# FACTORS AFFECTING PERFORMANCE OF ISLAMIC BANKS AND CONVENTIONAL BANKS: EVIDENCE FROM 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 18,563 words.

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| | |
|---|---|
| ABMB | Alliance Bank Malaysia Berhad |
| AIBMB | Alliance Islamic Bank Malaysia Berhad |
| BIMB | Bank Islamic Malaysia Berhad |
| BNM | Bank Negara Malaysia |
| BS | Bank Size |
| CA | Capital Adequacy |
| CAMEL | Capital Adequacy, Asset Quality, Management Quality, Earning Quality, Liquidity |
| CB | Conventional Banks |
| CPI | Consumer Price Index |
| EM | Equity Multiplier |
| FEM | Fixed Effects Model |
| GCC | Gulf Cooperation Council |
| GDP | Gross Domestic Product |
| GDPGR | Gross Domestic Product Growth Rate |
| GLS | Generalized Least Square |
| GMM | General Method of Moments |
| IB | Islamic Banks |
| IMF | International Monetary Fund |
| INF | Inflation |

| | |
|---|---|
| JB | Jarque-Bera |
| MBB | Malayan Banking Berhad |
| MENA | Middle East and North Africa |
| MIBB | Maybank Islamic Bank Berhad |
| MLR | Multiple Linear Regression |
| NIM | Net Interest Margin |
| OE | Operational Efficiency |
| OLS | Ordinary Least Squares |
| PBB | Public Bank Berhad |
| PIBB | Public Islamic Bank Berhad |
| PLS | Profit and Loss Sharing |
| POLS | Pooled Ordinary Least Square |
| REM | Random Effects Model |
| RHB | RHB Bank Berhad |
| RHBI | RHB Islamic Bank Berhad |
| ROA | Return on Asset |
| ROAA | Return on Average Asset |
| ROE | Return on Equity |

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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 factors. 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 80 observations each where it comprise of quarterly data from year 2009 to 2013 and four banks each. Five 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' performance 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 conventional 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 factors that will significantly affect both the conventional and Islamic banks' performance. This study utilizes the secondary data collected from the quarterly financial reports of 4 Islamic banks and 4 conventional banks in Malaysia from 2009 to 2013. The explanatory variables are categorized into internal and external factors in this study. The internal factors include capital adequacy, bank size and operational efficiency, while the external factors are inflation and economic growth. From the result, it is found that capital adequacy, operational efficiency, economic growth and inflation have significant impact on the profitability of conventional banks. On the other hand, profitability of Islamic banks is determined by bank size, operational efficiency and inflation. It is worth to mention that operational efficiency is the only factor that brings the same effect to the profitability of both conventional and Islamic banks, which is significant positive effect. Besides that, the result also implies that the factors that have significant impact on the profitability of conventional banks will not necessary affect the profitability of Islamic bank.

# CHAPTER 1: RESEARCH OVERVIEW

## 1.0 Introduction

This study aimed to investigate the factors that will influence the performance of conventional banks (CB) and Islamic banks (IB) in Malaysia. Specifically, internal and external factors are taking into consideration. Internal factors are factors that under the control of bank management, thus it is also known as bank-specific factors. In this study, capital adequacy, bank size, and operational efficiency are taken as bank-specific factors. On the other hand, external factors(macroeconomic factors) are beyond the control and governance of bank management. The macroeconomic factors included are inflation and economic growth. This chapter mainly discusses the outline and overall context of the study. In particular, the background of Malaysian banking sector is discussed and followed by problem statement that lead to this study. Furthermore, this chapter also highlights the research objectives to be achieved, research questions to be answered and hypothesis to be tested. Besides, this chapter also explains the significance and contribution of this study to the banking sector. Added to that, there is a section which explains the chapter layout of each chapter and finally to end with a conclusion.

## 1.1 Research Background

Banking industry serves as the most essential financial intermediary by conducting the primary functions in the global economy (Alper & Anbar, 2011). In most countries, banks are channeling the funds from depositors (surplus fund units) to the borrowers (deficit fund units) and offering various banking products to satisfy the economic demands. The profitability of banking industry is the major concern as it maintains the safety and robustness of the banks, preserves the financial system's stability as well as promotes the economic growth in the country. Thus, it is critical to examine the bank profitability determinants for maintaining the stability of the economy and for the interest of bank management, stakeholders, government and other policy makers (Jamal, Karim & Hamidi, 2012). Many existing researches have been conducted on the factors that influencing the performance of bank with the earliest group of studies by Short (1979), Koehn and Santomero (1980), Bourque (1989), Rivard and Thomas (1997) and Guru, Staunton and Balashanmugam (2002).

In most of the existing literature, banking profitability was evaluated from two perspective which are microeconomic view (bank-specific determinants) and macroeconomic view (industry-specific determinants). As for the profitability measures, Return on Asset (ROA) and Return on Equity (ROE) are the most common profitability's indicators that used by large group of researchers but in a few case, Net Interest Margin (NIM) also used to measure the bank profitability as well. ROA is generally the best indicators of bank performance as it reflects that how effective the bank management in producing income from the management of its assets (Sharma & Ravichandran, 2013). This indicator is widely adopted by previous researchers such that Rivard and Thomas (1997), Hasan and Bashir (2003), Tafri, Hamid, Meera and Omar (2009), Wasiuzzaman and Tarmizi (2010), Rao and Lakew (2012), Syafri (2012), Curak, Poposki and Pepur (2012), Muda, Shaharuddin and Embaya (2013), Dawood (2014) and Vejzagic and Zarafat (2014) to proxy for banking profitability.

On the other hand, ROE represents how well the banks generate profits from the allocation of shareholder's funds (capital) (Sharma & Ravichandran, 2013). Numerous researchers have adopted both ROA and ROE as the profitability indicator such that Guru et al. (2002), Bashir (2003), Athanasoglou, Brissimis and Delis (2008), Heffernan and Fu (2008), Alper and Anbar (2011), Sufian (2011), Ramadan, Kilani and Kaddumi (2011), Akhtar, Ali and Sadaqat (2011), Yap, Chan and Kyzy (2012), Ameur and Mhiri (2013), Sharma and Ravichandran (2013) and Dietrich and Wanzenried (2014). However, only a few studies employed NIM as profitability measure since it is not a powerful indicator as ROA and ROE in explaining the bank performance.

From microeconomic point of view, banks profitability is an essential element to sustain in the increasingly competition banking industry as it provides liquidity, promotes bank expansion as well as improve prospect and stakeholder's confidence on the banking industry (Jamal et al., 2012). Considering the microeconomic variables, capital adequacy, bank size and operational efficiency is the primary bank-specific factors that adopted in the previous studies (Ameur & Mhiri, 2013). Capital adequacy is the major internal determinants of the bank's profitability as it serves a reserve for the bank to maintain their banking business, even resists any unpredictable event in the banking industry. This performance indicator is often used by previous researchers who are Bashir (2003), Tafri et al. (2009), Wasiuzzaman and Tarmizi (2010), Dietrich and Wanzenried (2011), Akhtar et al. (2011), Curak et al. (2012) and Zeitun (2012) to evaluate the capital strength of banking industry. Bank size is also a significant performance indicator which is adopted to capture the economies of scale effect. According to Ameur and Mhiri (2013), larger bank is able to achieve cost advantage from economies of scale and in turn generates greater profitability. On the other hand, operational efficiency is widely used by Bashir (2000), Ben Naceur (2003), Vong and Chan (2009), Wasiuzzaman and Tarmizi (2010), Ali, Akhtar and Ahmed (2011) and Erina and Lace (2013) in determining the performance of banks.

Meanwhile, from the macroeconomic perspective, the industry-specific factors such as economic growth and inflation is out of control by the bank management (Jamal et al., 2012). Therefore, a stable and profit-making bank is critical in dealing with any unpredictable shock arise in banking sector. GDP growth rate is widely adopted by previous researchers to demonstrate the effect of economic growth on the banking sector. Referring to Almumani (2013), Almazari (2014) and Dawood (2014), the bank performance tends to improve during good economy as the demand for banking products will increase as well. Besides, inflation is also an important macroeconomic determinant of banking industry performance.

## 1.2 Problem Statement

There are over 300 numbers of Islamic financial intermediaries existed worldwide across 75 countries (Bank Negara Malaysia, 2013). Islamic banks have existed for over 30 years in Malaysia. Bank Islamic Malaysia Berhad (BIMB) is the first Islamic Bank operated in Malaysia. The announcement of Islamic Banking Act 1983 allows the conventional banksto offer the Islamic banking products and services. This enforcement makes conventional and Islamic banks become more competitive in Malaysia.

Currently, a significant number of conventional and Islamic banks are operating in Malaysia and this caused severe competition between both banks. Therefore, it is necessary to study on the factors that may affect their performance (Sufian & Chong, 2008). This is important not only to bank managers, but also investors, depositors and regulators as the evaluations of bank performance may help them to distinguish from the “bad” bank and decide the suitable bank for them to invest (Leitner, 2014). This will significantly affect the whole economy of the country as banking sectors acts as the bone of an economy (Dawood, 2014).

Therefore, this study will focus on the objective of examining the factors that significantly affect the performance of conventional and Islamic banks, respectively. Besides, this study also aims to figure out to what extent these factors affect the banks performance. This study is based on two samples which consist of four (4) banks each: four (4) conventional banks and four (4) Islamic banks that based in Malaysia, using quarterly data for the period of 2009 to 2013. Particularly, the interbank and macroeconomic variables are taking into account to study the performance of banks. It is found that most of the existing literatures emphasize on conventional instead of Islamic banks and there are only a few research studies analyze the cases in Malaysia. This is also one of the reasons that motivate the authors to conduct this study. Furthermore, conventional and Islamic banks are operating on different business strategic and are govern by different rules and regulation. For this reason, some factors that may affect conventional banks' performance, may not affect the Islamic banks' performance, or vice versa. Thus, a clear framework is needed in order to assist bank management and investors in making wise decisions and policymakers in formulating policies.

# 1.3 Research Objectives

The purpose of this study is to investigate and evaluate the determinants of performance of CB and IB in Malaysia for the period of 2009 to 2013 by quarterly data.

## 1.3.1 General Objectives

The primary objective of this study is to investigate the determinants that significantly influence the return on assets (ROA) of both CB and IB in Malaysia. The factors derived into internal and external factors which are capital adequacy (CA), bank size (BS), operational efficiency (OE), economic growth (GDPGR) and inflation (INF).

## 1.3.2 Specific Objectives

The main focus of this study is to observe closely about the individual impact of internal factors such as CA, BS and OE as well as the external factors such as GDPGR and INF on the ROA of both CB and IB.

1) To investigate the relationship between CA and ROA of CB and IB, respectively.
2) To investigate the relationship between BS and ROA of CB and IB, respectively.
3) To investigate the relationship between OE and ROA of CB and IB, respectively.
4) To investigate the relationship between GDPGR and ROA of CB and IB, respectively.

5) To investigate the relationship between INF and ROA of CB and IB, respectively.

## 1.4 Research Question

The purpose of carry out this study is to investigate the factors that affect the performance of CB and IB based in Malaysia; thereby it enables to answer the following research questions:

1) Does CA significantly influence the performance of CB and IB, respectively?
2) Does BS significantly influence the performance of CB and IB, respectively?
3) Does OE significantly influence the performance of CB and IB, respectively?
4) Does GDPGR significantly influence the performance of CB and IB, respectively?
5) Does INF significantly influence the performance of CB and IB, respectively?

## 1.5 Hypotheses of the study

### 1.5.1 Capital Adequacy

Capital adequacy is an essential factor in explaining the bank profitability level. Following Rao and Lakew (2012), the equity to asset ratio is used as a proxy for capital adequacy. In general, there are numerous studies such as Wasiuzzaman and Tarmizi (2010), Dietrich and Wanzenried (2011), Curak et al. (2012), Al-Qudah and Jaradat (2013) and Ongore and Kusa (2013) revealed that capital adequacy has a significant impact on the bank performance Yap et al. (2012) suggested that capital is significantly and

directly related to the performance of Malaysian Islamic banks. As for Conventional banks, Guru et al. (2002) revealed that capital has a significant and indirect association with the performance of commercial banks.

$H_0$: Capital adequacy does not significantly influence the banks performance in Malaysia.

$H_1$: Capital adequacy does significantly influence the banks performance in Malaysia.

### 1.5.2 Bank Size

Bank size is another bank-specific determinant which influences the profitability of Malaysian banks. In most of banking literature, bank size is often measures by natural logarithm of total assets (Javaid, Anwar, Zaman & Gafoor, 2011). The expected sign of the bank size on the bank performance could be ambiguous. Bank size is proved that statistically significant and positively associated with the profitability level of commercial banks in Ethiopia (Rao & Lakew, 2012). Conversely, Javaid et al. (2011) suggested that bank size have negative impact and significant in explaining the bank profitability in Pakistan.

$H_0$: Bank size does not significantly influence the banks performance in Malaysia.

$H_1$: Bank size does significantly influence the banks performance in Malaysia.

### 1.5.3 Operational Efficiency

Bank performance can be influenced by the bank's operational efficiency as well. According to Jiang, Tang, Law and Sze (2003) and Francis (2013), operational efficiency is negatively related to bank's profitability indicating that operational efficiency increases, it will directly influence the bank performance. However, those of Bashir (2003), Ben Naceur (2003), Vong and Chan (2009), Al-Tamimi (2010), Wasiuzzaman and Tarmizi (2010), and Muda et al. (2013) suggested a significant positive relationship between operational efficiency and bank performance.

$H_0$: Operational efficiency does not significantly influence the banks performance in Malaysia.

$H_1$: Operational efficiency does significantly influence the banks performance in Malaysia.

### 1.5.4 Inflation

Inflation reflects the continuous increase in general price of good and service in the economy. When there is anticipated inflation, bank would adjust the lending and saving strategies accordingly in order to generate greater profit. (Pasiouras & Kosmidou, 2007) Thus, a positive relationship is estimated between anticipated inflation and bank profitability (Vong & Chan, 2009; Sufian, 2009; Wasiuzzaman & Tarmizi, 2010; Syafri, 2012). However, if there is unanticipated inflation, banks are not well-prepared to overcome it, thereby causing costs incurred increase more than revenues earned do (Pasiouras & Kosmidou, 2007). Thus, unanticipated inflation and bank profitability are expected to be in negative relationship as unexpected inflation reduces the bank profit.

$H_0$: Inflation rate does not significantly influence bank performance in Malaysia.

$H_1$: Inflation rate does significantly influence bank performance in Malaysia.

### 1.5.5 Economic Growth

Economic growth is the most frequently used macroeconomic variable to measure the total economic conditions in a country in which it is usually measure by GDP growth rate. According to Dietrich and Wanzenried (2011), growth in economic will increase the demand for lending and thus influence the bank's profitability. Obamuyi (2013) also further agreed that economic condition will positively influence the performance of financial sectors.

$H_0$: Economic growth does not significantly influence bank performance in Malaysia.

$H_1$: Economic growth does significantly influence bank performance in Malaysia.

## 1.6 Significance of the study

Banking sector acts as the bone of an economy where it plays a vital role in providing source of financing and supporting economic activities (Dawood, 2014). Therefore, its health and soundness is very critical to the health of overall economy at large as the well-being of the banking sector is directly linked to the growth of the economy (Sufian & Chong, 2008). For that reason, it is necessary for bank manager, central bank, policy maker, and other financial authorities to have knowledge of the underlying factors that affect the financial sector's performance (Sufian & Chong, 2008). Thus, financial performance analysis has been of great interest to academic research (Ongore & Kusa, 2013). However, there are only a few studies have analysed the case in Malaysia (Wasiuzzaman & Tarmizi, 2010; Chua, 2013; Muda et al., 2013; Vejzagic & Zarafat, 2014).

This study particularly contribute to the literatures on the determinants of banks performance in Malaysian banking sector where it focuses not only on the contribution of internal factors but also the external factors to the variation of banks' performance in Malaysia. Apart from the bank-specific factors (internal factors) that were commonly included in most existence relative literatures, the authors also takes into account the external factors namely macroeconomic factors. This study is expected to provide evidence on to what extent the bank-specific and macroeconomic factors will affect the banks' performance, thereby allow the authors to discover the factor that would bring greatest impact and that does not has significant impact. Hence, this result can be used as a reference in further researches as it helps other researchers to better understand and provide a clearer picture on the banks' performance determinants.

Furthermore, this study attempts to extend and add on to existing studies by covering both conventional and Islamic banks in Malaysia. Unlike most existing researches that emphasize only on either conventional or Islamic bank, this study pays attention

to both aspects. There are factors that may not important in determining conventional banks performance but significantly affect the performance of Islamic banks, or vice versa. Therefore, investigation on both aspects is important. The result is expected to be used as a guideline for the bank managers to manage and plan their business strategic accordingly to achieve higher profits. Besides, banks managers are able to increase their bank's competitiveness and minimize the probability of bank failure as they are able to make more precise decisions by referring to this guideline.

This study also could contribute significantly to the formulation of policies. It is useful to the policymakers and regulators in making decision and formulating policies that will indeed maintain the soundness of banking system and benefit the economy. In addition, the outcome of this study also can be treated as extra information to the investors. By knowing the factors that could influence performance of banks, investors could make their investment decision wisely and able to identify which banks, either conventional or Islamic bank, should they invest in at different economic conditions.

From an undergraduate's viewpoint, this study is useful as it not only provide general knowledge regarding the banking sector, but also provide better understanding and clearer picture on the difference between conventional and Islamic banks. Students are able to discover factors that would influence banks' performance as well as the impact of those factors (capital adequacy, bank size, operational efficiency, gross domestic growth rate and inflation) have on conventional and Islamic banks. Besides, students are able to make a comparison between the factors that affect performance of conventional banks and factors that affect performance of Islamic banks.

## 1.7 Chapter Layout

This paper has been structured into five main chapters as follow:

### 1.7.1 Chapter 1: Research Overview

This chapter is an introductory chapter which provides an overview of this study. It comprises of research background, description of problem statement, research objectives, research questions, hypothesis to be tested and significance of study.

### 1.7.2 Chapter 2: Literature Review

This chapter reviews the relevant literatures and theoretical models done by previous researchers. Proposed framework and hypotheses development on banks' performance determinants will be discussed in this chapter too. Basically, this chapter provides a foundation of theoretical framework to justify the relationship between the selected variables.

### 1.7.3 Chapter 3: Methodology

This chapter mainly describe on how this study is carry out in term of the designation of the research, methodology in collecting data and methodology in analyzing the collected data. Particularly, this chapter gives a whole picture on how this study is perform by starting from the stage of collecting data to the final stage of transforming the data into useful information.

### 1.7.4 Chapter 4: Data Analysis

This chapter is said to be the climax of this study in which it associated with the results and findings. The overall result on the banks performance of both conventional and Islamic banks are first to be analyzed and discussed and follow with the climax in which the interpretation and discussion on the regression result regarding the relationship between the dependant and independent variables is explained in detail.

### 1.7.5 Chapter 5: Discussion, Conclusion and Implications

This chapter is the last chapter of this study where it summarizes and concludes all the main findings and discussions relating to the hypotheses developed. This chapter also provides some possible implications which are useful to the bank management and policy maker. Added to that, the limitations of this study are revealed as well as the directions and scopes for future research are recommended.

## 1.8 Conclusion

This paper aims to explore the determinants of Conventional and Islamic banks' performance in Malaysia. The internal and external determinants that have an effect on the performance of conventional and Islamic banks have been concerned and the results obtained are expected to be varied from with the previous researcher due to different number of banks used, different period of study and other issues that may affected the final result. The detailed review from the prior studies will be presented in the following chapter.

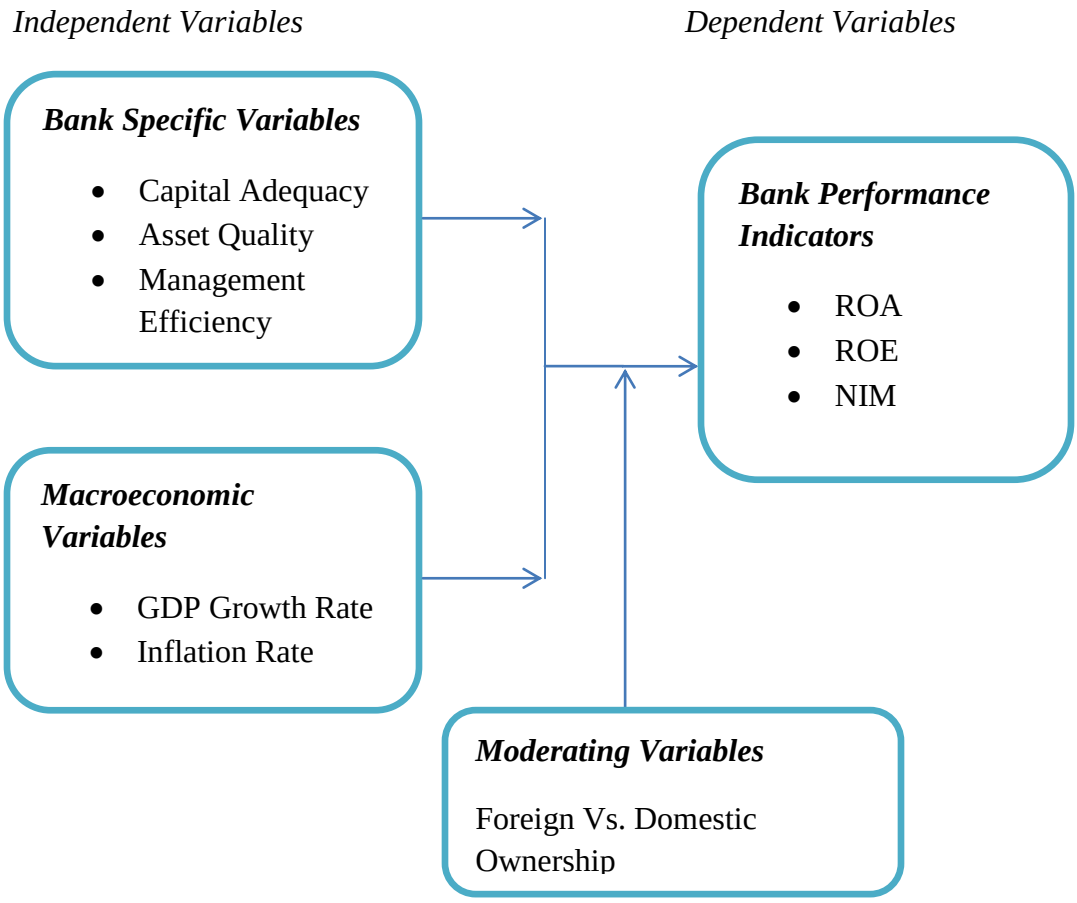
# CHAPTER 2: LITERATUREREVIEW

## 2.0 Introduction

This chapter reviews the previous researches that related to this topic. A number of studies have been done on the determinants of bank profitability (performance measure) with the earliest by Short (1979) (Athanasoglou et al., 2008). According to what have been discussed in the earlier chapter, there are numerous variables will lead to a change in bank performance. Those variables comprised of both internal and external factors whereby the internal factors are under bank management's control while external factors are beyond bank management's control. Since the internal factors are under bank management's control, thus it is also known as bank-specific factors. Capital adequacy, bank size, and operational efficiency are included as bank-specific factors in this study. On the other hand, external factors are the macroeconomic environment. Specifically, the macroeconomic factors are inflation and economic growth. A number of related journals have been reviewed in this chapter so as to paint a clearer picture on the determinants of bank's profitability (performance measure). Also, based on previous researches, a theoretical framework is formulated in this paper with the intention of investigating the determinants of bank performance of conventional and Islamic banks in Malaysia for the period of 2009 to 2013. In particular, several existing empirical evidences have been reviewed comprehensively in order to strengthen the reliability of the theoretical model. Besides, this chapter provides a foundation to develop a better and stronger conceptual framework to carry on with further investigation and hypothesis testing.

## 2.1 Review of the Literature

Figure 2.1: Schematic Diagram showing the relationship between variables




Source: Ongore, V. O., & Kusa, G. B. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Financial Issues, 3(1),* 237-252.

This section reviews the relevant literatures on both dependent variable and independent variables that associated to the topic. According to Ongore and Kusa (2013), determinants of bank performance can be classified into bank specific (internal) and macroeconomic (external) factors. In fact, there is a common agreement that bank performance is a function of internal and external factors (Haron, 1996; Bashir, 2003; Ben Naceur, 2003; Pasiouras & Kosmidou, 2007; Athanasoglou,

et al., 2008; Sufian & Habibullah, 2009; Wasiuzzaman & Tarmizi, 2010; Dietrich & Wanzenried, 2011; Ramadan et al., 2011; Yap et al., 2012; Rao & Lakew, 2012; Muda et al., 2013; Ameur & Mhiri, 2013; Dietrich & Wanzenried, 2014). Internal factors are generally referring to the individual bank characteristics which influence the banks performance. These factors are mostly controllable by the bank management and are differ from bank to bank. On the other hand, external factors are industry-wide or country-wide factors that are beyond the control of bank management. There are a number of variables have been used as internal factors (such as capital, asset quality, expenses, bank size, management quality, liquidity management, loan portfolio, income diversification and so on) and external factors (such as market concentration, inflation, tax rate, GDP, interest rate and so on). Most of existing literatures are usually used more or less the same or similar variables and Baral (2005) suggested that CAMEL framework is the most common and widely used factors to proxy bank specific factors because CAMEL framework is recommended by Basel Committee on Bank Supervision and IMF as bank performance evaluation model (Olweny & Shipho, 2011). The authors has filtered and screened through those factors used in previous studies and come out with a few that proved to have significant impact on bank performance. In this study, the bank specific factors used are capital adequacy, bank size, and operational efficiency while the macroeconomic factors used are inflation and economic growth. The following sub-section discusses in detail the dependent variable followed by five independent variables which consists of bank-specific and macroeconomic factors in this study.

### 2.1.1 Performance measures

Topic related to the bank's performance has been received much attention from researchers and has been the popular research topic for several decades as banks play a significant role in the improvement of the economy. Undoubtedly, banks have been the major contributor to economic growth since several decades ago. Evaluation of bank performance is a complex process that involves assessing interaction between the economic environment, internal operations and external activities. Profit is the important and crucial factor in determining the survival of a bank as well as reflecting how well a bank is performed (Muda et al., 2013). Profit not only an important tool towards the improvement of bank performance but also play a role towards the determination of management planning to help in increasing the chance for banks to sustain in today's increased competitive market (Muda et al., 2013). Thus, profitability ratio is usually postulated as the measure of bank's performance. In the literature, bank profitability is usually measure by return on assets (ROA), return on equity (ROE), profit margin and net interest margin (NIM).

Theoretically, return on assets (ROA) and return on equity (ROE) are two key ratios that are widely and commonly used to measure profitability. This is because both ROA and ROE are closely related to the key items in bank's financial statement (Bashir, 2003). Therefore, ROA and ROE are commonly used in studies that relating to bank performance. ROA is expressed as the ratio of profits after tax to assets while ROE is the ratio of profits after tax to equity. To be specific, ROA shows profits earned per dollar of assets and most importantly it reflect the ability of bank's management to convert its assets into earnings. Higher ROA generally signifies greater ability of bank's management in converting its assets into earnings and hence, indicating better performance. On the other hand, ROE shows profits earned per dollar of

equity capital and reflects the ability of bank's management in using its shareholders funds to make profits. Higher ROE generally indicates bank management has greater ability to use its shareholders funds effectively, thereby result in higher managerial performance.

It is noteworthy that both ROA and ROE are acceptable to represent profitability in measuring bank performance in both conventional and Islamic context. There are a number of researchers employed both ROA and ROE in their studies to represent bank profitability regardless of studies on conventional or Islamic banks. These studies are Guru et al. (2002), Bashir (2003), Athanasoglou et al. (2008), Heffernan and Fu (2008), Alper and Anbar (2011), Sufian (2011), Ramadan et al. (2011), Akhtar et al. (2011), Yap et al. (2012), Ameur and Mhiri (2013), Sharma and Ravichandran (2013) and Dietrich and Wanzenried (2014).

However, ROA has been viewed as a better proxy as opposed to ROE in both conventional and Islamic perspectives. Rivard and Thomas (1997) that utilized a sample of 218 commercial banks suggest that ROA is the best measure of bank profitability because ROA not only better represents the ability of bank's management in generating returns on its portfolio of assets but also is not distorted by high equity multipliers. A later study on Islamic banks done by Hasan and Bashir (2003) further added that ROA is more preferable as opposed to ROE because ROE is typically affected by ROA and the bank's degree of financial leverage (ROE = ROA x Equity Multiplier, EM, where EM indicates the bank's leverage). According to the authors, most banks have heavily utilized financial leverage to boost their ROE to a competitive level, thereby often result in a misleading ROE. Similarly, Tafri et al. (2009)also agreed that analysis of ROE not only neglects the risks that related with higher leverage, but also distorted by EM that usually determined by regulations, thus causing ROE to be less preferable than ROA. Following

them, most recent years' studies such as Wasiuzzaman and Tarmizi (2010), Rao and Lakew (2012), Jamal et al. (2012), Rahman, Jan and Ali (2012), Syafri (2012), Curak et al. (2012), Sufian and Habibullah (2012), Muda et al. (2013), Dawood (2014) and Vejzagic and Zarafat (2014)also found to use only ROA as proxy for bank profitability since ROE is evidenced to be distorted by financial leverage.

Unlike ROA and ROE that are widely adopted in previous study, NIM is only adopted in few studies. NIM is refers as a measure of interest spread where it measures the gap between interest incomes earned on loans by banks and interest expenses paid out to the lenders relative to the total interest-earning assets (Ongore & Kusa, 2013). According to Ongore and Kusa (2013), a higher NIM indicates higher bank profit and greater stability. Hence, NIM is considered as one of the key measure of bank profitability. However, it is only seen in studies that discuss on conventional point of view (Heffernan & Fu, 2008; Tafri et al., 2009; Sufian & Habibullah, 2009; Ongore & Kusa, 2013; Dietrich & Wanzenried, 2014). Interest is prohibited in the Islamic view of point because interest is usually viewed as the price of credit that reflects the opportunity cost of money (Al-Tamimi, 2010). Islamic banks that imposed interest on their lending and borrowing transactions are said to be riba' (usury) since interest is considered as unjustified increment or unlawful gain in the Islamic perspective. As stated in Bashir (2003), all income of Islamic banks supposed to be non-interest, thus NIM which measure the interest spread does not suitable to apply in Islamic context as it is in conflict with the Syari'ah concept.

To conclude, following Rivard and Thomas (1997), Hasan and Bashir (2003), Tafri et al. (2009), Wasiuzzaman and Tarmizi (2010), Rao and Lakew (2012), Syafri (2012), Curak et al. (2012), Muda et al. (2013), Dawood (2014) and Vejzagic and Zarafat (2014), only ROA is used as the bank indicator in this

study because ROA is suggested as the best measure of bank performance and is acceptable in both Conventional and Islamic perspective.

### 2.1.2 Capital Adequacy

As bank-specific determinants of bank profitability, capital plays an important role in explaining and affecting the performance of financial institutions in Malaysia. Capital represents amount of bank available funds that the banks have to hold in reserve to back up the bank's daily activities and serve as a cushion against any unexpected losses in the case of adverse situation (Ongore & Kusa, 2013). Bank capital provides liquidity for the banks to meet their liability (deposits) and resist any unpredictable events, even reducing the insolvency risk that the banks exposed to. Following Yap et al. (2012), the ratio of total equity to total assets is used as proxy of capital adequacy. Capital ratio is not only represent capital adequacy or capital strength of the banks, but should also proxy for risk and the regulatory costs (Wasiuzzaman & Tarmizi, 2010). In accordance with the conventional risk-return hypothesis, it suggested an indirect association between the capital and the profitability of banks (Curak et al., 2012). In other word, lower-capitalized banks are expected to generate higher profits as compared to better-capitalized banks (Dietrich & Wanzenried, 2011). Since banks with high capital ratio are perceived to be safer and have low risk, the profits are estimated to be lower in line with the risk-return theory which indicates that high risk high return (Wasiuzzaman & Tarmizi, 2010).

Empirical evidences by Curak et al. (2012) and Dietrich and Wanzenried (2011) revealed negative relationship of bank profitability in term of capital ratio. Curak et al. (2012) investigated the impact of internal and external determinants on the performance of banks in Macedonian banking sector from

2005 to 2010. The result showed a negative impact of capital strength on the banks performance, as the greater the capital adequacy ratio, the lower is the bank profitability. Despite the greater capitalization may provide safety, but excessive caution in banking business will lower the bank profitability (Curak et al., 2012). The capital level should be evaluated based on the level of bank risks. In addition, Dietrich and Wanzenried (2011) suggested a significant and indirect impact on commercial banks profitability with ROAA during the financial crisis 2007-2009. This is because highly capitalized banking institution in Switzerland encouraging more saving deposits during crisis, but they were unable to transform the substantially increasing amount of deposits into significant higher income earnings as the demand for loans reduced in this period (Dietrich & Wanzenried, 2011). From the Islamic banks point of view, Wasiuzzaman and Tarmizi (2010) also revealed a significant and negative relationship between capital and bank profitability. It indicated that the Islamic banks with lower capital ratio resulting in a lower agency cost which in turn improved the bank performance as well (Wasiuzzaman & Tarmizi, 2010).

However, Koehn and Santomero (1980) noticed that regulations which raise the capital adequacy requirements to minimize risk would lead to the banks to assume higher risk in their investment portfolios in the hope of generating higher profits (Guru et al., 2002). Highly capitalized banks which are considered secure and low risk enhance their creditworthiness, thereby encourage the confidence of the savers and lower interests as well as the external funding need which in turn improved the bank profitability (Curak et al., 2012). Hence, capital ratio is also positively related to bank profitability.

A large number of researches have supported the direct association between the capital adequacy and the bank profitability, namely Ben Naceur (2003), Sufian (2011), Ramadan et al. (2011), Rahman et al. (2012), Syafri (2012),

Sufian and Habibullah (2012), Yap et al. (2012), Ameur and Mhiri (2013) and Ongore and Kusa (2013). Ongore and Kusa (2013) investigated the impacts of microeconomic factors and macroeconomic factors on the commercial banks performance in Kenya. This result reported that capital adequacy was proved to be positive associated to the profitability of banks in Kenya. Moreover, Ameur and Mhiri (2013) also revealed a positive effect of capital ratio on the Tunisian's commercial bank profitability; either net interest margin or return on asset was used as a proxy for bank performance. Furthermore, Ben Naceur (2003) confirmed that the capitalization and bank profitability is positively associated as it implies that highly capitalized banks support lower expected bankruptcy costs which lower their capital costs. From the Islamic banks perspective, Al-Qudah and Jaradat (2013) found a significant and direct effect on both ROA and ROE of Islamic banks, as it supported that banks which are highly capitalized are able to obtain cheaper funds with subsequent enhancement in the bank's profitability. Similarly, Yap et al. (2012) also revealed that capital is a positive factor of Islamic bank performance in Malaysia. Overall, there are positive and negative expected sign of capital adequacy toward bank profitability for both conventional and Islamic banks.

### 2.1.3 Bank Size

Most of the researchers were employed bank size as a bank-specific factor in determining the bank's profitability to detect the effect of economies of scale in the banking industry. Total asset of the banks is often used to proxy bank size. However, it is more suitable to measure as natural logarithm to be uniform with other ratios, as the total assets deflated the dependent variable in the model (ROA) (Javaid et al., 2011). Economic theory suggested that larger banks are more capable to achieve economies of scale which lower the search cost, thereby increases the bank profits as well (Ameur & Mhiri, 2013). It

implies that bank size should be positively associated to the bank profitability. This is because of large banks tends to have more product and loan diversification rather than smaller banks as well as they should benefit from economies of scale (Dietrich & Wanzenried, 2011). There are only few studies supported the expected positive sign of bank size on bank performance which is Karim, Mohamed Sami and Hichem (2010), Gul, Irshad and Zaman (2011), Ali et al.(2011), Rao and Lakew (2012), Arif, Khan and Iqbal (2013) and Al-Qudah and Jaradat (2013).

Karim et al. (2010) investigated the factors that influencing Islamic banks profitability in Africa from 1999 to 2009. This findings demonstrate that the size of banks is positively associated with the bank profitability which consistent with the evidence of economies of scale. Furthermore, Gul et al. (2011) studies the impact of internal and external determinants on the performance of bank with fifteen Pakistani commercial banks between 2005 and 2009 also suggested positive association between bank size and bank performance. Similarly, Ali et al. (2011) studies the performance indicators of public and private commercial banks in Pakistan from the year 2006 to 2009 while Arif et al. (2013) investigated the effect of bank size on the performance of Pakistani banks. Both studies also display similar result that is bank size shows a positive impact on bank profitability.

Yet, extremely large banks often experience scale inefficiencies as diseconomies of scale happens and might display negative effect on the bank profitability (Syafri, 2012). This is because of the cost incurred in monitoring large banks such as agency cost and the overhead of bureaucratic process may exert downward pressure on the bank profits (Ameur & Mhiri, 2013). Numerous studies revealed a negative impact of bank size on bank profitability, such that Ben Naceur (2003), Ramadan et al. (2011), Javaid et al. (2011), Syari (2012), Rahman et al. (2012), Sufian and Habibullah (2012) and

Curak et al. (2012), Ameur and Mhiri (2013). On the other hand, Staikouras and Wood (2011) revealed mix result for the bank size, which have negative effect on the large banks but positive effect for small banks. This result consistent with recent studies that mention the diseconomies of scale exist when the size of banks getting larger. In fact, those developing banks may encounter the decline in marginal returns, thereby average return move in opposite direction with bank size. In contrast, bank size has positive impact on the small banks in which information benefit and the empowerment power gain from size.

### 2.1.4 Operational Efficiency

Operational efficiency is one of the important determinants that have effect on the performance of bank as cost management has direct impact on the profitability (Barr, Seiford & Siems, 1994). Efficiency refers to the ability of a bank to generate income with a specific amount of assets. It also can be describe as a market condition that occurred when participants can execute transactions and receive services at a price.

Operational efficiency can be measured by several formulas and it may result in different results. The study of Bashir (2003), Ben Naceur (2003), and Vong and Chan (2009) which used the ratio of operating expenses to total assets as proxy of operational efficiency discover a positive relationship between bank profitability and operational efficiency. Later studies of Al-Tamimi (2010), Wasiuzzaman and Tarmizi (2010), and Muda et al. (2013) also reported a similar result for the positive and significant impact of operational efficiency by using the same proxy (ratio of operating expenses to total assets). The efficiency wage theory explained the positive relationship, suggesting that productivity increase as wage rate increase, thereby improve bank

performance (Molyneux & Thornton, 1992). The positive association between operational efficiency and ROA can be explained by the use of advanced technologies as a mean of delivering services, as reported in Bashir (2003). In the same context, Erina and Lace (2013) which examined the impact of the external and internal factors to bank profitability in Latvian commercial banks sector for the period 2006 to 2011 also revealed a positive relationship between operational efficiency and profitability of bank, implying that higher operational efficiency may increase the profitability of bank.

However, there are a number of researchers aware that higher operational efficiency may also decrease the bank's profitability (Jiang et al., 2003; Kosmidau, Tanna & Pasiouras, 2005; Francis, 2013; Dietrich & Wanzenried, 2014; and Dawood, 2014). Kosmidau et al. (2005) used cost to total income ratio to measure operational efficiency and discover a negative between bank's profitability and operational efficiency. The negative relation is due to the high cost of operation across the banks (Kosmidau et al., 2005). Similarly, a later study conducted by Dietrich and Wanzenried (2014), which also used the ratio of cost to income as a proxy of operational efficiency, further support the negative relationship between operational efficiency and profitability of bank. The negative result is supported the theory asserts that the more efficient the bank, the higher the profitability (Dietrich & Wanzenried, 2014). This also proved that cost efficient management is crucial in improving bank profitability which in turn enhances bank performance (Dietrich & Wanzenried, 2014).

### 2.1.5 Economic Growth

Economic growth reflects the health of the economic activities and output generated in certain country where it is generally measure by GDP growth rate. During good economy, people tends to have more capital on hand and deposit the excess capital in bank or investment which in turn raise up the lending activities of bank and bring greater profit to the bank (Vong & Chan, 2009). A number of researchers had been examining on the relationship of economic growth on banks' profitability.

In Almumani (2013) and Almazari (2014) and Dawood (2014), the authors state that when there is growth in economy, the profitability of the bank tends to increases, therefore, the relationship between economic growth (which is track by GDP growth rate) and bank profitability is always expected to be positive. Same goes to Sufian and Habibullah (2009) which pointed out that bank tends to lend more and charge higher margin during higher economic growth and the quality of assets will be improving during good economy period. On the other hand, Vong and Chan (2009) found that economic growth is positively correlated to bank profitability. The authors suggested that the probability of facing default risk become relatively lower in strong economic condition and demand for both non-interest and interest activities will increase rapidly, thus banks profit will increase as a result of the increasing demand. Similarly, Obamuyi (2013) study the determinants of bank's profitability in Nigeria between the periods of 2006 to 2012 also agreed that banks can reach higher profitability under favorable economy conditions.

However, Sufian (2009) studied the factors affecting bank profitability in Malaysia reported a contrary result in which the economic growth is negatively related to bank profitability. As economies getting expanded and society become wealthier, demand for financial services will be increase as

well. However, when encounter in volatile economic growth, banks would have suffered from low demand in financial services and the amount of non-performing loans is likely to increase.

In the context of Islamic bank, Bashir (2003) analyze the factors that affect the performance of Islamic banks across eight Middle Eastern countries by using a sample of 14 Islamic banks during the period of 1993 to 1998. The author found that higher profits are stimulated by favorable macroeconomic condition where higher GDP leads to higher profitability. Ben Khediri and Ben-Khedhiri (2009) which studies the determinants of Islamic bank profitability in the MENA region between the year of 1999 to 2006 revealed that GDP growth rate has a positive impact on bank profitability, supporting the argument of a positive association between economic growth and bank profitability. According to Ben Khediri and Ben-Khedhiri (2009), the return on investment from Islamic banking operations such as mark-up (Murabaha), rent-to-own (Ijara), and deferred sale (Bai Mu'jal) tend to increase during economy expansion and bring positive impacts on the profitability. A later study of Wasiuzzaman and Tarmizi (2010) which utilize the sample of 16 Islamic banks in Malaysia, confirm the positive relation between economic growth and bank profitability in which the bank's profit is proved to be directly proportional to the GDP. Chua (2013) examine the internal and external determinants of Malaysian Islamic banks' profitability by using a panel date of 6 banks during 2007 to 2011. Economic growth is positively related to Islamic banks' profitability as reported in Chua (2013) in which a positive relationship is found between GDP growth rate and ROA, imply that banks are able to lend more and charge higher margins during good economy thereby improve their profitability.

Overall, a positive relationship is suggested between economic growth and bank performance regardless of conventional or Islamic banks as favorable

economic condition often promotes higher profit (Bashir, 2003; Vong & Chan, 2009; Ben Khediri & Ben-Khedhiri, 2009; Chua, 2013; Obamuyi, 2013; Almumani, 2013; Almazari, 2014; and Dawood, 2014).

### 2.1.6 Inflation

Inflation commonly reflected by an increase in the general price level of good and service in a particular economy. As high inflation happen in the economy, the real purchasing power of consumer tend to diminish; while in the banking sectors, the real rate of return of bank asset tend to trim down compare to liabilities.

The inflation level of the country is one of the important determinants of banks' profitability as it affects the real rate of return of bank's assets. Zeitun (2012) assumed that inflation could be an important macroeconomic factor that affects the banks' profitability in which the impact of inflation is depending on how quickly is the increase in operating expense as compares to the inflation rate. Perry (1992) suggested that the effect of inflation on performance of bank is depending on whether the inflation is anticipated or unanticipated (Zeitun, 2012). When the inflation is anticipated, meanings that the bank management has already predicted the inflation and precautions have been taken to overcome the losses incurred due to inflation in which bank will adjust its interest rate accordingly so that its revenues will increase more than its cost (Chua, 2013). This hypothesis was also empirically tested by Bashir (2003), Pasiouras and Kosmidou (2007) and Wasiuzzaman and Tarmizi (2010), it is found that a positive relationship occurs when the inflation is expected suggesting that high inflation will bring along higher costs and higher income. If a bank's income rises more than its costs, inflation is expected to exert a positive effect on profitability (Chua, 2013). In Vong and

Chan (2009), inflation rate appeared to have the strongest positive impact on the ROA of Macao banks among other external determinants, implying that the inflation faced by Macao bank is anticipated thus the bank managers are able to take appropriate actions to generate greater profit. In Gul et al. (2011), the increase in inflation in Pakistan raise the banks' interest rate as well; thereby bring about a significant increase in bank interest earnings.

On the other hand, when bank management does not foreseen the coming inflation which means in the unanticipated case, precautions are unable to be taken in time and interest rate is not adjusted accordingly thus bank have to deal with higher cost of than its revenues and affect its performance. Those of Sufian and Chong (2008), Sufian and Habibullah (2009) and Kanwal and Nadeem (2013) confirmed this statement by showing a negative relation between inflation and bank profitability in their studies, which indicates that when inflation is unforeseeable, cost incurred will exceed the revenues earned thereby lead to lower profitability.

As for Islamic context, Bashir (2003) who analyses the factors that affect the performance of Islamic banks across eight Middle Eastern countries by utilizing a sample of 14 Islamic banks during the period of 1993 to 1998 found that higher profits are stimulated by higher inflation rate where inflation rate is positively associated to profitability. According to Bashir (2003), inflation exerts positive impact on bank performance if only a large portion of the Islamic banks' profits are generated from direct investment and other trading activities (Murabahah). Karim et al. (2010) study the bank-specific, industry-specific and macroeconomic determinants of African Islamic Bank's Profitability over the period of 1999 to 2009 and expected a strong relationship between inflation and the profitability of Islamic banks. Izhar and Asutay (2007) which study the profitability of Islamic banking from Bank Muamalat Indonesia from 1996 to 2001 showed that inflation is related with

higher interest margins and higher profitability. As inflation occurs, more transactions will be involved and more branch networks will be extended, therefore enable the bank to generate higher income (Izhar & Asutay, 2007). Furthermore, Ramadan (2011) studies the bank-specific determinants of Islamic Banks profitability in Jordanian Market over the period of 2000 to 2010 and reported a similar result with those of Bashir (2003) and Wasiuzzaman and Tarmizi (2010), indicates that the higher the rates of inflation, the higher the lending rates, which in turn bring positive impact to the profitability of banks. Chua (2013) investigate the internal and external factors affect the Malaysian Islamic banks' profitability using a panel date of 6 banks during the period of 2007 to 2011. It is suggests that the effect of inflation is depending on the future movement in inflation and the bank's ability to estimate the movement (Chua, 2013). The result of Chua (2013) shows that inflation is positively related to bank profitability indicating that the profit made by bank is greater when the inflation is high. On the other hand, Zeitun (2012) examine the determinants of performance of Islamic and conventional banks in GCC countries over the period of 2002 to 2009. The variable inflation is found to be negatively associated to bank performance in Zeitun (2012). The study of Muda et al. (2013) which employed a sample of seventeen Islamic banks in Malaysia further confirmed the negative relation between inflation and profitability. Muda et al. (2013) suggests that the negative relation is a result of inaccurate prediction made on the level of inflation and causing the outflows increase faster than the inflows. Bashir (2003) also pointed out that if the overhead is increase at a faster rate than the inflation rate, a negative relationship is expected between inflation and profitability. Besides, the negative relationship also can be explained by the inability of bank to transfer the increasing cost to its customer, as reported in Ramadan (2011).

## 2.2 Review of relevant theoretical models

### 2.2.1 General Method of Moments (GMM) Model

Generalized Method of Moments (GMM) is a common estimation methodology that has been widely used in empirical research. According to Han and Phillips (2006), this method is applicable to the situations where economic information is provided in terms of moment conditions. Berger, Bonime, Covitz and Hancock (2000) outline the profitability of banks uphold for a period of time which indicating the obstructions to sensitivity to external shocks, informational opacity as well as market competition (Sufian & Habibullah, 2012). Ordinary Least Squares (OLS) estimation methods are inappropriate for the estimation as it will generate biased and inconsistent results due to dynamic nature of the model. In this case, dynamic panel estimation is more appropriate in generating unbiased and consistent estimates (Dietrich & Wanzenried, 2011). Furthermore, another challenges arise in the estimation of bank profitability are endogeneity bias and unobservable heterogeneity across the banks. As Garcia-Herrero, Gavila and Santabarbara (2009) suggested that profitable banks could employ more skilled personnel and implement advertising campaigns to expand its customer base, thereby increase their profitability (Sufian & Habibullah, 2012). Arellano and Bond (1991) introduced Generalized Method of Moments (GMM) estimator which enables the persistence and endogeneity problem in the estimation of bank profitability to be controlled (Sufian & Habibullah, 2012). This estimator employs lagged value of dependent variable in levels and in differences as instrumental variables, in addition to the lagged values of all explanatory variables except for those which are clearly exogenous (Dietrich & Wanzenried, 2011). Apart from that, this estimator also deals with the

unpredictable heterogeneity problem and persistence of regressand. Hence, this estimator produces unbiased and consistent estimations of the parameters.

### 2.2.2 Panel data regression model

Panel data regression model is commonly applied to investigate the determinants of bank performance. Panel data is the combination between cross sectional and time series data and these data have space and time dimensions. Besides that, panel data is being used due to its have many benefits compare to either cross-section or time series data. Firstly, with the combine of time series and cross-section observations, panel data are more variability of informative data but is consider less multicollinearity between the variables. Moreover, additional degrees of freedom and more efficiency are used to generate due to large number of data points are provided. In pure cross section and pure time series data cannot have better detect and measure effect compare to panel data. Lastly, complicated behavioural model are being studied by panel data. For example, panel data can handle better to phenomena like economies of scale and technologies changes to either pure cross section or pure time series data (Abduh & Idrees, 2013). There are three types of panel data regression models, which are fixed effects model (FEM), random effects model (REM), and pooled OLS (Ordinary Least Squares) model.

Based on Hausman (1978), founder of Hausman test, stated that random effect and fixed effect model is used in order to control over individual bank heterogeneity. Hausman Fixed Test had presented to investigate on either Random Effect Model (REM) or Fixed Effect Model (FEM) by using panel data analysis. If individual effect is not correlated with individual effects and

the model is properly identified, the fixed effect and random effect would not be statistically different (Karim et al. 2010).

Fixed Effect Model (FEM) is assumed to be different intercept and slopes and no time effect. According to Al-Qudah and Jaradat (2013), which had studied on Jordanian Islamic Banks Profitability from 2000 until 2011 used FEM instead of REM due to cross sectional number are not greater than parameter. Sufian (2009) stated that fixed effect model come out with unbiased and constant evaluations of the coefficients. The fixed effect model assumes that parametric moves in the regression equation as differences across banks are reflect. Such as uses whole population instead of sample, the interpretation will become more appropriate. Moreover, FEM were more suitable to study the behavior of particular set of organization.

While Random Effect Model (REM) is assumed to be different intercept, constant slopes and no time effect. REM is more suitable to be use when cross section numbers are greater than the number of parameter. Besides that, REM is more suitable to be used if N individual being selected randomly from a large population. REM is employed by Idris, Asari, Taufik, Salim, Mustaffa and Jusoff (2011) and Jamal et al. (2012).

Pooled OLS Model (POLS) is assumed to be with constant intercept and slopes and no time effect. According to Gul et al. (2011) who study the factors affecting banks profitability in Pakistan during period of 2005 until 2009 pointed out that the advantage of pooling is more trustworthy in evaluations of the parameters in the model. For that reason, Pooled OLS are being employed in this study.

### 2.2.3 Financial Ratio Analysis

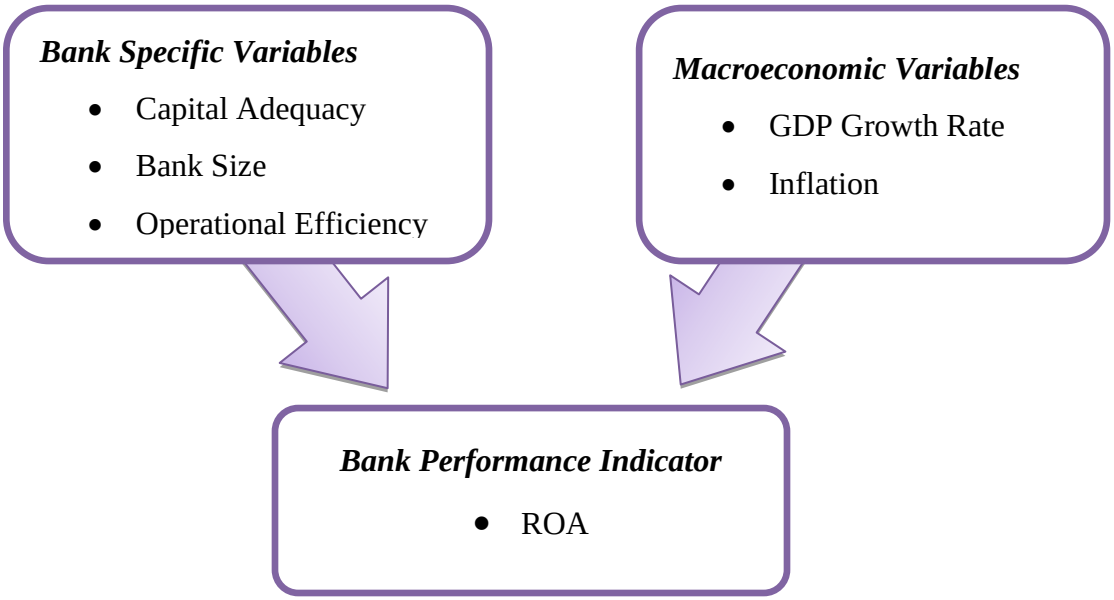
Financial ratio analysis is the most common indicator that used to analyze a bank's performance. It is used to evaluate bank performance internally by calculate and compare the financial ratios derived from bank's financial statement over the years. It is useful to determine the overall financial condition of a company. This information may help the investors to make a fast comparison between the companies as an evaluation of company performance. Information in Financial ratio analysis is trustable since the ratios are constructed from data on balance sheet and income statement that published by banks. Al Mahfuz (2012) compared the profitability of Islamic and conventional banks in Bangladesh by using financial ratio analysis. He use profitability ratio to indicate that the difference between Islamic and conventional bank's performance. Masruki, Ibrahim, Osman and Wahad (2011) used the liquidity, risk and solvency and efficiency financial ratio to compare the performance between Islamic and conventional bank in Malaysia over 5 years. They stated that financial ratio analysis is the most easiest and popular method to accessing the performance of banks. Furthermore, Kakakhel, Raheem and Tariq (2013) used profitability, liquidity, leverage and activity financial ratio to analyze the performance of conventional and Islamic banks in Pakistan. These had proved that financial ratio analysis is the most suitable tool to have an internal comparative performance of banks.

## 2.3 Proposed theoretical / conceptual framework

This section illustrates the proposed conceptual framework. The conceptual framework is developed based on the literatures reviewed and is presented in the diagram below (Figure 2.3). The framework demonstrates the relationship between the dependent variable and the explanatory variables. In accordance with previous

theories and frameworks, the explanatory variables are classified into internal and external factors. The dependent variable is resembled by ROA, which is proved to be the best measure of bank performance and is applicable to represent the performance of both conventional and Islamic banks. In this study, ROA is determined by bank specific and macroeconomic factors where bank-specific variables (internal factors) are capital adequacy, bank size, and operational efficiency; while the macroeconomic variables (external factors) controlled are inflation and economic growth rate. These variables are chosen as explanatory variables to determine the bank performance in Malaysia because such variables are suggested as strong determinants in previous studies.

Figure 2.3: Schematic diagram showing the relationship between variables employed in this study




Adapted from: Ongore, V. O., & Kusa, G. B. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Financial Issues, 3*(1), 237-252.

# 2.4 Hypotheses Development

## 2.4.1 Capital Adequacy

As a measure of capital strength of the banks, capital adequacy ratio which defined as total equity to total asset is proxy to determine the robustness of banks (Syafri, 2012). This ratio implies the internal strength of the banks to withstand the risks, namely market risk, credit risk and operational risk (Ongore & Kusa, 2013). Although leverage (capitalization) is proved that vital in determining the banks' profitability, but the effect on banks profitability is vague (Sufian & Habibullah, 2009). Berger (1995) suggested a negative relationship as a low capital adequacy ratio indicates a high risk which in turn positively affects the bank's profitability (Sufian & Habibullah, 2009). However, it could be positive relationship in the case that higher capital ratio indicates lower cost of capital as well as expected cost of financial difficulties including insolvency cost, thereby positively affect the bank's profitability (Sufian & Habibullah, 2009).

$H_0$: Capital adequacy does not significantly influence the banks performance in Malaysia.

$H_1$: Capital adequacy does significantly influence the banks performance in Malaysia.

## 2.4.2 Bank Size

Size of the bank is a critical bank-specific factor in determining the banks performance in Malaysia. Total assets variable which measures in natural logarithm form is used to indicate the size of the banks (Curak et al., 2012).

This variable used to account for the effect of economies of scale as well as monitor for the differences in cost and products and risks diversification is bank size (Sufian & Habibullah, 2009). Bank size could be positive relationship or negative relationship with the bank's profitability. A large bank could enjoy cost advantage which will lower the average cost, thereby positively affect the bank's profitability (Syafri, 2012). However, phenomenon of diseconomies of scale may appear in the case of the bank size become larger since it is more difficult for the management to conduct supervision and the higher the bureaucracy level, thereby negatively affect the bank's profitability (Syafri, 2012).

$H_0$: Bank size does not significantly influence the banks performance in Malaysia.

$H_1$: Bank size does significantly influence the banks performance in Malaysia.

### 2.4.3 Operational Efficiency

In general, bank performance might be influenced by the operational efficiency. According to Jiang et al. (2003) and Francis (2013), operational efficiency is negatively related to bank's profitability suggesting that high operating cost resulted in lower profitability. However, Bashir (2003), Ben Naceur (2003), Vong and Chan (2009), Al-Tamimi (2010) and Wasiuzzaman and Tarmizi (2010) report a positive relationship between operational efficiency and bank profitability, which is supported by the efficiency wage theory.

$H_0$: Operational efficiency does not significantly influence the banks performance in Malaysia.

$H_1$: Operational efficiency does significantly influence the banks performance in Malaysia.

### 2.4.4 Economic Growth

Economic growth reflects the health of the economic activities and output generated in a particular country in which it is generally measure by GDP growth rate. According to Sufian and Habibullah (2009), bank tends to lend more and charge higher margin during higher economic growth and result in higher profitability. Similarly, Vong and Chan (2009) agreed that GDP growth rate is positively related to bank profitability in which default risk would be reduce during high economic growth and lead to higher profit. Besides, higher economic growth may lead to increase demand of lending activities; thereby profitability of banks will increase (Vong & Chan, 2009).

$H_0$: Economic growth does not significantly influence bank performance in Malaysia.

$H_1$: Economic growth does significantly influence bank performance in Malaysia.

### 2.4.5 Inflation

Inflation reflects the increase in the general price level of good and service in a particular economy. The lending and saving strategies of bank is adjustable when there is anticipated inflation thus the bank can make higher profit (Chua, 2013). In other words, bank's profitability tends to rise when there is a rise in inflation rate. For that reason, a positive relationship could be expected between anticipated inflation and bank profitability (Bashir, 2003; Pasiouras

& Kosmidou, 2007; and Wasiuzzaman & Tarmizi, 2010). Oppositely, if there is unexpected inflation, banks could not be well-prepared and thereby causes costs increase more than revenues do (Zeitun, 2012). Thus, a negative association is expected as unexpected inflation is expected to reduce the bank profits. (Vong & Chan, 2009; Sufian, 2009; Wasiuzzaman & Tarmizi, 2010; Syafri, 2012; and Zeitun, 2012).

$H_0$: Inflation rate does not significantly influence bank performance in Malaysia.

$H_1$: Inflation rate does significantly influence bank performance in Malaysia.

## 2.5 Conclusion

Chapter two reviews the past literatures on the variables employed in this study, which are capital adequacy, bank size, operational efficiency, economic growth and inflation. The selected variables are presumed to be significant in influencing the profitability of conventional and Islamic banks in Malaysia. To carry on, five hypotheses are developed based on the result from past researchers. In the following chapter, the source of indicator's observations and the methodology used in this research will be discussed in detail.

# CHAPTER 3: METHODOLOGY

## 3.0 Introduction

This chapter mainly associated with the discussion of methodologies applied in gathering data and information needed in order to carry out a successful research study and to contribute to the development of a valid and critical thesis. In particular, this chapter describes how this study is carried out in terms of research framework, methods of data collection and analyzing of data.

## 3.1 Research Design

This paper used quantitative data to analyze the bank's performance since the data used is secondary data. The secondary data is collected from several published source in which the data for internal factors are obtained from the quarterly financial statements and the data for external factors are collected from Trading Economics and Asia Regional Integration Center. The objective of this study is to investigate the effect of both internal and external factors on the bank's performance. Specifically, explanatory variables such as capital adequacy, bank size, operational efficiency, economic growth and inflation are used to analyze the bank's performance. This study used quarterly data from year 2009 to 2013. While the cross-sectional data involved include 4 conventional banks which comprise of Public Bank (PBB), RHB Bank (RHB), Alliance Bank (ABMB), and Maybank (MBB) and 4 Islamic banks which consist of Public Islamic Bank (PIBB), RHB Islamic Bank (RHBI), Alliance Islamic Bank (AIBMB) and Maybank Islamic (MIBB). Since the selected data set

consists of both cross-sectional and time-series data, hence it is known as panel data. The advantage of using panel data is that it helps to eliminate the problems that may occur in time-series data and it also help to identify the time effect that is not identifiable by time-series data and cross-sectional data.

## 3.2 Data Collection Methods

This part is about the methodology adapted in order to achieve the objectives of this study. It includes the approaches adapted to examine the performance of conventional and Islamic banks based in Malaysia, the type of data used, the techniques employed to collect data as well as the method used to manage the data and construction of the empirical model with the components that selected. In this study, the quarterly data from the period of 2009 -2013 is used.

### 3.2.1 Secondary Data

Secondary data selected to carry out this study is obtain from the secondary information sources such as Trading Economics and Asia Regional Integration Center. While for the bank-specific data, it is obtain from the quarterly financial statements retrieved from the selected banks' official website to ensure that the data is not been artificially created. In order to have a clear picture regarding the selected topic, the authors has referred to a number of journals with the same or similar topic where those journals are mostly from databases such as Science Direct, Elsevier and etc.

#### 3.2.1.1 Return of Asset

Return on assets (ROA) is widely and commonly used to measure profitability. ROA shows profits earned per dollar of assets and most importantly it reflect the ability of bank's management to convert its assets into earnings. Higher ROA generally indicates greater ability of bank's management in converting its assets into earnings and hence, indicating better performance. Following Rivard and Thomas (1997), Hasan and Bashir (2003), Tafri et al. (2009), Wasiuzzaman and Tarmizi (2010), Rao and Lakew (2012), Syafri (2012), Dawood (2014) and Vejzagic and Zarafat (2014), ROA is chosen as the dependent variable and is measure with the ratio of net profit after tax to total assets.

$$\text{ROA} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}}$$

#### 3.2.1.2 Capital Adequacy

Capital plays an important role in explaining and affecting the performance of financial institutions in Malaysia. It reflects the amount of funds that bank hold in reserve in order to support the bank's daily businesses and serve as a cushion against any unexpected losses (Ongore & Kusa, 2013). Bank capital provides liquidity for the banks to meet their liability (deposits) and resist any unpredictable events, even reducing the insolvency risk that the banks exposed to. Following Yap et al. (2012), the ratio of total equity to total assets is used as a proxy for capital adequacy as this ratio not only represents capital adequacy or capital strength of the banks, but also proxy for risk and the regulatory costs (Wasiuzzaman & Tarmizi, 2010).

$$\text{Capital Adequacy Ratio} = \frac{\text{Total Equity}}{\text{Total Assets}}$$

#### 3.2.1.3 Bank size

Bank size is one of the important bank specific factors in determining bank profitability. Following Javaid et al (2011), natural logarithm of total assets is used as a proxy for the size of the banks. Bank profit can be increase in large bank, because larger bank are easier to achieve economies of scale. Besides, large banks are more likely to have a higher level of product and loan diversification compare to small banks.

$$\text{Bank Size} = \log_{10}(\text{Total Assets})$$

#### 3.2.1.4 Operational Efficiency

Following Bashir (2003), Ben Naceur (2003), Vong and Chan (2009), Al-Tamimi (2010),Wasiuzzaman and Tarmizi (2010), and Muda et al. (2013), operational efficiency is measured using the ratio of total operating expensed to total assets. Pasiouras and Kosmidou (2007), Sufian and Chong (2008), and Zeitun (2012) revealed a negative relationship between operational efficiency and ROA, stating that poor expense management will result in poor profitability. Conversely, Vong and Chan (2009), Al-Tamimi (2010), Wasiuzzaman and Tarmizi (2010) reported a positive impact of operational efficiency which is supported by the efficiency wage theory.

$$\text{Operational Efficiency} = \frac{\text{Total Operating Expenses}}{\text{Total Asset}}$$

#### 3.2.1.5 Economic Growth

Economic growth represents the health of the economic activities and output generated in certain country. It is commonly measured by GDP growth rate, as suggested by Ramadan (2011) and Zeitun (2012). In a good economic condition, people will have more capital on hand and people will deposit in bank or investment thus lending activities of bank tends to increase and bank will generate huge profit.

#### 3.2.1.6 Inflation

Inflation occurs when the general price level of product and service keep on increasing. Effect of inflation on bank profitability is depending on whether the inflation is anticipated or unanticipated. If bank management could forecast the inflation accurately and react quickly to it by adjusting the interest rate on time, bank would take advantage of it and earn greater profit. In this study, consumer price index (CPI) is taken as the proxy for inflation which is suggested by Ramadan (2011).

## 3.3 Data Analysis

Following Wasiuzzaman and Tarmizi (2010), Akhtar et al. (2011), Ongore and Kusa (2013), Sayedi (2013), Almumani (2013), Kanwal and Nadeem (2013) and Dawood (2014), the collected data is analyzed using descriptive analysis and regression analysis. Meanwhile, a normality test was also carried out to ensure the data fulfils the assumption of normality. The econometrics program, E-views is used to perform the tests and to generate the regression results.

### 3.3.1 Normality Test

In order to determine whether the error terms meet the normality assumption, Jarque-Bera (JB) test is carried out. The normal distribution of the error terms reflect that the model specification is correct, or vice versa.

First, the hypotheses are state the following:

$H_0$: Error terms are normally distributed.

$H_1$: Error terms are not normally distributed.

The decision rule to reject $H_0$ is if the test statistic value is greater than critical value, otherwise do not reject $H_0$. The critical value is obtained from Chi-Square table with 2 degree of freedom, where $x^2_{\alpha,2}$.

The test statistic value for Jacque-Bera test can be computed as

$$JB = n\left[\frac{S^2}{6} + \frac{(K-3)^2}{24}\right]$$

Where S is skewness and K is kurtosis.

The p-value approach is the alternative way in deciding the rejection of $H_0$. In p-value approach, $H_0$ can be rejected if p-value is less than the significance level of 0.05, otherwise do not reject $H_0$. Rejection of the $H_0$ means that the error terms are not normally distributed.

### 3.3.2 Descriptive Analysis

Descriptive analysis includes mean, minimum, maximum and standard deviation (Dawood, 2014). The mean values are to reflect the arithmetical average of the variables for 5-years period from 2009 to 2013 based on the individual sample of conventional banks and Islamic banks (Almazari, 2014). The difference between the minimum and maximum reflect the difference in profitability among Malaysian banks. The standard deviation indicates the variation in the data set and to be checked whether it is close to the mean value (Almazari, 2014).

### 3.3.3Inferential Analysis

A panel data multiple linear regression (MLR) model has been applied in order to test the relationship between profitability and its determinants (bank specific determinants and macroeconomic variables).By pooling all the observations across bank and apply the regression analysis on the pooled sample, a pooled ordinary least square (POLS) equation is estimated as below:

$$\boldsymbol{ROA_{it} = \alpha + \beta_1 CA_{it} + \beta_2 BS_{it} + \beta_3 OE_{it} + \beta_4 GDPGR_t + \beta_5 INF_t + \varepsilon_{it}}$$

Where

$\alpha$ = Intercept

$\beta_i$ = Regression coefficient

$ROA_{it}$ = Return on Assets of bank i for year t

$CA_{it}$ = Capital adequacy of bank i for year t

$BS_{it}$ = Size of bank i for year t

$OE_{it}$ = Operational efficiency of bank i for year t

$GDPGR_t$ = GDP growth rate for year t

$INF_t$ = Consumer Price Index (CPI) for year t

$\varepsilon_{it}$ = Error term

The POLS model is chosen because it is suggests by existing literatures that it is a valid method where variables show stable relationship across the banks (Gul et al., 2011). The POLS model is widely adopted by previous researches of relating topic such as Haron (1996), Wasiuzzaman and Tarmizi (2010), Olweny and Shipho (2011), Javaid et al. (2011), Kanwal and Nadeem (2013), Muda et al. (2013), Dawood (2014) and Vejzagic and Zarafat (2014). According to Javaid et al. (2011), more reliable estimates of the parameters in the model can be obtained by using the POLS method. Besides, POLS method gives the 'best fits' of coefficients for future prediction, given that all assumptions are fulfilled.

Furthermore, F-test is applied to test the overall significance of the estimation model. The hypothesis for F-test is as follow:

$H_0$: All independent variables are not significant in explaining the ROA.

$H_1$: At least one independent variable is significant in explaining the ROA.

By using the p-value approach, $H_0$ is to be rejected if the p-value is less than the significant level, otherwise do not reject $H_0$. By rejecting the $H_0$ meaning that there is at least one independent variable is significant in explaining the dependent variable. In other word, the overall model is significant.

In addition, the variation of dependent variation that is being explained by the independent variable is explained by using the adjusted R-square. Adjusted R-square is preferable than R-square because adjusted R-square take into account the number of independent variables.

To test the individual effect of independent variables on dependent variable, T-test is applied. The hypothesis for T-test is written as:

$H_0$: $\beta_i$ does not significantly influence the ROA.
$H_1$: $\beta_i$does significantly influence the ROA.

Where $i$ = 1, 2, 3, 4, 5 which representing the independent variables. (Refer to regression model above).

By using the p-value approach, $H_0$ can be rejected if the p-value is less than the significant level, otherwise do not reject $H_0$. By rejecting the $H_0$ meaning that $\beta_i$doessignificantly influence the ROA.

## 3.4 Conclusion

Overall, the sources of secondary data, the measurement of financial ratio, and the economic model employed are discussed in this chapter. The financial ratios are found to be the methods that commonly used to indicate banks profitability. Besides

that, E-views had been chosen as the instruments to progress and run the data. The generated regression result will be interpreted and discussed in the following chapter.

# CHAPTER 4: DATA ANALYSIS

## 4.0 Introduction

In previous chapter, data collection, model specification and data processing are being done. While this chapter will carries on with the interpretation and analysis on the results generated through the OLS regression. The overall result is to be discussed in the descriptive analysis section. While the overall significance of the model and the individual significance of the independent variables are to be discussed in detail in the inferential analysis section in order to confirm the validity of the model and figure out the main determinant of bank performance.

## 4.1 Normality test

Table 4.1a: Jarque-Bera (JB) Test for CB

| | CA | INF |
|---|---|---|
| Jarque-Bera | 5.392794 | 5.416524 |
| Probability | 0.067448 | 0.066653 |

$H_0$: The error terms are normally distributed

$H_1$ : The error terms are not normally distributed.

Decision rule: Reject the $H_0$ if P-value is less than the level of significances of 0.05.

Based on the result in table 4.1a, the p-value for CA and INF are 0.067448 and 0.066653, respectively. According to the decision rule, $H_0$for CA and INF cannot be rejected since the p-values are greater than the significant level of 0.05. Thus, the error terms are normally distributed at 5% significant level. In order word, the data series for CA and INF are normally distributed.

Table 4.1b: Jarque-Bera (JB) Test for IB

| | CA | BS | INF |
|---|---|---|---|
| Jarque-Bera | 0.163129 | 1.697741 | 5.416524 |
| Probability | 0.921673 | 0.427898 | 0.066653 |

$H_0$: The error terms are normally distributed

$H_1$ : The error terms are not normally distributed.

Decision rule: Reject the $H_0$ if P-value is less than the level of significance of 0.05.

Based on the result in table 4.1b, the p-value for CA, BS and INF are 0.921673, 0.427898 and 0.066653, respectively. According to the decision rule, the $H_0$ for CA, BS and INF are not rejected since the p-values are greater than the significant level of 0.05. Therefore, the error terms are normally distributed at 5% significant level. In order word, the data series for CA, BS and INF are normally distributed.

## 4.2 Descriptive Analysis

Table 4.2a: Descriptive statistics for CB in Malaysia for the period of 2009-2013

| | ROA | CA | BS | OE | GDPGR | INF |
|---|---|---|---|---|---|---|
| Mean | 0.004339 | 0.085915 | 11.07773 | 0.004226 | 4.275183 | 102.7333 |
| Maximum | 0.013905 | 0.107706 | 11.61074 | 0.015790 | 10.28582 | 108.6000 |
| Minimum | 0.000314 | 0.054406 | 10.41148 | 0.001643 | -5.756300 | 98.06667 |
| Std. Dev. | 0.002849 | 0.014791 | 0.388588 | 0.003464 | 3.711246 | 3.250671 |

Table 4.2b: Descriptive statistics for IB in Malaysia for the period of 2009-2013

| | ROA | CA | BS | OE | GDPGR | INF |
|---|---|---|---|---|---|---|
| Mean | 0.003849 | 0.072040 | 10.29900 | 0.004188 | 4.275183 | 102.7333 |
| Maximum | 0.017160 | 0.104872 | 11.09711 | 0.016023 | 10.28582 | 108.6000 |
| Minimum | -0.000204 | 0.045095 | 9.519324 | 0.001491 | -5.756300 | 98.06667 |
| Std. Dev. | 0.002815 | 0.011962 | 0.385749 | 0.003694 | 3.711246 | 3.250671 |

Table 4.2a and Table 4.2b above summarize all the dependent variable (ROA) and independent variable's (CA, BS, OE, GDPGR and INF) descriptive statistics for conventional and Islamic banks. On average, the mean value of ROA for the 4 studied conventional banks is 0.004339 with the minimum of 0.000314 and maximum of 0.013905 whereas the mean value of ROA for 4 selected Islamic banks is 0.003849 with the minimum and maximum of -0.000204 and 0.017160 respectively. It shows that conventional banks profitability is relatively higher than the profitability of Islamic banks as the mean value of ROA for conventional banks is greater than Islamic banks. The standard deviation of ROA for conventional banks is 0.002849 which is higher than the standard deviation of 0.002815 for Islamic banks. This indicates that the variation of profitability between conventional banks is greater than the variation of Islamic banks profitability. In other words, the profitability for conventional banks is highly fluctuated than Islamic banks. Considering bank-specific variables, bank size shows the highest mean value for both of the conventional and Islamic banks which are 11.07773 and 10.29900 respectively with the highest

standard deviation of 0.388588 and 0.385749. On the other hand, operational efficiency indicates the lowest mean value for conventional and Islamic banks which are 0.004226 and 0.004188 respectively and the least standard deviation such that 0.003464 and 0.003694 respectively. As for the macroeconomic variables, GDP growth rate and inflation rate show a mean value of 4.275183 and 102.7333 respectively. The standard deviation of GDP growth rate of 3.711246 is higher than the standard deviation of inflation rate which is 3.250671. This result implies that GDP growth rate is more fluctuated than inflation rate in the banking industry.

## 4.3 Inferential Analysis

This section explores in detail the relationship between dependent variable and independent variables by using regression analysis. Table 4.3a and Table 4.3b exhibit the regression result for the conventional and Islamic banks data which consists of 80 observations each, respectively with ROA as dependant variable. The regression results are obtained by using the OLS method for balanced panel data regressions.

Referring back to Chapter 3, the regression model is estimated as follow:

$$ROA_{it} = \alpha + \beta_1 CA_{it} + \beta_2 BS_{it} + \beta_3 OE_{it} + \beta_4 GDPGR_t + \beta_5 INF_t + \varepsilon_{it}$$

Table 4.3: Summary of regression results for CB and IB

| **Variables** | **Model 1 (CB)** | **Model 2 (IB)** |
|---|---|---|
| | **Coefficient** | **Coefficient** |
| **Constant** | -0.013273**<br>(0.0157) | -0.009396<br>(0.3867) |
| **CA** | -0.046062***<br>(0.0000) | 0.005755<br>(0.8229) |
| **BS** | 0.000184<br>(0.6261) | 0.002160**<br>(0.0110) |

| | | |
|---|---|---|
| **OE** | 0.756004***<br>(0.0000) | 0.657147***<br>(0.0000) |
| **GDPGR** | 7.89E-05**<br>(0.0351) | 3.72E-06<br>(0.9468) |
| **INF** | 0.000156***<br>(0.0006) | -0.000119*<br>(0.0768) |
| **R-Squared** | 0.854325 | 0.664173 |
| **Adjusted $R^2$** | 0.844482 | 0.641482 |
| **F-statistic** | 86.79583***<br>(0.0000) | 29.27030***<br>(0.0000) |

**Note:** ****Significant at 1% level,*
***Significant at 5% level,*
**Significant at 10% level*
*Values in parentheses is p-value*

*CB: ABMB, MBB, PBB, RHB*
*IB: AIBMB, MIBB, PIBB, RHBI*

Based on the result obtained in Table 4.3, the regression model for sample of CB (model 1) is as follow:

$$ROA_{it} = -0.013273 - 0.046062CA_{it} + 0.000184BS_{it} + 0.756004OE_{it} + 7.89E\text{-}05GDPGR_t + 0.000156INF_t + \varepsilon_{it}$$

Whereas the regression model for sample of IB (model 2) as according to Table 4.3 is written as:

$$ROA_{it} = -0.009396 + 0.005755CA_{it} + 0.002160BS_{it} + 0.657147OE_{it} + 3.72E\text{-}06GDPGR_t - 0.000119INF_t + \varepsilon_{it}$$

Based on Table 4.3, the p-value of F-statistics for both model 1 and 2 is equal to 0.000000, which is lesser than all level of significance (1%, 5% and 10%) implies that the null hypothesis of F-test (the overall test of significance) which state that the all independent variables is not significant in explaining the ROA is rejected. In order

word, the overall regression is statistically significant for both model 1 and model 2. As a result, there is enough evidence to support the fact that capital adequacy, bank size, operational efficiency, inflation and economic growth are significant in explaining the performance of CB and IB in Malaysia.

The explanatory power of the two models: the adjusted R-square,which is adjusted for the sample size and number of variables included in the regression equation, is at the satisfactory level of 0.844482 and 0.641482, respectively. The adjusted R-square value of 0.844482 for model 1 indicates that 84.4482% of the variation in the dependent variable is explained by the variation in the independent variables after the degree of freedom is taken into account while the adjusted R-square value of 0.641482 for model 2 indicates that 64.1482% of the variation in the dependent variable is explained by the variation in the independent variables after the degree of freedom is taken into account. The higher adjusted R-square value in model 1 denotes that the variation in the dependent variable that remains unexplained by the variation in independent variable is lower in model 1 as compare to model 2.

### 4.3.1 Capital Adequacy (CA)

The effect of capital adequacy, which is proxy by the ratio of total equity to total asset, is negative and statistically significant at all level of significance (1%, 5%, and 10%) for the sample of CB. From Table 4.3a, the coefficient of -0.046062 indicates that 1 unit increase in CA result in 0.046062 unit reduction in bank profitability, holding other variables constant. This result corroborate those of Wasiuzzaman and Tarmizi (2010), Dietrich and Wanzenried (2011) and Curak et al. (2012) who suggest that lower-capitalized banks are able to generate higher profits than those of well- capitalized banks. The negative relationship between CA and ROA found in the sample of conventional banks is in line with the risk-return theory where well-

capitalized banks are generally perceived to be safer and less risky, thus the profits earned are estimated to be lower since the risk-return theory point out that low risk result in low return (Wasiuzzaman & Tarmizi, 2010).

Regarding to the sample of IB, the variable CA is found to have positive but insignificant impact on IB's ROA at all level of significance (1%, 5%, and 10%). This finding is consistent with Bashir (2003), Tafri et al. (2009), Akhtar et al. (2011) and Zeitun (2012), providing support to the theory that highly capitalized banks have greater access to cheaper sources of funds which in turn lead to enhancement in the profit rates. Referring to Table 4.3b, the coefficient of 0.005755 indicates that 1 unit increase in CA bring about 0.005755 unit increase in bank profitability, holding other variables constant. However, the effect is unexpectedly insignificant which imply that a higher capital ratio brings no effect to the profitability but it helps to maintain the soundness of bank and to act as a cushion to absorb losses in Malaysian IB.

The contrary result between the sample of CB and IB can be explained by the fact that the way CB and IB treat deposits is totally different where CB sees deposits as a debt as it is based on interest rate, while IB takes deposits as equity based on the profit-loss sharing principle (Zeitun, 2012).

To conclude, the null hypothesis of T-test (the individual test of significance) that the CA does not significantly influence the bank performance is rejected in the case of CB but is accepted in the case of IB.

### 4.3.2 Bank Size (BS)

As anticipated, the result suggests that BS is positively related to ROA of both CB and IB, which is in line with the findings of Tafri et al. (2009), Karim et al. (2010), Gul et al. (2011), Ali et al. (2011), Rao and Lakew (2012), Muda et al. (2013), Chua (2013) and Dawood (2014). Based on Table 4.3a, the coefficient of 0.000184 indicates that 1 unit increase in BS bring about 0.000184 unit increase in bank profitability, holding other variables constant. However, the positive impact is not significant at all level of significance (1%, 5%, and 10%), which means that BS does not bring any additional profitability to the CB (Dawood, 2014). In other word, the insignificant positive impact can be explained by the fact that CB does not benefit from the scale of economies (Dawood, 2014). The possible reason to explain the insignificant impact could be that BS may not be the optimal one to contribute to greater performance.

On the other hand, the positive impact of BS on ROA for IB is found to be significant at 5% and 10% level of significance, which is in contrast with the result of CB. The coefficient of 0.002160 in Table 4.3b indicates that 1 unit increase in BS brings about 0.002160 unit increase in bank profitability, holding other variables constant. This implies that large IB tends to have greater ability to diversify and make use of the economies of scale than those of smaller size (Muda et al., 2013). Added to that, large IB is expected to gain higher profit than small IB for the reason that large banks tend to be provided with the opportunity to enjoy lower and cheaper processing cost, as reported by Chua (2013).

In conclusion, the null hypothesis of T-test (the individual test of significance) that the BS is not significant in affecting the bank performance is accepted in the case of CB but is rejected in the case of IB.

### 4.3.3 Operational Efficiency (OE)

For operational efficiency, the total operating expense to total asset variable resulted in a significant positive impact on the ROA for both sample (CB and IB) at all significance level. Unsurprisingly, operational efficiency which reflects wages and salaries as well as cost of running branch office facilities appeared to be the most critical determinant of the performance for both CB and IB where the coefficient of operational efficiency appeared to be the largest in both sample. For CB, the coefficient of 0.756004 indicates that 1 unit increase in OE bring about 0.756004 unit increase in bank profitability, holding other variables constant. Whereas for IB, the coefficient of 0.657147 indicates that 1 unit increase in OE bring about 0.657147 unit increase in bank profitability, holding other variables constant.

The positive sign implies that the higher the ratio the higher the profitability which is in contradiction to theory that asserts that efficient cost management is essential in order to enhance bank profitability (Dietrich & Wanzenried, 2014). Most studies such as Pasiouras and Kosmidou (2007), Sufian and Chong (2008), Olweny and Shipho (2011), Zeitun (2012), Almumani (2013), Dietrich and Wanzenried (2014), Dawood (2014), and Almazari (2014) revealed a negative relationship between OE and ROA, stating that poor expense management will result in poor profitability. The main reason to explain the opposing sign is due to the fact that operational efficiency can be measured by various ratios (Wasiuzzaman & Tarmizi, 2010). For studies that reported a negative impact, the operational efficiency is represented by cost to income ratio whereas a positive impact is found when the operational efficiency is measure by total operating expense to total asset ratio.

Studies of Bashir (2003), Ben Naceur (2003), Vong and Chan (2009), Al-Tamimi (2010), Wasiuzzaman and Tarmizi (2010), and Muda et al. (2013)

used ratio of total operating expense to total asset as a proxy for operational efficiency and reported a similar result for the positive and significant impact of OE. The positive relationship is supported by the efficiency wage theory, which suggests that productivity increase as wage rate increase, thereby improve bank performance (Molyneux & Thornton, 1992). In addition, the positive association between OE and ROA may be explained by the use of advanced technologies (Bashir, 2003). This is because the usage of new automated electronic technologies (such as ATMs) in both CB and IB as a mean of delivering services not only improves productivity but also reduces the wage expense effectively since labor is substituted by capital (Bashir, 2003). Besides, the positive impact also reflects the ability of both CB and IB in passing the increasing operating cost to their customers without causing reduction in profitability (Olweny & Shipho, 2011).

To conclude, the null hypothesis of T-test (the individual test of significance) that the OE does not significantly influence the bank performance is rejected in both case of CB and IB.

### 4.3.4 Economic Growth (GDPGR)

Regarding the external factors, the coefficient on economic growth variable (GDPGR) is positive and statistically significant at 5% and 10% level of significance for the sample of CB. From Table 4.3a, the coefficient of 0.000079 indicates that holding other variables constant, 1 unit increase in GDPGR bring about 0.000079 unit increase in bank profitability, showing a weak positive impact of economic growth on CB performance. This result stands in line with those of Sufian and Habibullah (2009), Vong and Chan (2009), Zeitun (2012), Sayedi (2013), Almumani (2013), Obamuyi (2013), Dietrich and Wanzenried (2014), Almazari (2014) and Dawood (2014),

providing support to the argument of positive relationship between economic growth and financial sector performance. The significantly positive effect indicates that banks revenues are usually higher in prosperous economic times due to improved business opportunities, as stated in Obamuyi (2013) and Dietrich and Wanzenried (2014). In addition, the demand of lending activities tends to increase during good economy thereby boost up the profits earned by banks (Vong & Chan, 2009). However, the small coefficient of GDPGR implies that the positive effect of economic growth on ROA is very weak as compared to other variables.

Interestingly, the positive effect of economic growth, GDPGR is not significant at all level of significance (1%, 5%, and 10%) when it comes to IB. From Table 4.3b, the coefficient of 0.000004 indicates that 1 unit increase in GDPGR result in 0.000004 unit increase in bank profitability, holding other variables constant. This insignificant impact of economic growth on IB performance is out of expectation and is inconsistent with the findings of Chua (2013) and Wasiuzzaman and Tarmizi (2010), which show that the economic growth is one of the significant determinants of IB profitability. Surprisingly, the findings of Sufian (2011), Zeitun (2012) and Muda et al. (2013) support the fact that economic growth has insignificant impact on the ROA of IB. This could be possibly explained by the fact that IB is prohibited to engage in interest-based activities, thus it is not benefit from the increased demand for bank loans stimulated by higher GDPGR.

In conclusion, the null hypothesis of T-test (the individual test of significance) that the economic growth (GDPGR) is not significant in affecting the bank performance is rejected in the case of CB but is accepted in the case of IB.

### 4.3.5 Inflation (INF)

The effect of inflation, which is track by consumer price index (CPI) is positive and statistically significant at all level of significance (1%, 5%, and 10%) for the sample of CB. As in Table 4.3a, the coefficient of 0.000156 indicates that 1 unit increase in CPI bring about 0.000156 unit increase in bank profitability, holding other variables constant; showing weak positive impact of INF on CB performance. Similar result for the positive and significant impact can be found in the studies of Pasiouras and Kosmidou (2007), Athanasoglou et al. (2008), and Dietrich and Wanzenried (2014). The positive sign indicates that bank management of CB has forecasted the future inflation correctly during the period of study which gives them the opportunity to adjust the interest rate accordingly to achieve higher profits (Pasiouras & Kosmidou, 2007). On the other hand, bank customers seems fail to predict the inflation (in comparison to bank managers), thus banks could be benefit from asymmetric information (Athanasoglou et al., 2008). Furthermore, the positive relationship between INF and ROA is related to the fact that banks' revenues increase at a faster rate than the costs of banks, as reported by Athanasoglou et al. (2008).

Unlikely the positive impact on CB, inflation exhibits a negative impact which is significant at 10% level of significance (not significant at significance level of 1% and 5%) on IB. Referring to Table 4.3b, the coefficient of -0.000119 indicates that holding other variables constant, 1 unit increase in CPI bring about 0.000119 unit reduction in bank profitability, showing weak negative impact of INF on IB performance. The result concur with Bashir (2003), Zeitun (2012), and Muda et al. (2013), implying that high INF is associated with low ROA. The negative impact reflects the inability of IB to anticipate the inflation as CB did during the period of study, thus result in a faster increase in expenses than incomes (Muda et al., 2013). The negative impact also reflects that the bank could not transfer the increasing cost to its

customers (Ramadan, 2011). In addition, the rate of financing of IB is usually fixed which explained the negative effect of INF as the financing rate (lending rate) is not adjustable to the rising cost of deposit (Muda et al., 2013).

The opposing impact between CB (positive impact) and IB (negative impact) could be due to different level of knowledge in relation to country macroeconomic conditions and expectations concerning inflation between CB and IB (Pasiouras & Kosmidou, 2007).

To conclude, the null hypothesis of T-test (the individual test of significance) that the INF does not significantly influence the bank performance is rejected in both case of CB and IB.

## 4.4 Conclusion

In conclusion, it is found that bank size is the only independent variable that is insignificant in influencing the ROA of CB. While for IB, CA and GDPGR are not significant in affecting its ROA. OE appeared to be the most significant positive determinant of the ROA of both CB and IB. The discussion on limitation of this study and suggestions for future research will be in the next chapter.

# CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

## 5.0 Introduction

This chapter summarizes the analysis of prior chapters and discusses on the key findings relating to the selected topic. Added to that, there is a sub-section suggests and discusses the policy implications in detail. The chapter also consists of the discussion on the limitation of this study and recommendations for future research.

## 5.1 Summary of Statistical Analyses

According to the result discussed in previous chapter, it is conclude that profitability for Conventional bank is higher and is more fluctuated than Islamic bank. This is supported by the result of standard deviation and mean value of ROA. The result shows that standard deviation of Conventional bank is higher than standard deviation of Islamic bank which indicate that the variation of profitability between Conventional banks is higher than Islamic bank. The mean value of ROA for Conventional bank (0.0043339) is higher than Islamic bank (0.003849). Besides that, p-value of F statistic for Conventional bank and Islamic bank indicates that there is at least one independent variable is significant in explaining the ROA. Besides that, the results show that CA, OE, GDPGR and INF are significant at significance level (5% & 10%) for conventional bank. In contrast, the results show that there is only BS, OE and INF are significant at significance level (10%) for Islamic banks. Thus, this may

indicate that the determinants that might affect profitability of conventional bank are different with the Islamic banks.

## 5.2 Discussions of Major Findings

Table 5.2: Summary of regression results for Conventional banks and Islamic banks

| **Variables** | **Model 1 (CB)** | **Model 2 (IB)** |
|---|---|---|
| | **Coefficient** | **Coefficient** |
| **Constant** | -0.013273** | -0.009396 |
| | (0.0157) | (0.3867) |
| **CA** | -0.046062*** | 0.005755 |
| | (0.0000) | (0.8229) |
| **BS** | 0.000184 | 0.002160** |
| | (0.6261) | (0.0110) |
| **OE** | 0.756004*** | 0.657147*** |
| | (0.0000) | (0.0000) |
| **GDPGR** | 7.89E-05** | 3.72E-06 |
| | (0.0351) | (0.9468) |
| **INF** | 0.000156*** | -0.000119* |
| | (0.0006) | (0.0768) |
| **R-Squared** | 0.854325 | 0.664173 |
| **Adjusted $R^2$** | 0.844482 | 0.641482 |
| **F-statistic** | 86.79583*** | 29.27030*** |
| | (0.0000) | (0.0000) |
| **No. of observations** | 80 | 80 |

**Note:**
****Significant at 1% level*
***Significant at 5% level*

**Significant at 10% level*
*Values in parentheses is p-value*

*CB: ABMB, MBB, PBB, RHB*
*IB: AIBMB, MIBB, PIBB, RHBI*

The regression results for both CB and IB are shown in the Table 5.2a above by using panel data analysis. Referring to Table 5.2a, the result indicated that capital adequacy (CA), operational efficiency (OE), inflation (INF) and economic growth (GDPGR) are the primary determinants of CB profitability. Meanwhile, bank size (BS), operational efficiency (OE) and inflation (INF) are the major factors that affecting the profitability of IB.

Capital adequacy reveals a significant and inverse relationship with conventional banks profitability at all significance level (1%, 5% and 10%) which is consistent with conventional risk-return hypothesis. This finding is in line with those of Wasiuzzaman and Tarmizi (2010), Dietrich and Wanzenried (2011) and Curak et al. (2012) that suggested capital is negatively associated with banks performance. Dietrich and Wanzenried (2011) claimed that well-capitalized banks are more stable and have lower risk, thus the expected return will be lower than those of lower-capitalized banks. On the other hand, capital adequacy, as expected is positively associated with the Islamic banks performance but it is insignificant at all significant level (1%, 5% and 10%). This result is in line with those of Bashir (2003), Tafri et al. (2009), Akhtar et al. (2011) and Zeitun (2012) that argued well-capitalized banks have less external funding resulting in the lower funding costs which in turn improve the bank's profitability. The empirical study by Yap et al. (2012) and Al-Qudah and Jaradat (2013) also revealed capital has direct effect on the Islamic banks performance.

Bank size reflects a positive association with both conventional banks and Islamic banks performance but it shows that insignificant on the conventional bank's profitability, yet statistically significant on the profitability of Islamic bank at 5% and

10% significance level. The expected positive relationship is supported by Karim et al. (2010), Gul et al. (2011), Ali et al. (2011), Rao and Lakew (2012), Arif et al. (2013) and Al-Qudah and Jaradat (2013). This result is consistent with the theory of economies of scale which suggested that large banks are more capable to achieve economies of scale and in turn lead to enhancement in bank's profitability (Ameur & Mhiri, 2013). Even though this study shows bank size has a positive association with conventional bank's profitability as expected, however it is not significant enough in influencing the profitability for conventional banks as compared to other variables. In contrast, bank size is proved to be a significant factor in affecting the Islamic bank's profitability. This indicates that Islamic banks with larger bank size tend to diversify their product and loan rather than smaller size banks, even enjoy the advantage from economies of scale, thus increase their profitability as well (Dietrich & Wanzenried, 2011).

The findings suggest that operational efficiency is positively related to the profitability for both conventional and Islamic banks and statistically significant at all significance level (1%, 5% and 10%). This result is consistent with the hypothesis stated in the previous chapter which indicated that operational efficiency does significantly affect the bank performance. The positive relationship is in a contradict view with several findings by past researchers, namely Pasiouras and Kosmidou (2007), Sufian and Chong (2008), Olweny and Shipho (2011), Zeitun (2012), Almumani (2013), Dietrich and Wanzenried (2014), Dawood (2014), and Almazari (2014) who suggested that operational efficiency is negatively associated with the bank's profitability. However, there are several findings supported a positive effect of operational efficiency on the banks performance such that Bashir (2003), Ben Naceur (2003), Vong and Chan (2009), Al-Tamimi (2010), Wasiuzzaman and Tarmizi (2010), and Muda et al. (2013). The positive relationship can be explained by efficiency wage theory which indicated that bank's profitability may be improved as the productivity increase through an increase in wage rate (Molyneux & Thornton, 1992).

As expected, economic growth has a positive significant effect on the profitability for conventional banks where the variable GDPGR has a positive sign and is significant at 5% and 10% significance level. This finding is similar with those of Sufian and Habibullah (2009), Vong and Chan (2009), Zeitun (2012), Sayedi (2013), Almumani (2013), Obamuyi (2013), Dietrich and Wanzenried (2014), Almazari (2014) and Dawood (2014) who suggested a direct relationship between economic growth and bank's performance. The positive significant relationship implies that the demand for loans will increase during high economy growth as well as the default risk will be reduced, thus this will in turn improve the bank's asset quality and profitability as well (Vong & Chan, 2009). In addition, economic growth also found to have positive impact on the profitability of Islamic banks as the coefficient of GDPGR has a positive sign, but it is not significant in explaining the Islamic bank's profitability measure (ROA) at all level of significance. This finding is inconsistent with the hypothesis addressed in earlier chapter such that economic growth does significantly affecting the bank performance. The result shows a contradict view with those of Chua (2013) and Wasiuzzaman and Tarmizi (2010) that argued economic growth is an important factor in influencing the Islamic bank's profitability. However, Sufian (2011), Zeitun (2012) and Muda et al. (2013) suggested GDP growth rate does not significantly affect the Islamic bank's profitability which confirmed the findings of this study.

As for macroeconomic variable, inflation has a positive impact on the conventional bank performance and statistically significant at all level of significance. This result is in line with the hypothesis stated in earlier chapter such that inflation does significantly affecting bank performance and consistent with those findings by Pasiouras and Kosmidou (2007), Athanasoglou et al. (2008), and Dietrich and Wanzenried (2014). This result indicates that the bank management has taken remedial measures to overcome the anticipated inflation such that revising the interest rate accordingly prior to the inflation, thus the profit will be increased as well if the forecasting is correct (Pasiouras & Kosmidou, 2007). Conversely, inflation is

negatively associated with the profitability for Islamic banks and only significant at 10% significant level. The negative relationship between these two variables can be supported by Bashir (2003), Zeitun (2012), and Muda et al. (2013). This finding implies that the Islamic bank management is unable to forecast the inflation correctly and the financing rate which is usually fixed is not adjustable to the increasing cost of capital, thus cause the Islamic banks profitability decreases (Muda et al, 2013).

## 5.3 Implication of Study

This study is design to bring evidence and knowledge for investor, depositor, regulators and those who concerned in this topic about the factor that may affect the profitability of Islamic and Conventional banks in Malaysia. Banking industry is probably the most essential financial intermediary which is a liquidity provider in an economy by channeling the funds from depositors (surplus fund units) to the borrowers (deficit fund units) and offering several financial products and services to satisfy the financial needs of the economy. Therefore, bank managers and policy makers need to pay more attention to the bank-specific factors and macroeconomic factors.

For bank-specific determinants that may affect bank profitability, bank managers need to pay particular attention for it. That is because different policy that applies in the conventional and Islamic banking system as Islamic banks has to comply with Syari'ah law. In Islamic banks, interest rates are prohibited. Islamic banks used profit rate to charge on the customers and hibah (gift) rate is provided depend on Islamic banks' performance but it is not assurance by the bank. However, conventional banks will charge interest rate, no matter the banks are gaining profit or loss. This will be a liability in the case of conventional banks. If the banks are not performing well, the loss will be burden by them. However, in the case of Islamic banks, the loss will be

shared between the two parties which is the depositor and the banks as Islamic banks emphasize on the principle of profit and loss sharing (PLS).

Besides that, this study is useful for the bank managers to make sure the optimum utilization of bank resources and better risk management process in order to increase bank's profitability. Bank managers need to make sure the adequacy of bank's capital since capital adequacy is one of the determinants that will significantly affect bank's profitability. Further, bank managers should find another way that will increase the level of bank capitalization, in turn improve the bank's profitability. For example, bank managers can try to decrease the percentage of non-interest bearing assets seem like investing in the stock and capital market which are less risk to bank business (Francis, 2013).

On the other hands, Islamic banks need to be capable of forecasting the country future inflation. The capable of forecasting future inflation may help banks to adjust its interest rate above the inflation. However, it is important to take into consideration that Islamic finance are prohibited in dealing with interest rates, yet by forecasting the inflation rate may help the bank in decision making about the rate of profit sharing, asset and loan quantity. Besides that, macroeconomic factors such as inflation rate and economic growth need to understand well by banks manager. That is because the fluctuation in GDP growth rate and inflation rate will give impact on bank's performance. The fluctuation in these macroeconomic factors might be an opportunity for the banks to earn higher profit provided that the bank managers could forecast its movement accurately. Thus, bank managers should closely observe the change in economic conditions and inflation rates start so that an appropriate and effective policy can be implemented from time to time in order to grasp the chance to increase their profit.

## 5.4 Limitations of the Study

Data availability is one of the major limitations of this study. The quarterly bank-level data for this study was collected mainly from the quarterly reports obtained from corporate official website. However, reports prior to 2007 are mostly not accessible or missing and thus, lead to limited year of observations. In addition, most of the Islamic banks are still in their early stage as compared to those conventional banks, hence the sample size must be adjusted to ensure a balanced sample between Islamic and conventional banks. Therefore, the scope of this study is limited as the time period included is short.

Apart from short span of the period of study, the cross-section data employ in this study is also not sufficient to represent the overall industry as there are only four Islamic banks and four conventional banks have been taken into account. Due to the lack of quarterly reports, many banks are dropped from the sample and consequently result in only four cross-section observations for Islamic and conventional banks respectively. Furthermore, this study seems to be incomplete in that way that this study fails to include foreign banks which with significant presence in the sample. According to BNM, there are 19 foreign commercial banks out of a total of 27 commercial banks operating in Malaysia. As for Islamic bank, there are 6 foreign Islamic banks out of a total of 16 Islamic banks in Malaysia. Thus, the results obtained may be insufficient to explain the whole banking industry.

In addition, no diagnostic tests (multicollinearity, heteroskedasticity and autocorrelation) are tested in this study due to the limited function of Eview system. The Eview system is not the best system as it is only capable to run diagnostic checking for either time-series or cross-sectional data but not panel data.

## 5.5 Recommendations for Future Research

For future research, it is recommended to have a longer time periods. With a longer data coverage (e.g. 10-year period), the degree of freedom will be increased and result in a more symmetrical distribution of data upon which more conclusive and precise findings can be drawn. Moreover, it might be interesting to carry out the same research over different time period as different result may be observed. Another possible extension is to include foreign banks in the sample instead of focusing solely on domestic banks so that the sample would be sufficient to explain the actual behaviour of the population i.e. performance of conventional and Islamic banks.

Besides, it is found that there are numbers of researcher have done on the studies of factors that affect bank performance but the variables used are mostly similar between researchers. Thus, it is suggested to cover for the factors that were not tested yet in the future in order to discover more factors that would have effect on bank performance. Overall, it is suggested that future research could cover a wider cross-section, a longer or different period of observation and a different set of variables.

Regarding to the limitation of Eviews system, future research is suggested to use other program, for instance Stata for running the data in which may be more suitable for panel data. Besides, future research also can employ other method other than OLS (such as Generalised Least Square (GLS)) for running the data in which may generate different result from the existing one.

## 5.6 Conclusion

Table 5.6a: Expected sign of independent variable to bank profitability for CB

| | Variable | Expected Sign from previous researches | Actual Sign from the result of this study | |
|---|---|---|---|---|
| Dependent Variable | ROA | | | |
| Bank specific | CA | +/- | - | Significant |
| | BS | +/- | + | Insignificant |
| | OE | +/- | + | Significant |
| Macro-economic | GDPGR | +/- | + | Significant |
| | INF | +/- | + | Significant |

Table 5.6b: Expected sign of independent variable to bank profitability for IB

| | Variable | Expected Sign from previous researches | Actual Sign from the result of this study | |
|---|---|---|---|---|
| Dependent Variable | ROA | | | |
| Bank specific | CA | +/- | + | Insignificant |
| | BS | +/- | + | Significant |
| | OE | + | + | Significant |
| Macro-economic | GDPGR | + | + | Insignificant |
| | INF | +/- | - | Significant |

This paper aims is to study the impact of internal and external factors on the CB and IB's performance in Malaysia where the internal variables include capital adequacy, bank size and operational efficiency while external variables are economic growth and inflation. The Return on Asset (ROA) is taken as a measure of profitability. There are 2 samples in this study where the first sample include 4 CB with quarterly data from 2009 to 2013 and the second sample include 4 IB with quarterly data from 2009 to 2013.

From table 5.6a and 5.6b above, the variables that are significant in CB but are not significant in IB include CA and GDPGR. On the other hand, the variable that is significant in IB but is not significant in CB is BS. For that reason, it can be concluded that factors that may be significant in determining conventional banks performance do not necessary significant in affecting the performance of Islamic banks. This is due to the different polices and business strategies that applied in CB and IB. In addition, years of operating may be one of the reasons as well since CB started to establish and operate far earlier that IB.

For the variable OE, the sign is positive in both CB and IB which is consistence with the expected sign. The efficiency wage theory implies that the productivity increase as wage rate increase; thereby improve bank performance (Molyneux & Thornton, 1992). This positive relationship were supported by Bashir (2003), Ben Naceur (2003), Vong and Chan (2009) and Wasiuzzaman and Tarmizi (2010). Moreover, the variable BS has a positive sign for IB which is same as expectation, stating that larger banks are more capable to achieve economies of scale which cost of gathering become lower and faster in information process, thereby increases the bank profits (Ben Khediri et al., 2010). The variable GDPGR which represents economic growth has a positive sign in the both sample of CB and IB. According to Sufian and Habibullah (2009), Vong and Chan (2009) and Obamuyi (2013), higher profit would be stimulated during favorable economic condition due to reduction in default risk.

Negative sign of the variable CA is found in IB which is expected by those of Dietrich and Wanzenried (2011), and Curak et al. (2012). The negative relationship implies that the higher the capital to assets ratio, the lower the profitability. Although high capitalization may provide safety, but excess caution in banking business may lower down the bank profitability. Thus, the capital level should be evaluated based on the level of bank risks.

The sign of INF is negative in IB which is consistent with Ramadan (2011). The negative sign implies that the operating expenses incurred in IB increase more than its revenue during the period of study as the bank management of IB has forecasted the inflation movement inaccurately and even worse the increasing cost could not transfer to the customers. However, INF displays a positive sign in CB which is in line with Bashir (2003), Pasiouras and Kosmidou (2007) and Wasiuzzaman and Tarmizi (2010). The positive relationship between inflation and bank profitability can be explained by the fact that the bank management of CB has forecasted the future inflation correctly during the period of study which gives them the opportunity to adjust the interest rate accordingly to achieve higher profits.

## REFERENCES

Abduh, M., & Idrees, Y. (2013). Determinants of Islamic Banking Profitability in Malaysia. *Australian Journal of Basic and Applied Sciences, 7*(2), 204-210.

Akhtar, M. F., Ali, K., & Sadaqat, S. (2011). Factors Influencing the Profitability of Islamic Banks of Pakistan. *International Research Journal of Finance and Economics, 66*, 125-132.

Ali, K., Akhtar, M. F., & Ahmed, H. Z. (2011). Bank-Specific and Macroeconomic Indicators of Profitability – Empirical Evidence from the Commercial Banks of Pakistan. *International Journal of Business and Social Science, 2*(6), 235-242.

Al Mahfuz, S. S. (2012). A Comparative Study of Profitability between Islamic Banks and Conventional Banks in the Context of Bangladesh.

Almazari, A. A. (2014). Impact of Internal Factors on Bank Profitability: Comparative Study between Saudi Arabia and Jordan. *Journal of Applied Finance & Banking. 4*(1), 125-140.

Almumani, M. A. (2013). Impact of Managerial Factors on Commercial Bank Profitability: Empirical Evidence from Jordan. *International Journal of Academic Research in Accounting, Finance, and Management Sciences, 3*(3), 298-310.

Alper, D., & Anbar, A. (2011). Bank-Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey. *Business and Economics Research Journal, 2*(2), 139-152.

Al-Qudah, A. M., & Jaradat, M. A. (2013). The Impact of Macroeconomic Variables and Banks Characteristics on Jordanian Islamic Banks Profitability: Empirical Evidence. *International Business Research, 6*(10), 153-162.

Al-Tamimi, H. A. H. (2010). Factors Influencing Performance of the UAE Islamic and Conventional National Banks. *Global Journal of Business Research, 4*(2), 1-9.

Ameur, I. G. B., & Mhiri, S. M. (2013). Explanatory Factors of Bank Performance Evidence from Turnisia. *International Journal of Economics, Finance and Management, 2*(1), 143-152.

Arellano, M., & Bond, S. (1991). Some Tests for Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equation. *The Review of Economic Studies, 58*(2), 277-297.

Arif, M., Khan, M. Z., & Iqbal, M. (2013). Impact of Bank Size on Profitability: Evidence from Pakistan. *International Journal of Applied Research, 2*, 98-109.

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-Specific, Industry-Specific and Macroeconomic Determinants of Bank Profitability. *Journal of International Financial Markets, Institutions and Money, 18*(2), 121-136.

Barr, R. S., Seiford, L. M., & Siems, T. F. (1994). Forecasting Bank Failure: A Non-Parametric Frontier Estimation Approach. *Recherches Economiques de Louvain Economic Review, 60*(4), 417-429.

Bashir, A. H. M. (2003). Determinants of Profitability in Islamic Banks: Some Evidence from the Middle East. *Islamic Economics Studies, 11*(1), 31-57.

Ben Khediri, K., & Ben-Khedhiri, H. (2009). Determinants of Islamic Bank Profitability in the MENA Region. *International Journal of Monetary Economics and Finance, 2*(3/4), 409-426.

Ben Naceur, S. (2003). *The Determinants of the Tunisian Banking Industry Profitability: Panel Evidence.* Paper presented at the Economic Research Forum (ERF) 10th Annual Conference, Marrakesh-Morocco, 16-18 December.

Berger, A. N., Bonime, S. D., Covitz, D. M., & Hancock, D. (2000). Why are Bank Profits so Persistent? The Roles of Product Market Competition, Information Opacity, and Regional Macroeconomic Shocks. *Journal of Banking and Finance, 24*(7), 1203-1235.

Bukhari, S. A. J., & Qudous, R. A. (2012). Internal and External Determinants of Profitability of Banks Evidence from Pakistan. *Interdisciplinary Journal of Contemporary Research in Business, 3*(9), 1037-1058.

Chua, Z. (2013). Determinants of Islamic Banks' Profitability in Malaysia. *Available at SSRN 2276277*.

Curak, M., Poposki, K., & Pepur, S. (2012). Profitability Determinants of the Macedonian Banking Sector in Changing Environment. *Procedia-Social and Behavioral Sciences, 44*, 406-416.

Dawood, U. (2014). Factors Impacting Profitability of Commercial Banks in Pakistan for the Period of (2009-2012). *International Journal of Scientific and Research Publications, 4*(3), 1-7.

Dietrich, A., & Wanzenried, G. (2011). Determinants of Bank Profitability Before and During the Crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money, 21*(3), 307-327.

Dietrich, A., & Wanzenried, G. (2014). The Determinants of Commercial Banking Profitability in Low-, Middle-, and High-Income Countries. *The Quarterly Review of Economics and Finance, 54*(3), 337-354.

Erina, J., & Lace, N. (2013). Commercial Banks Profitability Indicators: Empirical Evidence from Latvia. *IBIMA Business Review, 2013(2013)*, 1-9.

Francis, M. E. (2013). Determinants of Commercial Banks' Profitability in Sub-Saharan Africa. *International Journal of Economics and Finance, 5*(9), 1-73.

Gul, S., Irshad, F., & Zaman, K. (2011). Factors Affecting Bank Profitability in Pakistan. *The Romanian Economic Journal, 39*, 61-87.

Guru, B. K., Staunton, J., & Balashanmugam, B. (2002). Determinants of Commercial Bank Profitability in Malaysia. *Journal of Money, Credit and Banking, 17*, 69-82.

Han, C., & Phillips, P. C. B. (2006). GMM with Many Moment Conditions. *Econometrica, 74*(1), 147-192.

Haron, S. (1996). Competition and Other External Determinants of the Profitability of Islamic Banks. *Islamic Economic Studies, 4*(1), 49-64.

Hassan, M. K., & Bashir, A. H. M. (2003). Determinants of Islamic Banking Profitability. In *10th ERF Annual Conference, Morocco* (pp. 16-18).

Heffernan, S., & Fu, M. (2008). The Determinants of Bank Performance in China. *Available at SSRN 1247713*.

Idris, A. R., Asari, F. F. A. H., Taufik, N. A. A., Salim, N. J., Mustaffa, R., & Jusoff, K. (2011). Determinant of Islamic Banking Institutions' Profitability in Malaysia. *World Applied Sciences Journal 12 (Special Issue on Bolstering Economic Sustainability)*, 01-07.

Izhar, H., & Asutay, M. (2007). Estimating the Profitability of Islamic Bank: Evidence from Bank Mualamat Indonesia. *Review of Islamic Economics*, *11*(2), 17-29.

Jamal, A. A. A., Abdul Karim, M. R., & Hamidi, M. (2012). Determinants of Commercial Banks' Return on Asset: Panel Evidence from Malaysia. *International Journal of Commerce, Business and Management, 1*(3), 55-62.

Javaid, S., Anwar, J., Zaman, K., & Gafoor, A. (2011). Determinants of Bank Profitability in Pakistan: Internal Factor Analysis. *Mediterranean Journal of Social Sciences, 2*(1), 59-78.

Jiang, G., Tang, N., Law, E., & Sze, A. (2003). The Profitability of the Banking Sector in Hong Kong. *Hong Kong Monetary Authority Quarterly Bulletin,* September, 5-14.

Kakakhel, S. J., Raheem, F., & Tariq, M. (2013). A Study of Performance Comparison between Conventional and Islamic Banking in Pakistan. *Abasyn Journal of Social Sciences, 6*(2), 91-105.

Kanwal, S., & Nadeem, M. (2013). The Impact of Macroeconomic Variables on the Profitability of Listed Commercial Banks in Pakistan. *European Journal of Business and Social Science. 2*(9), 186-201.

Karim, B. K., Mohamed Sami, B. A., & Hichem, B. K. (2010). Bank-Specific, Industry-Specific and Macroeconomic Determinants of African Islamic Banks' Profitability. *International Journal of Business and Management Science, 3*(1), 39-56.

Kosmidou, K., Tanna, S., & Pasiouras, F. (2005). Determinants of Profitability of Domestic UK Commercial Banks: Panel Evidence from the Period 1995-2002. In *Money Macao and Finance (MMF) Research Group Conference* (Vol. 45).

Leitner, Y. (2014). Should Regulators Reveal Information About Banks?. *Business Review*, (Q3), 1-8.

Masruki, R., Ibrahim, N., Osman, E., & Wahab, H. A. (2011). Financial Performance of Malaysian Founder Islamic Banks Versus Conventional Banks. *Journal of Business and Policy Research, 6*(2), 67-79.

Molyneux, P., & Thornton, J. (1992). Determinants of European Bank Profitability: A Note. *Journal of Banking & Finance, 16*(6), 1173-1178.

Muda, M., Shaharuddin, A., & Embaya, A. (2013). Profitability Determinants and the Impact of Global Financial Crisis: A Panel Data Analysis of Malaysian Islamic Banks. *Research Journal of Finance and Accounting, 4*(7), 121-130.

Obamuyi, T. M. (2013). Determinants of Banks' Profitability in a Developing Economy: Evidence from Nigeria. *Organizations and Markets in Emerging Economies, 4*(2), 97-111.

Olweny, T., & Shipho, T. M. (2011). Effects of Banking Sectoral Factors on the Profitability of Commercial Banks in Kenya. *Economics and Finance Review, 1*(5), 1-30.

Ongore, V. O., & Kusa, G. B. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Financial Issues, 3*(1), 237-252.

Pasiouras, F., & Kosmidou, K. (2007). Factors Influencing the Profitability of Domestic and Foreign Commercial Banks in the European Union. *Research in International Business and Finance, 21*(2), 222-237.

Rahman, S., Jan, F. A., & Ali, K. I. Z. (2012). Parameters of Conventional and Islamic Bank's Profitability in Pakistan: Evaluation of Internal Factor. *Research Journal of Finance and Accounting, 3*(3), 11-18.

Ramadan, I. Z. (2011). Bank-Specific Determinants of Islamic Banks Profitability: An Empirical Study of the Jordanian Market. *International Journal of Academic Research. 3*(6), 73-80.

Ramadan, I. Z., Kilani, Q. A., & Kaddumi, T. A. (2011). Determinants of Bank Profitability: Evidence from Jordan. *International Journal of Academic Research, 3*(4), 180-191.

Rao, K. R. M., & Lakew, T. B. (2012). Determinants of Profitability of Commercial Banks in a Developing Country: Evidence from Ethiopia. *International Journal of Accounting and Financial Management Research (IJAFMR), 2*(3), 1-20.

Rivard, R. J., & Thomas, C. R. (1997). The Effect of Interstate Banking on Large Bank Holding Company Profitability and Risk. *Journal of Economics and Business, 49*(1), 61-76.

Sayedi, S. N. (2013). Bank Specific, Industrial Specific and Macroeconomic Determinants of Banks Profitability in Nigeria. *Researchjournali's Journal of Finance, 1*(1), 1-22.

Sharma, R. B., & Ravichandran, K. (2013). Factors That Affect the Profitability of the Conventional Bank and Shariah Bank in UAE. *International Academic Research Journal of Economics and Finance, 1*(5), 15-26.

Staikouras, C. K., & Wood, G. E. (2011). The Determinants of European Bank Profitability. *International Business & Economics Research Journal. 3*(6), 57-68.

Sufian, F. (2009). Factors Influencing Bank Profitability in a Developing Economy: Empirical Evidence from Malaysia. *Global Business Review, 10*(2), 225–241.

Sufian, F. (2011). Profitability of the Korean Banking Sector: Panel Evidence on Bank-Specific and Macroeconomic Determinants. *Journal of Economics and Management, 7*(1), 43-72.

Sufian, F., & Chong, R. R. (2008). Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from the Philippines. *Asian Academy of Management Journal of Accounting and Finance (AAMJAF), 4*(2), 91-112.

Sufian, F., & Habibullah, M. S. (2009). Determinants of Banks Profitability in a Developing Economy: Empirical Evidence from Bangladesh. *Journal of Business Economics and Management, 10*(3), 207-217.

Sufian, F., & Habibullah, M. S. (2012). Globalizations and Bank Performance in China. *Research in International Business and Finance, 26*(2), 221-239.

Syafri. (2012). Factors Affecting Bank Profitability in Indonesia. *The 2012 International Conference on Business and Management*, 236-242.

Tabash, M. I., & Dhankar, R. S. (2014). The Impact of Global Financial Crisis on the Stability of Islamic Banks: An Empirical Evidence. *Journal of Islamic Banking and Finance, 2*(1), 367-388.

Tafri, F. H., Hamid, Z., Meera, A. K. M., & Omar, M. A. (2009). The Impact of Financial Risks on Profitability of Malaysian Commercial Banks: 1996-2005. *International Journal of Social, Education, Economics and Management Engineering, 3*(6), 228-242.

Tarus, D. K., Chekol, Y. B., & Mutwol, M. (2012). Determinants of Net Interest Margins of Commercial Banks in Kenya: A Panel Study. *Procedia Economics and Finance, 2,* 199-208.

Vejzagic, M., & Zarafat, H. (2014). An Analysis of Macroeconomic Determinants of Commercial Banks Profitability in Malaysia for the Period 1995-2011. *Asian Economic and Financial Review, 4*(1), 41-57.

Vong, P. I., & Chan, H. S. (2009). Determinants of Bank Profitability in Macao. *Macau Monetary Research Bulletin, 12*(6), 93-113.

Wasiuzzaman, S., & Tarmizi, H. A. B. A. (2010). Profitability of Islamic Banks in Malaysia: An Empirical Analysis. *Journal of Islamic Economics, Banking and Finance, 6*(4), 53-68.

Yap, V. C., Chan, K. T., & Kyzy, B. T. (2012). Performance of Islamic Commercial Banks in Malaysia: An Empirical Study. *Journal of Islamic Economics, Banking and Finance, 8*(2), 67-80.

Zeitun, R. (2012). Determinants of Islamic and Conventional Banks Performance in GCC Countries Using Panel Data Analysis. *Global Economy and Finance Journal, 5*(1), 53-72.

# APPENDICES

## Appendix 4.2a: Descriptive Statistics for Conventional Bank

| | ROA_? | C | CAR_? | BS_? | OE_? | GDP | INF |
|---|---|---|---|---|---|---|---|
| Mean | 0.004339 | 1.000000 | 0.085915 | 11.07773 | 0.004226 | 4.275183 | 102.7333 |
| Median | 0.003466 | 1.000000 | 0.086690 | 11.16172 | 0.003257 | 5.119075 | 103.2500 |
| Maximum | 0.013905 | 1.000000 | 0.107706 | 11.61074 | 0.015790 | 10.28582 | 108.6000 |
| Minimum | 0.000314 | 1.000000 | 0.054406 | 10.41148 | 0.001643 | -5.75630 | 98.06667 |
| Std. Dev. | 0.002849 | 0.000000 | 0.014791 | 0.388588 | 0.003464 | 3.711246 | 3.250671 |
| Skewness | 2.093918 | NA | -0.32711 | -0.50935 | 2.137467 | -1.30581 | 0.025994 |
| Kurtosis | 6.345872 | NA | 1.909208 | 1.877958 | 6.060716 | 4.630305 | 1.726322 |
| | | | | | | | |
| Jarque-Bera | 95.77606 | NA | 5.392794 | 7.655884 | 92.14348 | 31.59469 | 5.416524 |
| Probability | 0.000000 | NA | 0.067448 | 0.021754 | 0.000000 | 0.000000 | 0.066653 |
| | | | | | | | |
| Sum | 0.347137 | 80.00000 | 6.873207 | 886.2187 | 0.338107 | 342.0146 | 8218.667 |
| Sum Sq. Dev. | 0.000641 | 0.000000 | 0.017282 | 11.92904 | 0.000948 | 1088.095 | 834.7822 |
| | | | | | | | |
| Observations | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| Cross sections | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

## Appendix 4.2b: Descriptive Statistics for Islamic Bank

| | ROA_? | C | CAR_? | BS_? | OE_? | GDP | INF |
|---|---|---|---|---|---|---|---|
| Mean | 0.003849 | 1.000000 | 0.072040 | 10.29900 | 0.004188 | 4.275183 | 102.7333 |
| Median | 0.003214 | 1.000000 | 0.072873 | 10.38490 | 0.002627 | 5.119075 | 103.2500 |
| Maximum | 0.017160 | 1.000000 | 0.104872 | 11.09711 | 0.016023 | 10.28582 | 108.6000 |
| Minimum | -0.000204 | 1.000000 | 0.045095 | 9.519324 | 0.001491 | -5.75630 | 98.06667 |
| Std. Dev. | 0.002815 | 0.000000 | 0.011962 | 0.385749 | 0.003694 | 3.711246 | 3.250671 |
| Skewness | 2.030309 | NA | -0.07332 | -0.03315 | 2.007769 | -1.30581 | 0.025994 |
| Kurtosis | 8.585827 | NA | 3.165636 | 2.289418 | 6.071028 | 4.630305 | 1.726322 |
| | | | | | | | |
| Jarque-Bera | 158.9669 | NA | 0.163129 | 1.697741 | 85.18588 | 31.59469 | 5.416524 |
| Probability | 0.000000 | NA | 0.921673 | 0.427898 | 0.000000 | 0.000000 | 0.066653 |
| | | | | | | | |
| Sum | 0.307915 | 80.00000 | 5.763160 | 823.9202 | 0.335007 | 342.0146 | 8218.667 |
| Sum Sq. Dev. | 0.000626 | 0.000000 | 0.011304 | 11.75539 | 0.001078 | 1088.095 | 834.7822 |
| | | | | | | | |
| Observations | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| Cross sections | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

## Appendix4.3a : Estimation Output for Conventional Bank

Dependent Variable: ROA_?
Method: Pooled Least Squares
Date: 03/03/15 Time: 09:42
Sample: 2009Q1 2013Q4
Included observations: 20
Cross-sections included: 4
Total pool (balanced) observations: 80

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -0.013273 | 0.005370 | -2.471695 | 0.0157 |
| CAR_? | -0.046062 | 0.009275 | -4.966241 | 0.0000 |
| BS_? | 0.000184 | 0.000375 | 0.489316 | 0.6261 |
| OE_? | 0.756004 | 0.039464 | 19.15659 | 0.0000 |
| GDP | 7.89E-05 | 3.68E-05 | 2.146060 | 0.0351 |
| INF | 0.000156 | 4.35E-05 | 3.579519 | 0.0006 |

| | | | |
|---|---|---|---|
| R-squared | 0.854325 | Mean dependent var | 0.004339 |
| Adjusted R-squared | 0.844482 | S.D. dependent var | 0.002849 |
| S.E. of regression | 0.001123 | Akaike info criterion | -10.67277 |
| Sum squared resid | 9.34E-05 | Schwarz criterion | -10.49412 |
| Log likelihood | 432.9110 | Hannan-Quinn criter. | -10.60115 |
| F-statistic | 86.79583 | Durbin-Watson stat | 2.035103 |
| Prob(F-statistic) | 0.000000 | | |

## Appendix 4.3b : Estimation Output for Islamic Bank

Dependent Variable: ROA_?
Method: Pooled Least Squares
Date: 03/03/15 Time: 09:41
Sample: 2009Q1 2013Q4
Included observations: 20
Cross-sections included: 4
Total pool (balanced) observations: 80

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -0.009396 | 0.010792 | -0.870700 | 0.3867 |
| CAR_? | 0.005755 | 0.025622 | 0.224608 | 0.8229 |
| BS_? | 0.002160 | 0.000827 | 2.609977 | 0.0110 |
| OE_? | 0.657147 | 0.054921 | 11.96522 | 0.0000 |
| GDP | 3.72E-06 | 5.55E-05 | 0.066999 | 0.9468 |
| INF | -0.000119 | 6.61E-05 | -1.794802 | 0.0768 |

| | | | |
|---|---|---|---|
| R-squared | 0.664173 | Mean dependent var | 0.003849 |
| Adjusted R-squared | 0.641482 | S.D. dependent var | 0.002815 |
| S.E. of regression | 0.001686 | Akaike info criterion | -9.861213 |
| Sum squared resid | 0.000210 | Schwarz criterion | -9.682561 |
| Log likelihood | 400.4485 | Hannan-Quinn criter. | -9.789586 |
| F-statistic | 29.27030 | Durbin-Watson stat | 1.164758 |
| Prob(F-statistic) | 0.000000 | | |