness of bank.

4.6.6 Credit Risk

For the credit risk in Commercial Bank, the p-value of 0.0000 is lesser than the significance level of 1%. It indicates that credit risk is strong significant to determine the ROE for commercial bank. The coefficient of -1066.803 shows an inverse relationship between credit risk and ROE. When credit risk increases by 1 %, on average, the ROE reduces by 1066.80% ceteris paribus. The result obtained is consistent with the researchers Schipper and John (2013), Trujillo-Ponce (2012) and Athanasoglou et al. (2005) studied in commercial bank. The increased exposure to high risk loan will decreased bank profitability. Bank in order to maximize profits, seem to accept higher risk loan, the default risk of the loan will increase so reduce the bank profitability. Hence, this indicates that the greater credit risk, the lesser the bank profitability.

For Islamic Bank, the credit risk is strong significant to determine the ROE as well as commercial bank since the p-value is 0.0000 too. The coefficient of -2977.059 indicates an inverse relationship between credit risk and ROE. When credit risk increases by 1 %, on average, the ROE reduces by 2977.06% ceteris paribus. According to Asma et al. (2011) and Masood & Muhammed (2012) studied in Islamic bank shows that credit risk is negative effect toward bank's profitability. Researcher found that that the increase in credit risk will reduce the bank's profitability.

4.6.7 Non-Interest Income

For the non-interest income Commercial Bank, the p-value of 0.0000 is lesser than the 1% significance level. Hence, It means that NII is strong significant in determining the ROE for Commercial Bank. . In the study of "Noninterest Income and Financial Performance at Jordanian Banks" by Al-Tarawneh, Khalaf and Al-Assaf (2016), they showed there is a positive and significant effect of non-interest

income towards commercial banks' profitability and this results make a conclusion that commercial banks in Jordanian could enhance their profitability by concentrating in non-interest activities which increase the charges and fees paid by the customers. This result is consistent with our outcome which the non-interest income is strongly significant to commercial banks' profitability.

Nevertheless, the NII in Islamic Bank consists of p-value of 0.6789 which is higher than 10% significance level and it means that NII is insignificant in determining the ROE for Islamic Bank. We also found a consistent result in Imad (2011) research "Bank-Specific Determinants of Islamic Bank Profitability in Jordanian Market'. The researcher used unbalanced panel data with linear regression model to identify the impact of bank-specific determinants on profitability. The results revealed that non-interest income has no significant effect to the profitability in Jordanian Islamic banks.

4.6.8 Liquidity

For liquidity in Commercial Bank, p-value is 0.0612 which is lesser than 10% significance level and it means that Liquidity is less significant in determining ROE for Commercial Bank. The coefficient of -10.62616 indicates an inverse relationship between liquidity and ROE. When liquidity increases by 1 %, on average, the ROE decreased by 10.62% ceteris paribus. According to Dahiyat (2016), there is a negative impact on liquidity over profitability. If the quick ratio of the bank increased, there will be a decreasing in the bank's profitability. The researcher explains that it may due to the bank's liquidity is too high and cause the bank unable to handle its current assets efficiently. However, it is less significance on the bank's profitability. The more the liquidity assets hold by the banks, the lower the bank's profitability. For commercial banks, there is a positive relationship between liquidity and bank's profitability. According to Khan and Ali (2016), liquidity and bank profitability of commercial banks in Pakistan shows that there is a positive relationship between them. This means that an increasing in liquidity will

cause an increment in the banks' profitability. Thus, banks are encouraged to reserve certain amount of liquid assets to earn more profit.

For Islamic bank, the p-value of liquidity is 0.0760 which means that liquidity is less significant to determine ROE as well as Commercial Bank. However, the coefficient of 108.8226 indicates a positive relationship between liquidity and ROE. When liquidity increases by 1 %, on average, the ROE increases by 108.82% ceteris paribus. According to Alshatti (2015), by measuring return on equity (ROE), it will affect the liquidity towards the Jordanian commercial banks profitability. Using the ROE, the Jordanian commercial banks profitability has a positive effect on the liquidity management. Besides that, there is a positive effect from liquidity management of capital ratio towards the bank's profitability. The finding shows an increment in quick ratio and investment ratio will cause an increment in the profitability by increasing the ROE. According to Rasul (2013), major parts of study outcome show that there are greater dependency of bank profitability on liquidity. However, the liquidity is found less significant with the bank's profitability. This is due to a large amount of losses in the foreign transaction. For Islamic banks, there is a negative relationship between liquidity and bank's profitability. According to Dahiyat (2016), there is a negative impact on liquidity over profitability. If the quick ratio of the bank increased, there will be a decreasing in the bank's profitability. The researcher explains that it may due to the bank's liquidity is too high and cause the bank unable to handle its current assets efficiently.

4.6.9 Financial Crisis

In this research, Financial Crisis seems like insignificant towards ROE in Commercial Bank since the p-value is 0.5828 which is higher than 10% significance level. In the study of The Impact of International Financial Crisis on the Efficiency of Omani Banks' Performance, Mohamed and Khalid (2014) suggested some new policy measures to improve the circumstance which extended by the impact of

financial crisis. Their studies found that the profitability of commercial banks in Omani has not been significant by the international financial crisis. Their result is consistent to our research which the financial crisis is significant to commercial banks' profitability.

However, for Islamic Bank, the p-value of financial crisis is 0.0993 which reflects that it is very less significant in determining the ROE of Islamic Bank or it could be insignificant at all. We have searched for several outcomes from other studies, one of the studies is about global financial crisis and Islamic bank profitability by Mongid (2016). Their results revealed that global financial crisis is significant towards Islamic banking profitability in Mena countries. It means that Islamic banks are lacking of immunity from the crisis. However, it is opposite to the result from Almanaseer (2014) that showed the financial crisis is insignificant towards Islamic banks profitability. He explained the result is due to prohibition of Riba and Gharar in Islamic bank that restrict to deal with certain instruments such as Collateralized Debt Obligation and credit default swap which treated as financial crisis contributors.

4.7 Conclusion

The empirical results have been explained in Chapter 4. Diagnostic checking such as normality test and multicollinearity have been provided but some of it cannot be adjusted for econometric problems. The explanation for significance of each explanatory variables has been provided as well along with different model. Further explanations along with discussions, implications, and recommendations will be show in the following chapter.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

In chapter 5, we will make a final conclusion for the overall research that we had done. In this chapter, we interpret the statistical analysis that was previously discussed by us in chapter 4. Besides that, we also figure out the implication of the study and the major findings for this research. After that, we also provide useful recommendations for the future research purpose and ends up with a final conclusion for the whole study.

5.1 Summary of Statistical Analyses

As stated in previous chapter, we have tested and the result proved that FEM model is appropriate for Commercial bank while POLS model is appropriate for Islamic bank by using poolability test. Besdes that, we can make a conclusion that profitability for Commercial banks is higher but less fluctuated than Islamic bank based on the descriptive result. The result of descriptive analysis in previous chapter shows that the mean value of ROE of Commercial bank is higher than Islamic Bank while the standard deviation of Commercial banks is lower than Islamic banks. In addition, based on the p-value of F statistic for Commercial banks and Islamic banks, we can observe that there is at least one independent variable is significant in explaining the ROE. On the other hand, the FEM model results show that bank size, capital adequacy, credit risk, liquidity and non-interest income are significant at significance level (1%, 5% & 10%) for commercial bank while financial crisis is insignificant towards ROE. However, the POLS model results show that there is

only bank size, credit risk, liquidity and financial crisis are significant at significance level (1%, 5%,& 10%) for Islamic banks whereas capital adequacy and NII are insignificant for Islamic banks. Thus, based on the research we have done, we have find out that the determinants which will influence profitability of commercial bank might not the same with the Islamic banks. Furthermore, after conducting the pair wise correlation test, the result shows that there is no serious multicollinearity problem for all the independent variables for Commercial banks as well as Islamic banks since the correlation is not more than 0.8 followed by rule of thumb. Lastly, the probability of Jarque-Bera Test is less than significance level of 5% which indicates the error term is not normally distributed. However, the error term assumed to be normal due to central limit theorem which is the sample size more than 100.

5.2 Discussion of Major Findings

5.2.1 Bank Size

Result shows that bank size and bank profitability is significant and has a negative relationship. This result is similar with the Haan and Poghosyan (2011) result. The bigger the bank, the lower the bank's profitability. Large banks are "too big to fail" because they are exposed to more risks and vice versa. According to (Aladwan, 2015), bank size and the bank's profitability has a negative relationship among each other. This can be explain that the smaller the bank size, the bigger the profitability of the bank. This statement can be justify by several reasons. First, the larger the size of the banks, the higher the start-up costs. Banks that purchase computer mainframes that will consume a large amount of money and this action will lead to a decrease in the bank's profitability. On top of that, we found out that there are high political costs in the larger banks compare to smaller banks. Those reasons will lower down the profitability for the larger banks.

5.2.2 Capital Adequacy

Capital adequacy is found to have negative and significant with bank profitability at all significance level for the commercial bank. This finding is consistent with Curak et al. (2012) and Dietrich and Wanzenried (2011) that suggested capital adequacy and bank profitability are negatively linked. Both of them agreed that high capital adequacy ratio are less risky. However, the over risk-averse caution in banking business will lower down the bank's profitability. The result is line with the risk-return theory. The higher the risk is associated with higher return and lower risk with a smaller return. Besides, commercial banks will giving interest rate on the capital, it come from the depositor. This will be a liability for banks. If the banks holding a higher ratio of capital adequacy, so the lesser resources that a banks can be used to generated profit. When the bank not able to offsetting the interest payment it will be a losses toward the bank.

Asma et al. (2011) found out that the result for capital adequacy is insignificant towards the Islamic bank profitability. The higher equity ratio on Islamic banks due to Islamic banks prohibited to involve in any risky activities and to avoid bank failure. However, the insignificant association showing that it have high equity to total asset but they were not able to create earnings. It only helps to maintain the soundness of bank.

5.2.3 Credit Risk

Credit risk is negative significant relationship with commercial bank's profitability. This result is agreed with the studies by Schipper and John (2013), Trujillo-Ponce (2012) and Athanasoglou et al. (2005) who found higher credit risk will decreased bank profitability. The credit risk ratio showing a default rate on loan portfolio of a bank. Thus, the higher the ratios would indicate the lower the bank profitability. Since non-performing loans usually will default. Besides, it will lead to the amount of loanable fund reduce. As a consequence, it reduce bank's lending activities which directly lower down the bank's profits.

Credit risk also showing significant negative relationship towards Islamic bank's profitability. This result is consistent with the studies by Asma et al. (2011) and Masood & Muhammed (2012) which the higher the credit risk the lower the profitability. The coefficient (-2977.059) of Islamic bank is higher than the coefficient (-1066.803) of commercial bank. The reason is Islamic banks cannot request collateral for credit risk since their relationship is based on partnership. Thus, the profit and loss sharing models of finance in Islamic banking could result a lower profitability. Therefore, Islamic banks require additional effort during the screening of good investment.

5.2.4 Non-Interest Income

The results based on this study revealed that non-interest income that used to measure the non-traditional activities is positive and strongly significant to the commercial banks' profitability. It showed that with every single unit increase in non-interest income will lead to a rise by 1074.037 units in return on equity. This result is consistent to our expectation which has the same results with the findings by Al-Tarawneh et al. (2017). With this result we explained that majority of commercial banks in Malaysia have diversified their businesses into non-traditional businesses besides of their main traditional activities. Other than that, this study concluded the profitability of commercial banks can be improved by raising the extension of non-interest income in total income (Oniango, 2015).

On the other hand, the result revealed the non- interest income is positively affect but insignificant towards Islamic banks' profitability. The results showed that with every single unit increase in non-interest income, return on equity will increase 341.9193 units. This outcome is compatible with the findings by Imad (2011) that he stated non-interest income has no significant impact to the profitability of Islamic banks. From this results, we said that non-interest income has positive impact to profitability of Islamic banks is due to the large portion of quantity of Islamic banks' profits originated from non-traditional activities (Imad, 2011). However, Izhar and

Asutay (2007) stated that incomes that generated by service activities are positive and not significant to the Islamic banks' profitability. This is due to the contribution from services activities are very tiny part of profit for the Islamic banks.

5.2.5 Liquidity

The result shows that there is negative relationship on liquidity over bank's profitability in the commercial banks. This result is similar with the studies of Dahiyat (2016). There is a negative impact on liquidity over profitability in commercial banks. If the quick ratio of the bank increased, there will be a decreasing in the bank's profitability. The researcher explains that it may due to the bank's liquidity is too high and cause the bank unable to handle its current assets efficiently.

According to Khan and Ali (2016), liquidity has a positive relationship with the bank profitability in Pakistan. This means that an increasing in liquidity will increase the bank profitability. Thus, banks are encouraged to reserve certain amount of liquid assets to earn more profit. Profitability can be increase if banks hold more liquid assets. This is same with our result in Islamic banks. Our Islamic banks result shows that bank's profitability and liquidity has a positive relationship.

5.2.6 Financial Crisis

From this study we have be given the result that financial crisis is insignificant and negative relationship with the profitability of commercial banks. It showed that with every single unit increase in financial crisis will cause a decrease by 0.922517 unit of return of equity. Our results is consistent with the findings by Mohamed and Khalid (2014) that their results revealed financial crisis is insignificant towards profitability of commercial banks in Omani. The results showed that financial crisis will lead to a negative impact on commercial banks' profitability is due to the

emergence of financial crisis impairs the banks' ability to meet the needs of the economic growth and development (Olaniyi & Olabisi, 2011). Moreover, the commercial banks showed the superiority of their cost management in efficiency and effective way that indicated that commercial banks' profitability has not been significant by the existence of financial crisis (Sangeetha, 2012).

On the other hand. The results revealed the financial crisis is less significant and positive impact to the profitability of Islamic banks. It showed that with every one unit increase in financial crisis, return on equity will increase 25.67127 units. This outcome is stand in line with the results studied by Mongid (2016). According to our results, Islamic banks obviously perform better than commercial banks during financial crisis and this is due to Islamic principles which prohibited in interest benefits (Shafique, Faheem & Abdullah, 2008).

5.3 Implications of the Study

5.3.1 Bank Size

In this research, there is a significant negative relationship between bank size and bank's profitability. Banks should decrease their size of the banks. The bank with smaller size don't have a variety of start-up costs. Smaller size of the banks do not require to buy expensive computer mainframes that require a lot of money. Besides that, bank's research and development costs will also increase and this action will decrease the bank's profitability if the size of the banks are large. Banks need to operate in smaller size and operation so that they can increase their profitability.

5.3.2 Capital Adequacy

This study is useful for commercial bank since capital adequacy is negative significant relationship with bank profitability. The bank managers should optimum utilization of bank capital to increase profit and avoid to hold too higher of capital adequacy ratio. By having a lower capital adequacy level, a bank could generated more profit in the future. In order to lower down the capital ratio, the bank should involve in low risk investment or loan. Low risk activities limits the losses toward the bank compare to high risk activities. It also help to increase safe and soundness level of a bank.

In this study, we found out capital adequacy is an insignificant positive relationship toward the Islamic banks. Highly capitalized banks allow the bank to have lower cost of funding which turned the cost down and improved the bank profitability. This ratio is not significant affect to the Islamic bank because of Islamic banks prohibited to involve in any risky activities. The bank managers should try hard to looking low risk high return project. So at the end the ratio will turn to positive and significant related toward the bank.

5.3.3 Credit Risk

In this study, credit risk is negatively related with the profitability of commercial banks. Thus we recommend that bank management reducing credit risk by reducing giving out high risk loan. The bank should carefully in screening the potential borrowers, and fulfill requirement of the five C's of credit (character, capacity, capital, collateral and conditions). Besides, if borrowers suffered financial difficulty bank also can help the borrower to extend the repayment period, so that minimize the monthly repayments, in order to help them through.

Islamic banks should improve the quality of loan in order to lower down the non-performing loan and maximize the bank's profit. The finding is the lower credit risk ratio will show a higher profitability of a bank. Islamic banks should tighten lending activities to reduce default rate. The lower default rate allow the bank to minimise the losses, and have more cash to invest in other investment.

5.3.4 Non-Interest Income

In this study, the result showed the non-interest income has a strong significant and positive relationship towards the profitability of commercial banks. Based on this results, commercial bank in Malaysia is recommended to look forward on other alternative source of income such as charging fee on services besides from their core activities incomes that available to make an additional revenue in order to safeguard from being failure. In the aspect of Islamic banks, the result indicated that non-interest income has totally no significant with the profitability of Islamic banks. Relying on this results, Islamic banks are recommended to centralize on investments that able to earn the bank profits on a certain percentage of the invested company's profits since there is no significant impact on non-traditional income such as fee charging or some operating profits.

5.3.5 Liquidity

In this research, there is less significant negative relationship on liquidity over commercial bank's profitability. Banks should decrease the holding amount of liquidity assets, therefore the banks can handle its current assets efficiently. On the other hand, there is a less significant positive relationship on liquidity over Islamic bank's profitability. The more the liquidity assets they hold, the greater the bank's profitability. By increasing in quick ratio and investment ratio, ROE will increase. An increment in ROE will increase the bank's profitability.

5.3.6 Financial Crisis

Through the study, the outcomes revealed the financial crisis is negative relationship and insignificant towards profitability of commercial banks in Malaysia. Whereas, the outcomes showed financial crisis has a positive and less significant with the profitability of Islamic banks. Based on these results, banks are recommended to emphasize in a factor which is operational efficiency in order to enhance the performance of banks against financial crisis. According to the suggestion, a further development in financial system is a must for a proper encouragement in achieving better efficient for banks, therefore, the government should pay more attention in financial system development in order to allow the banks achieve the goals against the negative impact from financial crisis.

5.4 Limitation of the Study

One of the limitations of this study is the problem occurred while collecting data from the sources. We could only collect the data for 6 commercial banks and 3 Islamic Bank due to the incompleteness of the annual report from year 1999 to 2016. As a result, we dropped some of the banks that we intended to study as planned in the early stage of this research. It restricted our research to a smaller sample size and random effect model could not be conducted as the number of cross section data is smaller than the number of coefficients for between estimators.

Other than that, the limitation of E-View system compare to other type of quantitative data analysis software caused severe problem as no diagnostic checking such as heteroscedasticity and autocorrelation is available for panel data. Therefore, lacking of knowledge and guidance in using more professional data analysis software such as Stata or SASS lead to a hardship while conducting empirical analysis for this research. As a result, we concluded that Eview system is not

appropriate to be used as it only enable the diagnostic checking for either time-series or cross-sectional data but not panel data.

Lastly, the absence of external factor in our research play as a limitation in our research. This research is mainly focused on bank-specific factor of Commercial Banks and Islamic Banks as the determinants for bank profitability (ROE). Therefore, it might lead to inaccuracy of data and insufficient variables to test for bank's profitability and it might create a inequitable result.

5.5 Recommendations for Future Research

In our research, we only examine bank-specific factors to study their affect towards bank's profitability. Since it leads to some limitation, future researchers are encouraged to include macroeconomic factors such gross domestic products (GDP) and interest rate. It would enhance the accuracy of the findings and it enable readers to have clearer understanding about determinants of bank's profitability.

Besides that, we used E-view to conduct the test for our research. However, diagnostic checking like heteroscedasticity and autocorrelation is restricted for panel data while implementing E-views. Thus, future researchers are encouraged to use more professional data analysis software such as Stata or SASS to obtain a better empirical analysis and better result. Future researchers also recommended to widen their knowledge for different data analysis software to expertise in it to prevent unwanted outcome.

In addition, for the data availability, future researchers are also encouraged to collect the data from different resources in order to obtain more accurate data and bypass the limitation of insufficient data. It could increase the sample size of their research and the results can be more accurate and precise.

Lastly, enlargement of the coverage of the study is strongly recommended to future researchers. The future researchers can include foreign bank in their research. According to BNM, there are 27 commercial banks operating in Malaysia included 8 local banks and 18 foreign banks. For Islamic banks, there are 6 foreign Islamic banks operating in Malaysia in a total number of 16 Islamic Banks. In order to obtain a more precise and detail data to explain the whole banking industry in Malaysia, future researchers can include some of the foreign banks to their research to enhance the overall research.

5.6 Conclusion

The stability and profitably banking sector is very important for a developing country like Malaysia where the banks are the main primary source of funds for infrastructure and economic growth in a country. The purpose of this study is to analyse bank specific and financial crisis determinants that affect commercial banks and Islamic banks in Malaysia. The bank-specific variables which are banks size, capital adequacy, credit risk, non-interest income and liquidity as well as financial crisis are applied to measure profitability of commercial banks and Islamic banks. Eview is used to analyse data of Panel data regression model. Hereafter, the results showed that bank size, capital adequacy, credit risk, liquidity and non-interest income are significant to commercial banks' profitability. Yet, the only financial crisis factor is insignificant. On the other hand, the results showed bank size, credit risk, liquidity, and financial crisis are insignificant to Islamic banks' profitability. However, it showed capital adequacy and non-interest income are insignificant. Lastly, this study offered some recommendation and improvement for future study.

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APPENDICES

1.1 Result of Descriptive Analysis for Commercial Banks

	ROE	BANK_SIZE	CAPITAL_A...	CREDIT_RISK	LIQUIDITY	NII	CRISIS
Mean	12.53152	5.117095	0.083593	0.009208	0.914406	0.015863	0.111111
Median	13.87910	5.108720	0.083769	0.007072	0.905907	0.011939	0.000000
Maximum	38.18212	5.866852	0.144061	0.068367	1.971909	0.053850	1.000000
Minimum	-76.12341	4.389863	0.036591	-0.001867	0.527764	0.005810	0.000000
Std. Dev.	10.43391	0.329481	0.017568	0.009041	0.198031	0.010739	0.315735
Skewness	-5.642643	0.191767	0.828525	2.927059	1.895022	1.864271	2.474874
Kurtosis	49.88380	2.332537	5.128994	18.36858	10.59438	5.599144	7.125000
Jarque-Bera	10464.52	2.666726	32.75293	1217.088	324.1760	92.95912	186.8203
Probability	0.000000	0.263589	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	1353.405	552.6463	9.028049	0.994517	98.75588	1.713178	12.00000
Sum Sq. Dev.	11648.71	11.61571	0.033025	0.008746	4.196159	0.012341	10.66667
Observations	108	108	108	108	108	108	108

1.2 Result of Descriptive Analysis for Islamic Banks

	ROE	BANK_SIZE	CAPITAL_A...	CREDIT_RISK	LIQUIDITY	NII	CRISIS
Mean	-6.440153	4.412326	0.092041	0.014098	0.757949	0.018027	0.111111
Median	8.447544	4.501809	0.088471	0.005982	0.789557	0.013618	0.000000
Maximum	58.71996	4.838133	0.229996	0.174319	1.087953	0.041741	1.000000
Minimum	-573.3678	2.936640	-0.019023	-0.003670	0.383337	0.000139	0.000000
Std. Dev.	84.78015	0.368097	0.033009	0.027773	0.147934	0.011086	0.317221
Skewness	-6.107720	-2.223767	0.749045	4.394710	-0.559544	0.689700	2.474874
Kurtosis	40.93368	9.184074	9.239507	25.04394	3.027442	2.246036	7.125000
Jarque-Bera	3374.885	125.7172	89.21406	1102.912	2.558432	5.354273	93.41016
Probability	0.000000	0.000000	0.000000	0.000000	0.278255	0.068760	0.000000
Sum	-328.4478	229.4409	4.786117	0.662586	37.13948	0.937429	6.000000
Sum Sq. Dev.	359383.7	6.910254	0.055569	0.035483	1.050452	0.006268	5.333333
Observations	51	52	52	47	49	52	54

1.3 Result of POLS for Commercial Banks

Dependent Variable: ROE
Method: Panel Least Squares
Date: 07/11/17 Time: 15:01
Sample: 1999 2016
Periods included: 18
Cross-sections included: 6
Total panel (balanced) observations: 108

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	57.49405	14.39836	3.993098	0.0001
BANK_SIZE	-3.140837	2.849658	-1.102180	0.2730
CAPITAL_ADEQUACY	-103.3161	42.45610	-2.433480	0.0167
CREDIT_RISK	-749.8084	134.4817	-5.575544	0.0000
LIQUIDITY	-20.02434	6.639146	-3.016101	0.0032
NII	318.8489	93.62975	3.405423	0.0009
CRISIS	-0.872065	2.346572	-0.371633	0.7109

R-squared	0.578416	Mean dependent var	12.53152
Adjusted R-squared	0.553372	S.D. dependent var	10.43391
S.E. of regression	6.973008	Akaike info criterion	6.784589
Sum squared resid	4910.907	Schwarz criterion	6.958431
Log likelihood	-359.3678	Hannan-Quinn criter.	6.855076
F-statistic	23.09548	Durbin-Watson stat	1.251768
Prob(F-statistic)	0.000000		

1.4 Result of FEM for Commercial Banks

Dependent Variable: ROE
Method: Panel Least Squares
Date: 07/11/17 Time: 15:02
Sample: 1999 2016
Periods included: 18
Cross-sections included: 6
Total panel (balanced) observations: 108

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	113.5495	14.96172	7.589331	0.0000
BANK_SIZE	-16.27435	2.760686	-5.895038	0.0000
CAPITAL_ADEQUACY	-181.0553	31.73841	-5.704611	0.0000
CREDIT_RISK	-1066.803	111.6867	-9.551750	0.0000
LIQUIDITY	-10.62616	5.609731	-1.894238	0.0612
NII	1074.037	126.8927	8.464130	0.0000
CRISIS	-0.922517	1.673669	-0.551194	0.5828

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.806941	Mean dependent var	12.53152
Adjusted R-squared	0.784820	S.D. dependent var	10.43391
S.E. of regression	4.840035	Akaike info criterion	6.096160
Sum squared resid	2248.890	Schwarz criterion	6.394175
Log likelihood	-317.1926	Hannan-Quinn criter.	6.216994
F-statistic	36.47792	Durbin-Watson stat	1.212540
Prob(F-statistic)	0.000000		

1.5 Result of POLS for Islamic Banks

Dependent Variable: ROE
Method: Panel Least Squares
Date: 07/14/17 Time: 02:22
Sample: 1999 2016
Periods included: 18
Cross-sections included: 3
Total panel (unbalanced) observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	308.5427	136.3550	2.262790	0.0293
BANK_SIZE	-84.15937	28.84378	-2.917765	0.0058
CAPITAL_ADEQUACY	171.6163	307.2266	0.558598	0.5796
CREDIT_RISK	-2977.059	251.2270	-11.85008	0.0000
LIQUIDITY	108.8226	59.69351	1.823022	0.0760
NII	341.9193	819.8144	0.417069	0.6789
CRISIS	25.67127	15.20341	1.688520	0.0993

R-squared	0.877961	Mean dependent var	-4.413251
Adjusted R-squared	0.859186	S.D. dependent var	86.97488
S.E. of regression	32.63745	Akaike info criterion	9.948066
Sum squared resid	41542.93	Schwarz criterion	10.22634
Log likelihood	-221.8055	Hannan-Quinn criter.	10.05231
F-statistic	46.76187	Durbin-Watson stat	2.363456
Prob(F-statistic)	0.000000		

1.6 Result of FEM for Islamic Banks

Dependent Variable: ROE
Method: Panel Least Squares
Date: 07/11/17 Time: 15:14
Sample: 1999 2016
Periods included: 18
Cross-sections included: 3
Total panel (unbalanced) observations: 46

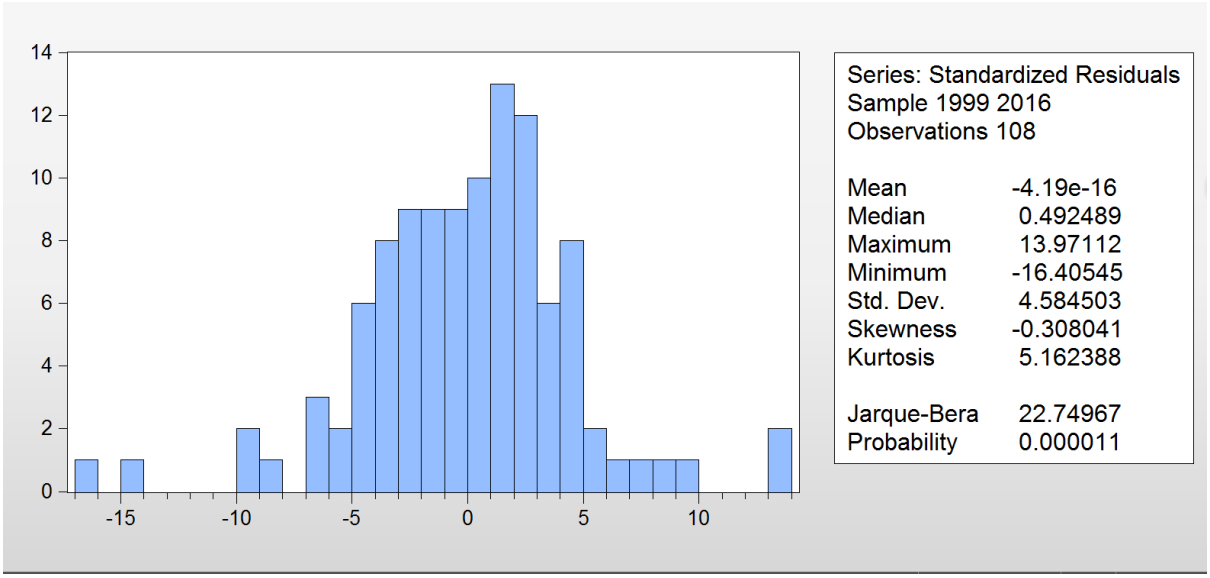
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	385.3044	159.0180	2.423024	0.0204
BANK_SIZE	-95.48997	32.31935	-2.954575	0.0054
CAPITAL_ADEQUACY	-182.5623	442.5137	-0.412557	0.6823
CREDIT_RISK	-3231.474	357.0138	-9.051399	0.0000
LIQUIDITY	111.2745	62.86015	1.770191	0.0849
NII	727.8661	1773.623	0.410384	0.6839
CRISIS	23.70954	17.49369	1.355320	0.1835

Effects Specification

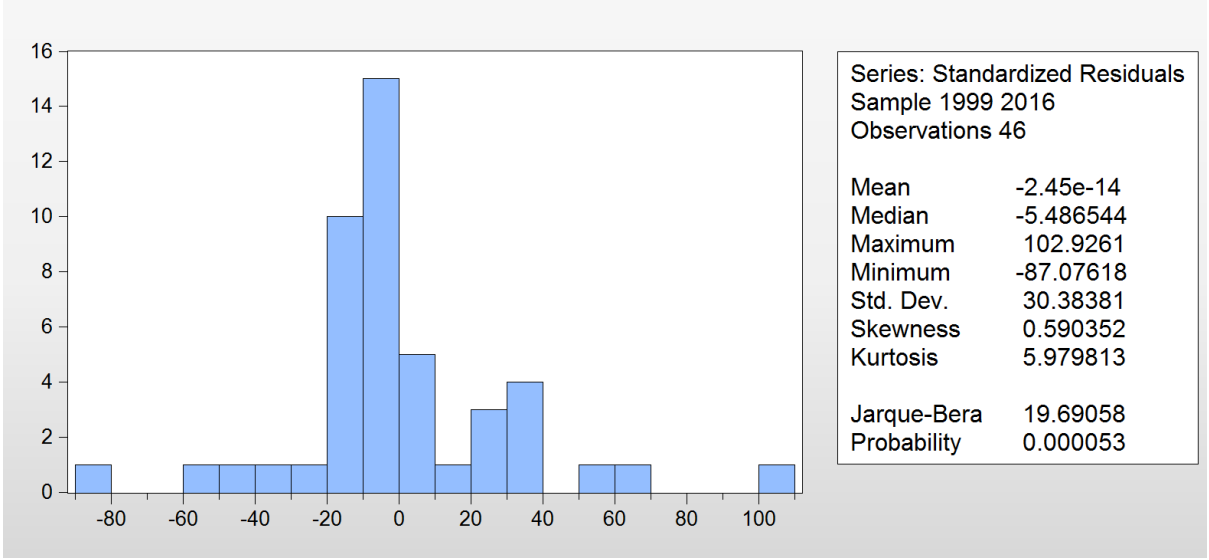
Cross-section fixed (dummy variables)

R-squared	0.883449	Mean dependent var	-4.413251
Adjusted R-squared	0.858249	S.D. dependent var	86.97488
S.E. of regression	32.74585	Akaike info criterion	9.989010
Sum squared resid	39674.76	Schwarz criterion	10.34679
Log likelihood	-220.7472	Hannan-Quinn criter.	10.12304
F-statistic	35.05737	Durbin-Watson stat	2.459625
Prob(F-statistic)	0.000000		

1.7 Result of Normality for Commercial Bank



1.8 Result of Normality for Islamic Banks



1.9 Result of Multicollinearity for Commercial Banks

	BANK_SIZE	CAPITAL_A...	CREDIT_RISK	LIQUIDITY	NII	CRISIS
BANK_SIZE	1.000000	0.031781	-0.551324	-0.111394	-0.197917	0.013247
CAPITAL_A...	0.031781	1.000000	-0.269828	-0.138953	0.108462	-0.205148
CREDIT_RISK	-0.551324	-0.269828	1.000000	0.614068	0.280443	0.008744
LIQUIDITY	-0.111394	-0.138953	0.614068	1.000000	0.633080	-0.168759
NII	-0.197917	0.108462	0.280443	0.633080	1.000000	0.016303
CRISIS	0.013247	-0.205148	0.008744	-0.168759	0.016303	1.000000

2.0 Result of Multicollinearity for Islamic Banks

	BANK_SIZE	CAPITAL_A...	CREDIT_RISK	LIQUIDITY	NII	CRISIS
BANK_SIZE	1.000000	0.540834	-0.416505	0.350325	-0.423887	-0.109652
CAPITAL_A...	0.540834	1.000000	-0.676699	0.351637	-0.467531	-0.018942
CREDIT_RISK	-0.416505	-0.676699	1.000000	-0.050986	0.259304	-0.040124
LIQUIDITY	0.350325	0.351637	-0.050986	1.000000	-0.796292	-0.275184
NII	-0.423887	-0.467531	0.259304	-0.796292	1.000000	0.132033
CRISIS	-0.109652	-0.018942	-0.040124	-0.275184	0.132033	1.000000

2.1 Result of Poolability Test for Commercial Banks

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	22.727093	(5,96)	0.0000
Cross-section Chi-square	84.350370	5	0.0000

Cross-section fixed effects test equation:
Dependent Variable: ROE
Method: Panel Least Squares
Date: 07/06/17 Time: 15:35
Sample: 1999 2016
Periods included: 18
Cross-sections included: 6
Total panel (balanced) observations: 108

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	57.49405	14.39836	3.993098	0.0001
BANK_SIZE	-3.140837	2.849658	-1.102180	0.2730
CAPITAL_ADEQUACY	-103.3161	42.45610	-2.433480	0.0167
CREDIT_RISK	-749.8084	134.4817	-5.575544	0.0000
LIQUIDITY	-20.02434	6.639146	-3.016101	0.0032
NII	318.8489	93.62975	3.405423	0.0009
CRISIS	-0.872065	2.346572	-0.371633	0.7109

R-squared	0.578416	Mean dependent var	12.53152
Adjusted R-squared	0.553372	S.D. dependent var	10.43391
S.E. of regression	6.973008	Akaike info criterion	6.784589
Sum squared resid	4910.907	Schwarz criterion	6.958431
Log likelihood	-359.3678	Hannan-Quinn criter.	6.855076
F-statistic	23.09548	Durbin-Watson stat	1.251768
Prob(F-statistic)	0.000000		

2.2 Result of Poolability test for Islamic Banks

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.871111	(2,37)	0.4269
Cross-section Chi-square	2.116557	2	0.3471

Cross-section fixed effects test equation:
Dependent Variable: ROE
Method: Panel Least Squares
Date: 07/06/17 Time: 15:40
Sample: 1999 2016
Periods included: 18
Cross-sections included: 3
Total panel (unbalanced) observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	308.5427	136.3550	2.262790	0.0293
BANK_SIZE	-84.15937	28.84378	-2.917765	0.0058
CAPITAL_ADEQUACY	171.6163	307.2266	0.558598	0.5796
CREDIT_RISK	-2977.059	251.2270	-11.85008	0.0000
LIQUIDITY	108.8226	59.69351	1.823022	0.0760
NII	341.9193	819.8144	0.417069	0.6789
CRISIS	25.67127	15.20341	1.688520	0.0993

R-squared	0.877961	Mean dependent var	-4.413251
Adjusted R-squared	0.859186	S.D. dependent var	86.97488
S.E. of regression	32.63745	Akaike info criterion	9.948066
Sum squared resid	41542.93	Schwarz criterion	10.22634
Log likelihood	-221.8055	Hannan-Quinn criter.	10.05231
F-statistic	46.76187	Durbin-Watson stat	2.363456
Prob(F-statistic)	0.000000		