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BANK-SPECIFIC AND MACROECONOMIC DETERMINANTS OF BANK PERFORMANCE: A COMPARATIVE ANALYSIS BETWEEN ISLAMIC AND CONVENTIONAL BANKS IN MALAYSIA

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BANK-SPECIFIC AND MACROECONOMIC DETERMINANTS OF BANK PERFORMANCE: A COMPARATIVE ANALYSIS BETWEEN ISLAMIC AND CONVENTIONAL BANKS IN MALAYSIA

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Pusat Pengajian Ekonomi, Kewangan dan Perbankan

SCHOOL OF ECONOMICS, FINANCE AND BANKING

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ABSTRACT

The aim of this study is to examine the determinants of conventional and Islamic bank performance in Malaysia. A panel data sample of 23 conventional banks and 16 Islamic banks for the period 2008 to 2015 was used. The independent variables were categorised into bank-specific factors and macroeconomic factors. The bank-specific factors were capital adequacy, operating efficiency, asset quality, bank-size, and liquidity whereby GDP and inflation used as macroeconomic variables. The Generalized Least Square (GLS) was used for testing the hypotheses of the study. The regression results show that asset quality, operational efficiency, liquidity, bank size, GDP and inflation are significant determinants of conventional bank performance, while, capital adequacy, asset quality, operational efficiency, bank size, and GDP are significant with Islamic bank performance. It is worth to mention that asset quality is the only factor that bring the same effect to the performance of conventional and Islamic banks, which is found to be positive and statistically significant using either ROA or ROE. This study concludes that there are differences in the direction of the effects of the selected variables on the conventional and Islamic bank performance. Also, the study concludes that factors that affect conventional bank performance are not necessarily to affect Islamic bank performance.

Key words: bank-specific factors, macroeconomic factors, Malaysia, ROA, ROE.

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ABSTRAK

Tujuan kajian ini adalah untuk mengkaji penentu prestasi bank konvensional dan bank Islam di Malaysia. Sampel yang terdiri daripada 23 bank konvensional dan 16 bank Islam dalam bentuk panel data bagi tempoh 2008-2015 telah digunakan. Pembolehubah penerangan kajian ini dikategorikan kepada faktor khusus bank dan faktor-faktor makroekonomi. Faktor khusus bank yang digunakan termasuk kecukupan modal, kecekapan operasi, kualiti aset, saiz bank, dan kecairan manakala KDNK dan inflasi digunakan sebagai pembolehubah makroekonomi. 'General Least Square' (GLS) telah digunakan untuk menguji hipotesis kajian. Keputusan regresi menunjukkan bahawa kualiti aset, kecekapan operasi, kecairan, saiz bank, KDNK dan inflasi adalah signifikan penentu prestasi bank konvensional. Manakala, kecukupan modal, kualiti aset, kecekapan operasi, saiz bank, dan KDNK adalah signifikan dengan bank Islam. Kualiti aset adalah satu-satunya faktor yang membawa kesan yang sama terhadap prestasi bank konvensional dan bank Islam, iaitu positif dan signifikan secara statistik menggunakan sama ada ROA atau ROE. Kajian ini menyimpulkan bahawa terdapat perbezaan ke arah kesan pembolehubah yang dipilih pada prestasi bank konvensional dan Islam. Juga kajian membuat kesimpulan bahawa faktor-faktor yang mempengaruhi prestasi bank konvensional tidak semestinya memberi kesan juga kepad a prestasi bank Islam.

Kata kunci: Faktor bank khusus, faktor-faktor makroekonomi, Malaysia, ROA, ROE.

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LIST OF ACRONYM AND ABBREVIATION

BNM	Bank Negara Malaysia
CDS	Credit Default Swap
EVA	Economic Value Added
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GLS	Generalised Least Square
IMF	International Monetary Fund
MENA	The Middle East and North Africa
NIM	Net Interest Margin
OLS	Ordinary Least Square
P/B	Price to Book Value
P/E	Price Earnings Ratio
ROA	Return on Asset
ROE	Return on Equity
RAROC	Risk-Adjusted Return on Capital.

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CHAPTER ONE

RESEARCH OVERVIEW

1.0 Introduction

This chapter explains the overview of the study, including roles of the banks in the economy and the importance of evaluating bank performance to the customer, investor, regulators, etc. Next, the chapter explains the Malaysian banking institution, problem statement, study objectives and questions. Furthermore, significance and scope of the study are explained in this chapter. Lastly, this chapter explains the organization and summary of chapter.

1.1 Background of the Study

Banks play significant roles in the improvement of the economy and become key financial intermediaries in most economies (Alper & Anbar, 2011). The main roles of banks are accepting deposits, lend out money, receiving money on deposit, credit provision, liquidity provision and managing risk (Abel, 2013). Not only that, but also banks provide a tool for payment, match the supply and demand in financial markets, and deals with the complex financial instruments and markets, as well as provided markets transparency (Alper & Anbar, 2011). Banks absorb a major risk due to the storage, monitoring and also protect people saving. Without banks, it will be hard for people, corporation, government, and also companies to be able to borrow money or capital or equipment for the construction of a house, start-up a business, and also to make an investment.

Banks are the key indicator of the economy through the attraction of its saving and the granting of credit. The bank has reduced a risk of meeting supplier and demand (savers and borrowers) and also reduce the transaction cost that will exist when the savers and borrowers meet personally. This risk relates to their contract whereby there is a greater possibility for lender to charge a higher interest rate or demand a very expensive asset as a security. The aim is to protect themselves when the borrowers fail to pay back the loan. Hence, due to the presence of banks, the lender will not be affected, because when the borrower's default, banks are able to absorb the losses and also banks can minimise this risk through diversification.

Banks and other financial intermediaries dominate the flow of the financial sectors and to the rest of the economy (Bloor & Hunt, 2011). Banks are able to mobilise saving, diversifying risk, allocating saving and also monitoring the allocation of managers. Through these key services, banks influence saving and also investment decision and hence economic growth (Bloor & Hunt, 2011). Due to the banks significance, studies identified the bank's performance has been getting much consideration from analysts and has been the prominent research topics for a time (Samad & Hassan, 1999; Said & Tumin, 2000; Athanasoglou, *et al.*, 2005; Karim, *et al.*, 2010; Jaffar & Manarvi, 2011; Sanwari & Zakaria, 2013; Vejzagic & Zarafat, 2014; Muhmad & Hashim, 2015; Rashid & Jabeen, 2016).

The performance of the banking industry is the major concern as it maintains the well-being and robustness of the banks and the economy as a whole. Banks preserve financial stability and promote economic growth in the country (Sen, *et al.*, 2015).

Thus, examining its performance determinants is very critical in order to stabilize the economy (Dawood, 2014; Jamal, *et al.*, 2012). By looking to customer perspective, bank performance evaluations enable banks to be well managed and also to operate in a reasonable competitive market. Bank evaluation helps the availability of credit at an appropriate price to creditworthy borrowers. On the contrary, bank evaluation helps stakeholders to differentiate from the bad bank and hence decide the appropriate bank for investment (Leitner, 2014). Bank performance evaluation is a complex process that includes assessing the interaction between the economic, internal operations, as well as external activities.

Sen, *et al.*, (2015) reveal that a very stable and the profit - making bank seems to be serious in dealing with any unanticipated shock arising in a bank. Analysing bank performance can be done in many different ways, subject to the type of analysis and the user specific needs (Ali, 1996). However, the existing literature shows that banking performance is evaluated from two perspectives; microeconomic view (bank-specific determinants) and macroeconomic view (Sufian & Habibullah, 2009; Masood & Ashraf, 2012; Sanwari & Zakaria, 2013; Wasiuzzaman & Gunasegavan, 2013; Sen, *et al.*, 2015; Moualhi, 2016). From a microeconomic perspective, measuring bank's performance is very crucial as it will increase stakeholder confidence in saving or investing their money in the respective banks (Jamal & Masyhuri, 2012; Milhem & Istaiteyeh, 2015).

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Considering the microeconomic factors, most of the studies such as Wirnkar and Tanko (2008), Sangmi and Nazir (2010), Muhmad and Hashim (2015), Suresh and Bardastani (2016), use CAMEL framework indicator in examining the performance of either Islamic or conventional bank performance or both. CAMEL framework comprises of capital ratio, asset quality, liquidity risk ratio, management efficiency and earnings. The study includes some of CAMEL factors because these are the most important indicators of bank performance as proposed by the IMF and Basel committee. By looking at the macroeconomic point of views, the country factors such as Gross domestic product (GDP) and inflation are not under the management control (Jamal & Masyhuri, 2012). Macroeconomic variables are widely used by previous researchers to examine their effect toward the banking sector performance.

Almazari (2014) and Dawood (2014) indicate that during good economy the bank performance improved. This is due to the increases in the demand for the banking products. Banks efficiency results in performance improvement, increase better prices and service quality for consumers, as well as it will lead to a greater safety and soundness of the bank (Milhem & Istaiteyeh, 2015). Interestingly, a negative bank performance draws in the consideration of investors, bringing up issues, regardless of whether the banks can proceed with operations and which banks will confront hard monetary conditions (Alkulaib, *et al.*, 2013). Furthermore, there are several ways that are used in measuring bank performance simply because each bank stakeholder has his own interest.

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However, according to European Central Bank (2010), there are three common methods that are used to measure bank performance. These methods are a traditional measure (ROA, ROE, and NIM), economic measure (EVA and RAROC) and market-based measures (P/E, P/D, CDS). Therefore, this study is interested more on the traditional measure of the bank performance because this is the most known measure to evaluate the determinants of bank performance (Teng, *et al.*, 2012; Al-gazzar, 2014; Sen, *et al.*, 2015; Rashid & Jabeen, 2016).

A traditional measure is the same as those applied in other industries, whereby in return on assets (ROA) and return on equity (ROE) are mostly used (European Central Bank, 2010). ROA and ROE have been used in the previous studies such as Sufian and Habibullah (2009), Alper and Anbar (2011), Massah and Al-Sayed (2015), and Milhem and Istaiteyeh (2015). This is because the ROA and ROE are related to key items in the financial statements of banks (Bashir, 2003), such as total asset, shareholders' equity and net income and so become a key indicator in evaluating bank performance.

1.2 Malaysia Banking Institution

In Malaysia, a financial system is categorised into the banking system and non-banking system (San & Heng, 2013). Malaysia banking institution comprises of commercial banks, Islamic banks, Investment banks and International Islamic banks (Yuying, 2016). The main function of a banking system is the mobilisation of the funds and to act as the main source of financing that supports Malaysia economic activities (San & Heng, 2013). The supervision of the banking system is under Bank Negara Malaysia

(BNM). BNM is a statutory body wholly owned by the Malaysian Government. The key player of this banking system is the commercial banks, which is counted as the largest providers of the fund in the Malaysian banking system. On the other hand, Malaysia has become a global leader in Islamic finance or participant banking (Trotsenburg, 2013). Currently, in Malaysia, there are 16 Islamic banks, 28 commercial banks, 2 International Islamic banks, and 11 investment banks[1]. The BNM (2016) shows that Malaysia consists of full-fledged Islamic banks, including domestic and foreign owned entities. It also consists of some commercial banks are locally owned and some are foreign owned.

The pronouncement of Islamic Banking Act 1983 in Malaysia, permits the conventional banks to offer the Islamic banking products and services (Wasiuzzaman & Tarmizi, 2010). Furthermore, BNM allowed Islamic banks to operate parallel with the conventional banks in order to provide diversified banking opportunities and build a sound financial system gathering the opportunities for the economic development through Shariah-compliant financial operations (Rashid & Jabeen, 2016). In June, 2013 BNM established new financial service Act (FSA) 2013 and Islamic Financial service Act IFSA 2013. The aim is to regulate payment system operators and payment instrument issuers in order to promote safe, efficient and reliable payment systems and instrumentation for both conventional and Islamic banks.

[1] http://www.bnm.gov.my/index.php?ch=fs&pg=fs_mfs_list&ac=118&lang=en

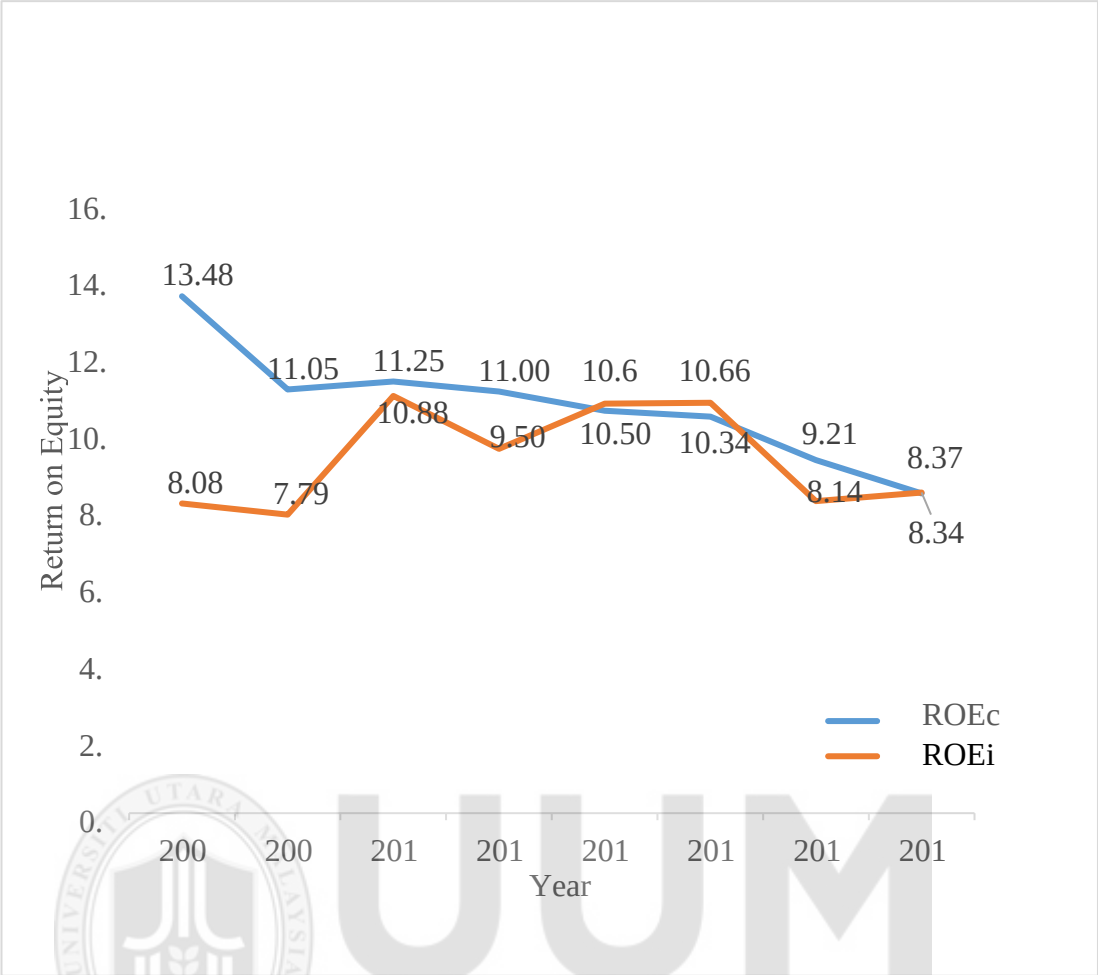
The FSA and IFSA 2013 role include empowering the bank to specify standards as well as, to issue directions, for the purpose of ensuring the safety, integrity, efficiency and reliability of the payment systems and payment instruments. However, the report of IMF (2014), indicates that a strong regulatory oversight, together with the efforts to restructure the banking sector after the Asian financial crisis in 1997-98, has supported rapid growth in Malaysia's financial sector over the last decade. So, due to the banking sector reform in 1999, Malaysia continues to be able to withstand pressures and challenges arising from globalisation and from an increasingly competitive global environment (The Star, 1999).

Malaysia is one among the country that implements conventional and Islamic banking systems. But by looking the key measures of profitability namely ROE and ROA, the evidence shows that there is a mismatch between the ROE and the ROA of conventional and Islamic banks. To start with ROE the following data show that ROE of conventional banks and ROE of Islamic banks are differing and the results are as follows:-

Table 1.1

Return on Equity for Islamic and Conventional Banks

	2008	2009	2010	2011	2012	2013	2014	2015
ROE for Commercial banks (ROEc)	13.4810	11.049	11.256	10.997	10.499	10.340	9.206	8.339
ROE for Islamic banks (ROEi)	8.075	7.786	10.882	9.502	10.684	10.663	8.142	8.365



Source: Study finding 2017

Figure 1.1

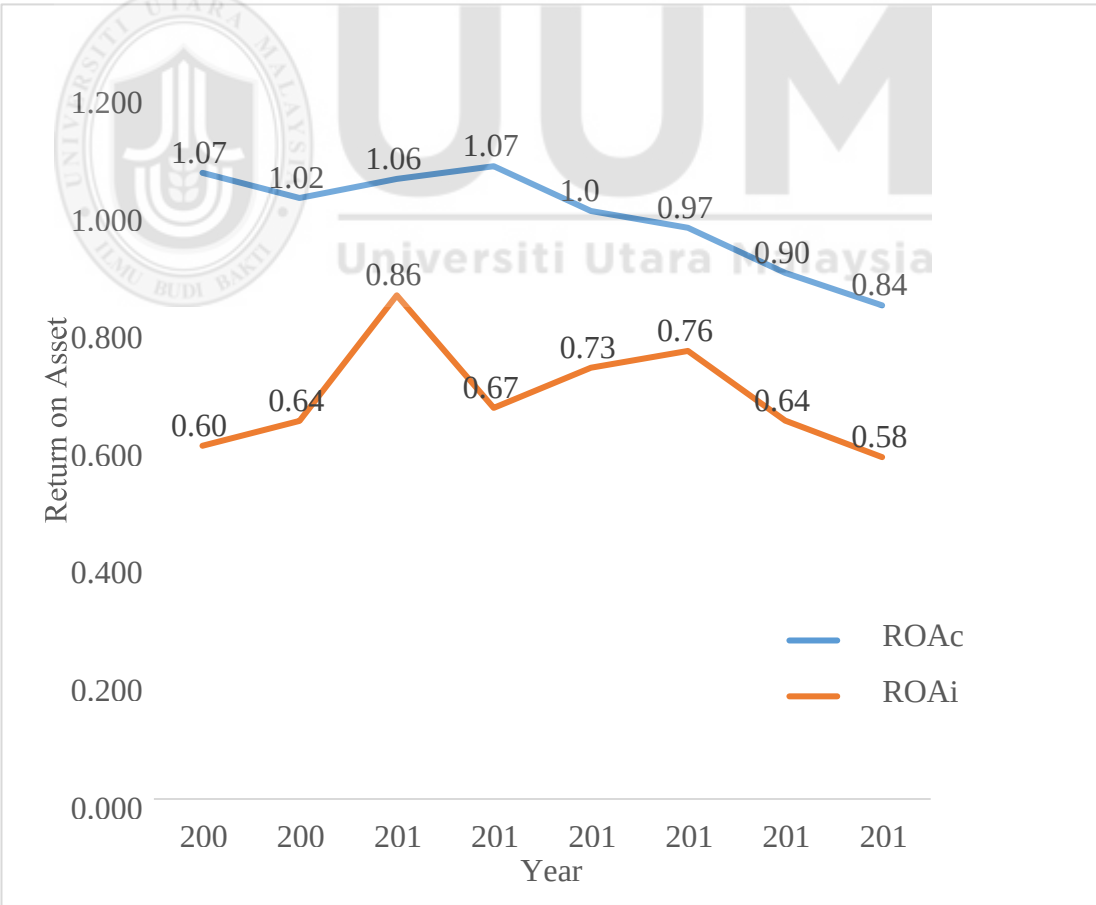
Comparison of Islamic and Conventional Return on Equity

As shown in Table 1.1 above, the ROE for Islamic banks is below the ROE of conventional banks. The findings also indicate that there are different trends between the ROE of Islamic and conventional banks whereby Islamic banks are highly fluctuated compared to the conventional banks. In the year 2008 ROE for conventional banks was 13.48 to 8.339 in 2015. As shown in Table 1.1, in 2008 the ROE for Islamic banks was 8.075 and decreasing to 7.786 in 2009 while in 2010 rise to 10.882 and fall in 2011 to 9.502, for the year 2012 ROE rise to 10.684 and fall to 10.663 in 2013 and continue falling until 2015 when it rise to 8.365. On the other hand, the Table 1.2

shows that the ROA for conventional and Islamic banks are not the same as shown below:-

Table 1.2
Return on Asset for Islamic and Conventional Banks

	2008	2009	2010	2011	2012	2013	2014	2015
ROA for commercial banks (ROAc)	1.065	1.023	1.055	1.077	1.001	0.972	0.895	0.840
ROA for Islamic banks (ROAi)	0.601	0.643	0.857	0.666	0.734	0.763	0.644	0.582



Source: Study finding 2017
Figure 1. 2
Comparison of Islamic and Conventional Return on Asset

Table 1.2 above, shows that ROA for Islamic banks is below the ROA of conventional banks. In addition, the findings also indicate that the trends between the ROA of Islamic and conventional banks are differed whereby Islamic banks are highly fluctuated compared to the conventional banks. The ROA for conventional banks fluctuated and the data show that in 2008 the ROA and a decline to 1.023 in 2009 and started to rise up to 1.077 in 2011 and started to fall up to 0.840 in 2015. The ROA for Islamic banks fluctuates yearly. As shown in Table 1.2 in 2008 ROA for Islamic banks was 0.601 and continue rising until reaching its peak in 2010 which counted as 0.857, then decreases to 0.666 in 2011 and increases up to 0.763 in 2013, and for the year 2015 the ROA reaches 0.582.

Thus, despite these two banking systems operate in the same country, economic, political and social condition, the evidence above show that the performance (measured using ROE and ROA) of Islamic and conventional banks are deferred. These differences are due to have different trends between the performance of Islamic and conventional banks and due to the ROA and ROE of conventional banks is above the ROA and ROE of Islamic banks. Therefore, for this, case studies are needed in order to find the factors affect the performance of conventional and Islamic banks in Malaysia.

1.3 Problem Statement

Banks play a vital role in the country's economy, particularly in the case of Malaysia whereby the contribution of the services sector is more than 50 percent of the total value of GDP[2]. Since banks are the major contributor to the country's economy their stability is the significance of the financial system. Thus, an understanding of the determinants of their performance is essential and crucial to the stability of the economy. Due to the importance of banking institutions in the economy, more studies are needed in order to determine the exact factors affecting the performance between Islamic and conventional banks.

Currently, the rapid growth of Islamic banks, lead to an increasing debate on measuring the performance of Islamic banks mainly in Muslim countries (Ika & Abdullah, 2011; Jaffar & Manarvi, 2011; Zeitun, 2012; Elsiefy, 2013; Sharma & Ravichandran, 2013). On the contrary, despite the vast growth of Islamic financing, there are relatively insufficient studies have examined comparison between the Islamic bank's performance determinants and conventional banks performance determinants (Olson & Zoubi, 2011; Zeitun, 2012; Erol, 2014). Therefore, the study's main objective is to improve the understanding of the bank performance determinants for conventional and Islamic banks. Malaysia is one among the country that operates the dual banking system, namely Islamic and conventional banking system.

[2] http://www.bnm.gov.my/index.php?ch=en_publication&pg=en_ar&ac=38&en

The findings show that (refer to Table 1. 1 and 1.2) the ROA and ROE for Islamic banks are lower than the ROA and ROE of conventional banks. These in similarities of ROA and ROE exist even when both banking systems operate in the same country, economic, political and social environment. Empirically, there is no clear evidence on the factors affect the Islamic bank performance and factors affect the conventional bank performance in Malaysia (Masruki, *et al.*, 2011; Nathan, *et al.*, 2014; Ramlan & Adnan, 2016). On the other hand, Sen, *et al.* (2015), found that operating efficiency, capital ratio, GDP, and inflation are the most important factors that affect conventional bank performance. While bank size is insignificant to the conventional bank performance. On the other hand, in Islamic banking, operating ratio, inflation, and bank size found to be the only important factors that affect Islamic banks (Sen, *et al.*, 2015).

In the study conducted by Wasiuzzaman and Gunasegavan (2013) found that bank size affects significantly the conventional bank performance whereby operational efficiency, asset quality, capital ratio are significantly affected more the performance of Islamic banks. Nathan, *et al.* (2014), signify that the liquidity of conventional and Islamic banks differed. Thus, due to this contradiction of the results on banks performance determinants, a clear framework is needed in order to assist bank manager in improving the performance and investors in making wise decisions in Malaysia. Furthermore, there are very limited studies (Wasiuzzaman & Tarmizi, 2010; Sen, *et al.*, 2015; Ramlan & Adnan, 2016) that examine bank-specific and macroeconomic determinants of Islamic and conventional bank performance in Malaysia. Thus, for this case, further studies are needed to examine the determinants of Islamic and

conventional bank performance by considering both internal and external factors in order to increase the empirical findings. Therefore, for this reason, this study is carried out aim to investigate the internal (bank-specific) and external (macro-economic) factors that determine the performance of Islamic banks and conventional banks in Malaysia. The study is different from the previous studies because of the sample size taken which is larger (16 Islamic banks and 23 commercial banks) comparable to the sample size taken in previous studies conducted by Wasiuzzaman and Gunasegavan, (2013), Sen, *et al.* (2015), Ramlan and Adnan (2016) among others. In addition, having a different methodology (variables used and data analysis techniques) makes this study to be different from the previous one.

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1.4 Research Question

This research paper tends to examine the followings:-

1. Do bank-specific factors, namely capital adequacy, liquidity risk, asset quality, operations efficiency, and size affect the performance of Islamic banks and conventional banks in Malaysia?

2. Do macroeconomic factors, namely inflation and Gross domestic product affect the performance of Islamic banks and conventional banks in Malaysia?

1.5 Research Objectives

The general objective of this study is to find out the determinants of the bank performance in the Malaysian banking sector in order to raise issues that must be discussed to further improve the practice. Specific objectives of this research include the following;

1. To examine the significant impact of bank-specific factors, namely capital adequacy, liquidity risk, asset quality, operations efficiency, and size of the Islamic and conventional banks' performance in Malaysia.

2. To investigate the effect of macroeconomic factors, namely gross domestic product and inflation on Islamic and conventional bank performance in Malaysia.

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1.6 Significance of the Study

The finding of this study is expected to be practically useful and give valuable information to the prospective investors as well as depositors to understanding banking performance and the stability of the Malaysian banking sector with regard to Islamic and conventional banks. It is hopeful that the results will benefit commercial banks and also Islamic banks because both banks will know exactly the factors that affect their performance and so will help to take measures to enhance their performance. Apart from prospective investors and depositors, the study will provide valuable information to the body of knowledge which can be used by both researchers and

academicians in understanding Malaysian bank performance. Moreover, this study can be used as a benchmark comparison with other developing countries. The evidence obtained from the factors affecting Islamic and conventional banking sectors will provide the public with a better understanding of the performance of the selected banks. It will also give awareness and guidance to Malaysian banks for taking prompt action concerning the performance of their banks.

1.7 Scope of the Study

The scope of this study covers all commercial banks and Islamic banks. The commercial banks are the most important banks in Malaysia, providing the largest services to the bank customers (Shamsudin, 2003). The Islamic banks also provide similar services of the conventional banks. It's just that they are under different regulations. On the other hand, the study covers the period of 2008 to 2015 as this is the year a lot of foreign Islamic banks started their operations in Malaysia. This is the result of the liberalization policy implemented in Malaysia. The study uses 23 commercial banks and all 16 Islamic banks operated in Malaysia.

1.8 Organisation of the Chapter.

This research is structured into five chapters. Chapter One contains the background of the study, problem statement, research objectives, significance of the study, limitation of the study, an organisation of the chapters as well as chapter summary. Chapter Two is a literature review that explains the key definition of the study, measurement of the bank performance, theoretical framework and empirical review

and lastly the chapter summary. In chapter Three, the research methodology is discussed which includes research design, study population, study sampling size and procedure, conceptual framework, study hypothesis, data collection methods and technique, and methods of data analysis. Chapter Four consists of data source, data analysis, and presentation of the results. Chapter Five focuses on conclusion and recommendations.

1.9 Summary of Chapter

This section depicts the general overview of the study. It explains the roles of banks, the importance of evaluating bank performance and explains regarding the concept of the relations to bank performance with the internal and external factors affect the conventional and Islamic bank. This study focuses on the Malaysian banking sector aiming to improve knowledge on the bank-specific and macroeconomic determinants of Islamic and conventional bank performance. Also, this chapter highlighted the issues and the gap which leads to the problem statement of the study, research questions, and objectives, significance of the study as well as study limitation and scope. Lastly, this chapter presents the overall organisation of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction.

This section provides the summary of the literature related to the study. The chapter begins to explain the supporting theory of the study, which is a financial intermediation Theory that explains the existence of the banks and their function toward the economy. Next, this chapter explains about bank performance. Lastly, the chapter explains about past research work on previous studies of the variables undertaken.

2.1 Related Theory

This part discussed the underlying theory related to the study. The theory discussed is Financial Intermediation Theory, which explains key roles of the banking institutions and is used in explaining how these roles affect the bank performance.

2.1.1 Financial Intermediation Theory

Financial Intermediation Theory is the selected theory used in this study in order to explain the existence of banks. There is no role played by the financial intermediaries when there are perfect and complete markets (traditional neoclassical models of resource allocation) (Scannella, 2010). Theory of Financial Intermediation stresses four imperative elements of banks as financial intermediaries namely information specialist, financial specialist, financial provider, and delegated monitors and payment

(Pyle, 1971, Benston & Smith, 1976, Allen & Santomero, 1996). Benston and Smith (1976) demonstrate that when banks play a role as information specialists, it means that financial intermediaries are in a position to acquire confidential data and can use the privileged information of their customers (borrower and lenders). According to Campell and Kracaw (1980), in conveying these capacities, banks need to keep up confidentiality of the customers' information. Thus, having pools of information of their customers, enables banks to become a more informed specialist and producer. Pagano (2001) shows that the roles of financial intermediaries are resolving information asymmetry as well as reduce transactional cost amongst borrowers and lenders. As information analyst banks are able to forecast the trend of the inflation rate and be able to adjust the cost to the borrower so as to be able to protect the expected earnings and hence increase the performance (Claus, *et al.*, 2003).

However, banks also play a role as a financial specialist. Banks receive deposits from depositors and give a loan to finance specialists requiring capital and consequently, banks make a profit from the interest spreads (Rahman, 2012). This turns out to be essential with the expanded in the complexity of financial products as well as modernization of the banking system (Pagano 2001). Ciancanelli and Gonzalez (2000), noticed that in doing the intermediary function, banks may carry on in a self-interest behavior by broadening advances to risky borrowers with a specific end goal of having high returns. Moreover, as a financial specialist bank continues to increase its performance by formulating different strategy in order to minimise the risk (unsystematic) such as liquidity risk, credit risk, and operational risk that will reduce the profit.

Looking at the payment system and financial provider, Macey and O'Hara (2003) and Nam (2004) reported that banks have been given a prevailing position in the most financial market specifically in developing countries. The role of payment system empowers banks to transfer money from one party to another, whether in a form of cash, electronic transfer, letter of credit, check and any other form of cash substitute. As a financial service provider, banks provide varieties of services such that currency exchange, receiving deposits, transferring money, extend loans and whatever other exercises identified with the fund as recommended by the national bank (Rahman, 2012).

Consequently, as banks assume an imperative part in the financial market, it is critical for banks to have a good bank administrator. This is on account of good administration will build banks effectiveness and in this manner will fortify efficiency development and the success of the entire economy. As a financial provider's bank will be able to provide loans to the different sector of the economy. Be able to know the types of the loans that borrowers want, will create more earning especially when banks understand the risk associated with that type of loans. Thus, when there is a good policy on evaluating the customer's ability to the payback of the loans and the good payment system for collecting the debts, banks will able to generate more income and so improve the performance.

As delegated monitors, financial intermediaries act as an agent who have been authorised to invest in financial assets on behalf of their creditors (Rahman, 2012).

Diamond (1984) claimed that the functions of financial intermediary is a means of minimising the cost of monitoring information are a useful tool in resolving the incentive problems amongst borrowers and lenders. In view of the Delegated Monitoring Theory, Diamond (1984) depicts that banks are delegated monitors on behalf of their creditors. Henceforth, in accomplishing this target, banks need to conduct their business effectively and persistently by investing in a productive investment with a reasonable risk. As it could guarantee high liquidity and well-being to borrowers in all circumstances (Ahmad, 2003). Hence, opting the investments that will generate a high return, results banks generate the income even for Islamic banks because they are dealing with a profit sharing contract. Investing in low return investments results to reduce the income for the banks and so decrease their performance.

Therefore, in order for bank performance to increase, banks should monitor their task and act accordingly. These increased the loyalty to their depositors on their money invested and influence other investors (creditors) to invest in the banks and so generates more income. Thus, in relation to bank performance, as a financial intermediary bank plays a greater role between borrowers and lenders. The presence of banks make an easier way for surplus and deficit unit to meet. As financial intermediaries, banks will be able to generate income by charging both surplus unit and deficit unit (depositors and borrowers). Furthermore, banks can use depositor's money and invest in different underlying securities such as stock, equities, asset etc. The income generated after pay back the depositor's money and the interest received from borrowers enable banks to increase performance.

On the contrary, when the information asymmetry exists between the borrower and banks. This indicates that borrowers have more information on the economic or financial trends comparable to the bank. This can hinder banks to generate more profit, especially when there is a change in the inflation rate (Masruki *et al.*, 2011; Muammad & Abdulhakeim, 2013; Vejzagic & Zarafat, 2014). This information asymmetry indicates the failure of banks to act as an information specialist and results to the failure in adjusting interest rate to the borrowers. The consequence of this is that banks incur more cost during the payment of liabilities and generates low returns when receiving from the loans to the borrowers and from the investment and so reduce the performance. The asymmetry problem is specifically suffered by Islamic banks because it is not involved in any matter related to the interest rate (Abduh & Alias, 2014; Hong, 2015; Sen, *et al.*, 2015; Ramlan & Adnan, 2016).

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2.2 Bank Performance

Bank performance is a subjective measure of how well a bank can use assets to generate revenue from its primary mode of business. Bank performance alludes to measure of how well a bank generates incomes from its capital (Nickel & Rodriguez, 2002). It is the measurement of the outcome obtained in the light of predefined principles in order to figure out what can be measured. It likewise demonstrates an overall financial health over a period, and be able to compare various banks across the banking sector in the meantime (Nickel & Rodriguez, 2002). Moreover, the bank performance gives the security to investors in order to motivate investors to allow the bank to invest on their behalf (Muhmad & Hashim, 2015). Also, measuring the bank performance give the flag to managers on the type of investment to use. Similarly

evaluating the performance, enable a bank regulator to come up with the new regulation as to strength the financial sector in general (Samad & Hassan, 1999). There are many different ways to measure bank performance, including traditional measure. In a banking industry, there are many stakeholders' such as depositors, trade creditors, bondholders, investors, governments, employees and management. Each of these stakeholders has its own interest in tracking the financial performance of a bank. Therefore the issue by examining the determinants of banking performance becomes crucial in order to provide an overview of the performance.

A study conducted to identify the bank's performance has been getting much consideration from specialists and has been the popular research topic for a very long time because banks play a critical part in the change of the economy. Evaluating bank performance is an important prerequisite for the development of any situation in banking development as well as banking growth (Hassan, 2005). It is normal in banks to evaluate the pre-determined goals and objectives and making an evaluation over time. According to Ongore and Kusa (2013), profit is the ultimate goals of commercial banks. Thus, the assessment of bank performance is an intricate procedure that includes evaluating interaction between the economic environments, internal and external operations (Sen *et al.*, 2015).

By considering the study that examines banks performance determinants Hassan and Bashir (2003), analyses how bank characteristics and the overall financial environment affect the performance of Islamic banks. The study examines the performance

indicators of Islamic banking worldwide for the period between 1994 and 2001. The study finds that capital adequacy is positively related to the Islamic bank's performance whereby asset quality are negatively related to the performance. According to author capital ratio leads to more profit margin. In addition, Islamic bank loans have low risk and only contribute modestly to the bank profits and so during the short-term trade financing, the Islamic loan portfolio is heavily biased. Athanasoglou, *et al.* (2008), examine the effect of the Bank-specific, industry-specific and macroeconomic determinants of bank's profitability of Greek commercial banks during 1985 to 2001. The study employed an empirical framework that incorporates the traditional structure-conduct-performance hypothesis (SCP). The study shows that there is a statistical significance of bank performance and macroeconomic factors.

In addition, it was found that capital is the most important factor in explaining bank profitability and therefore increased exposure to risk results to lowers the profit. Vejzagic and Zarafat (2014) analysed the macroeconomic determinants of commercial banks in Malaysia for the period 1995 to 2011 by using standard regression model. The study found that GDP is significant and has the positive relationship with the bank profitability. The result indicates that the economic growth increases bank profits through enhanced demand for business loans that will generate good returns to commercial banks and hence generates higher profits. Inflation, on the other hand, is not significant in measuring the bank performance, which indicates that banks tend not to earn a profit in the inflationary environment (Naceur, 2003).

Ika and Abdullah (2011), investigate the financial performance between Islamic banks and conventional banks prior and after the enactment of Indonesia's Islamic Banking Act No. 21/2008. The study conducted for the period covered 2000-2007 using; profitability, liquidity, risk, and efficiency as variables of the study. The results show that there is no major difference in financial performance between Islamic banks and conventional banks, except in terms of its liquidity. The reason why there is a difference in liquidity is that in Islamic banks the capability to meet current liability with the current asset is better than in conventional banks. Hadriche (2015), compares and identify the determinants of the performance between Islamic banks and conventional banks operating in GCC countries for the period covered 2005 to 2012. The study employed a sample of 46 Islamic banks and 71 conventional banks that operate in GCC countries by using CAMEL test. The study reveals that on- average Islamic banks are performing better compared to conventional banks.

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On the other hand, it was revealed that bank size and operational cost affect the performance of both conventional and Islamic banks. The interpretation of why bank size has a positive relation with the performance is that large size may have better management. The bank size leads to have more diversified investment opportunities and employ better technology as a result performance increase. The study shows that Islamic bank performance in terms of liquidity is higher compared to conventional banks. This is due to the fact that Islamic bank is investing only in Sharia approved projects, and it also due to the fact that the Islamic bank does not have enough investment opportunities. In addition, there is a positive effect of Islamic bank performance and inflation. The results show that the factors affecting Islamic and

conventional bank performance are different. Rashid and Jabeen (2016), empirically examine the bank-specific, and macroeconomic determinants of performance of Islamic and conventional banks in Pakistan. An unbalanced annual panel data for a period covered 2006-2012 were used. Results show that operating efficiency is the significant determinant of conventional banks' performance and Islamic banks. On the other hand bank size negatively affect the bank performance, especially in Islamic banks. The interpretation of this size is that the small size of the bank results to increase cost and in order to have better performance the study recommended Islamic banks to increase their assets and market share. Not only that, but also the study found a positive relation between inflation and performance for both types of banks. The result interpreted as that the bank performance increase with the increase of inflation, which is implied that more saving and more investment in the economy.

Sen, *et al.* (2015) conducted a study to examine the factors that significantly affect both the conventional and Islamic bank performance. Secondary data were used for the quarterly period covered 2009-2013. The study reveals that operational efficiency is the only factor that has positive significance and carries the same effect on the performance of both Islamic and conventional banks. The interpretation of this result is that firstly it supports the efficient wage theory that the increase in productivity results to increase in wage rate and hence increase the performance. In addition, the result indicates that the positive sign of operational efficiency to both banking systems implies that all banks have the ability to increase the operating cost to their customers without causing the reduction in profitability.

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Sen, *et al.* (2015) added that, factors that have the significant impact on the Islamic bank performance will not necessarily affect the performance of the conventional bank. Al-gazzar (2014) examines the determinants of financial performance in Islamic and conventional banks in the MENA & the GCC region for the period covered 2009-2013. The study employs 45 banks, which is 35 conventional banks and 10 Islamic banks. Using ROE and ROA the study reveals that Islamic banks perform better in terms of capital adequacy, earning quality and asset quality whereby conventional banks perform better in liquidity position.

2.3 CAMEL Framework

A CAMEL framework is the most common and widely used factors in assessing bank-specific factors. This is because CAMEL framework is recommended by Basel Committee on Bank Supervision and International monetary fund as bank performance evaluation model (Baral, 2005). A CAMEL framework is one of the popular frameworks developed in the early 1970's by federal regulators in USA (Wirnkar & Tanko, 2008). According to Wirnkar & Tanko, (2008) a CAMEL framework was developed in order to structure the bank examination process. This framework is used by regulators, which use some financial ratios to evaluate bank's performance (Yue, 1992).

In the study conducted by Muhmad & Hashim (2015) shows that, since the establishment, the framework continues to be used to evaluate a bank's financial health among regulators, including Malaysia (Muhmad & Hashim, 2015). Dash and Das, 2009 explained that there are five factors are based upon an assessment of critical elements of a financial institution's operations, namely: capital adequacy, asset quality, management soundness, earnings and profitability, and liquidity. These five CAMEL facts indicate an increase in the probability of bank failure when any of these five factors prove inadequate. The choices of the five CAMEL factors are based on the idea that each represents a major element in a bank's financial statement.

2.4 Bank-specific Factors

The explanatory variables that represent the bank-specific characteristics that have an impact on bank's profitability were different from one study to another. Therefore, this part reviews bank-specific variables that relate to this study.

2.4.1 Capital Adequacy

Capital is one of the Bank particular elements that impacts the level of bank profit (Ongore & Kusa, 2013). It indicates the amount of banks' fund available to bolster the bank's business and in a case of adverse bank movement capital act as a buffer (Athanasoglou, *et al.*, 2005). Capital adequacy helps bank capital decreases the chance of distress (Diamond & Rajan, 2000). Nonetheless, capital adequacy is the level of capital required by the banks to empower them to withstand the dangers, for example, credit, operational and the market risk, they are presented for keeping in mind the end goal to retain the potential loss and protect the bank's borrowers. Capital adequacy

ratio (CAR) demonstrates the interior quality of the bank to withstand misfortunes during the crisis. This ratio is directly proportional to the resilience of the bank to financial crisis environment. Furthermore, as reported by Sangmi and Nazir (2010), capital adequacy affects bank's profitability by determining its expansion to risk. Furthermore, capital adequacy ratio measured by total equity over total assets and demonstrates how bank equity influences the profit made (Abduh & Idrees, 2013). On the other hand, studies conducted by Akhtar, *et al.* (2011), Olalekan and Adeyinka (2013), Al-Damir (2014), Algazzar (2014), and Bateni, *et al.* (2014) signifies that there is statistically significant and positive relation between capital adequacy ratio and return on asset.

In addition, Ongore and Kusa, (2013) indicate that banks face no volatility in profit due to leverage. Moreover, studies conducted by Mathuva (2009), Dietrich and Wanzenried (2011), and Abduh and Idrees (2013) signify that the relationship between capital ratio and bank performance is negative which means that the higher capital ratio the lower bank profitability. Hence, the inverse relationship is in line with the conventional argument that higher capital ratios encourage banks to invest in safer assets, such as lower risk loans or securities, which may affect bank performance (Ongore & Kusa, 2013).

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2.4.2 Asset Quality

Asset quality is a part of bank management to involve the evaluation of the firm's asset for the purpose of facilitating the measurement of the level and size of credit risk related to its operation and it mostly focuses on the loan which provides income to a bank (Adeolu, 2014). It is easier for banks to enter into a problem when loans are not repaid as it often happens which results from such a debt sometimes written off as bad (Orji, 1989; Omolumo, 1993). Asset quality seems not only to affect the operating cost of banks, but also influence the interest cost and the bank operating performance (Adeoulu, 2014). A bad quality asset of the banks can prompt a bank rating downgrade and so it becomes difficult for banks to earn the depositor's trust (Marshall, 1999). According to Yin (1999), the deterioration of asset quality which occurs due to the ignorance of loan quality is one among the core causes of the Asian Financial crisis.

Heffernan and Fu (2008) explains that the prediction of the sign of asset quality is low owing to the higher provisioning indications prompt to higher possible loan losses. However, the study conducted by Gul, *et al.* (2011) and Adeoulu (2014) found that asset quality, statistically significant to the bank performance. On the contrary, Wasiuzzaman and Tarmizi (2010) conducted an empirical study to examine the profitability of Islamic Banks in Malaysia and found that asset quality has a negative relationship with Islamic bank performance. The same results were obtained from Athanasoglou, *et al.* (2008), Achou and Tegnuh (2008), and Teng, *et al.* (2012). The negative results occur when there is no or weak loans policy set out by the banks, non-compliance with such loans policy, inadequate project monitoring, incomplete

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knowledge of the customer's activities (existence of asymmetric information) and bad judgement (Osayameh, 1986).

2.4.3 Operational Efficiency

Operational efficiency explains to the efficient utilization of the use of people, machines, tools and equipment, materials funds (human and material resources). The utilisation of these resources increases the production of goods and services and cost reduction. It is the strategic arrangement of an organisation in order to retain a healthy balance between production and cost. Sen, *et al.* (2015) reported that the efficiency of banks directly influences to the productivity of the economy. Thus, the economy cannot function efficiently when there is an absence of sound and efficient banking system. Sangmi and Nazir (2010) indicate that the higher the proportion the less dangerous the bank will be, which will be specifically influencing the bank's profit.

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Moreover, studies such as that of Bashir (2003), Naceur (2003), Haron (2004), Vong and Chan (2009), and Rashid and Jabeen (2016) show that there is a statistically significant relationship between the operational efficiency and bank performance. The positive results indicate the banks' ability in using resources affects bank performance positively (Sen, *et al.* 2015). Bashir (2003) added that the positive effect can due to the usage of advanced technologies as a mean of delivering services. And according to Wasiuzzaman and Gunasegavan (2013), the bank becomes less risky when the operating ratio becomes smaller as a result leads to a positive growth in profitability.

On the other hand, studies conducted by Tang, *et al.* (2003), Athanasoglou, *et al.* (2008), Sufian, and Chong (2008), Karim, *et al.* (2010), Zeitun (2012), Erina and Lace (2013), Francis (2013), and Dawood (2014) found that there is a negative relationship between operating efficiency and bank performance. The result showing that poor expense management encountered poor bank performance. Moreover, the lack of efficiency in managing expenses and the tendency of bank's competition hinder them charging higher cost lead the adverse impact on the bank performance (Wahidudin, *et al.*, 2012).

2.4.4 Liquidity

Liquidity alludes to the ability of the bank to fulfil its commitments, especially investors. Liquidity can be measured using the total deposit to total asset ratio (Dang 2011). The effect of liquidity is to the bank performance as well as bank reputation that is because the insufficient of liquidity will cause the erosion to depositor confidence which results from an opportunity cost (Hakimi & Zaghdoudi, 2017). Liquidity is viewed as a reliable tracker that prompts any market crisis. It is unrealistic for institutions to fulfil their commitments unless can only fulfil this by borrowing funds at high cost or managing the asset at lower cost (Kanchu, & Kumar, 2013). The banks can satisfy the cash needed by depositor withdrawals, payment of loans, as well as by maturities of liabilities (Crouhy, *et al.* 2006). At the point when banks support the deposit and borrowings, asset, selling and credit payment, then it can satisfy the need of the cash.

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Moreover, the deficient of liquidity makes the insufficiency of capital, which prompts bank indebtedness (bankruptcy). A study conducted by Loutskina and Strahan (2009) has indicated that the examining liquidity is crucial as liquidity impacts on the supply of the loan. Thus, the insufficient level of liquidity diminishes the profitability since it decreases the expected cash, which utilised for an additional cost (Crouhy, *et al.*, 2005).

As per Jenkinson (2008), the distinctive functions of banks exposed to the liquidity risk which may exist in the event that they couldn't meet their commitments is due to the tendency of the depositor to ask their deposit at any time. This leads to the sales of bank asset for fulfilling their commitment as a result, bank performance is reduced (Diamond & Rajan, 2005). Thus, managing banking risk is very crucial that is because when customers realise that they will not receive the highest return from the bank. Besides, there is a possibility to withdraw their deposits and invest in other activities that will generate the highest return. A lot of studies indicate that liquidity is positively related to the bank performance (Bourke, 1989; Kosmidou, *et al.*, 2005; Pasiouras & Kosmidou, 2007; Dang, 2011; Masruki, *et al.*, 2011).

On the contrary, some studies, such that Algazzar (2014), Cuong, (2015), and Mamatzakis and Bermpei (2015) argue that, there is a negative relationship between liquidity and bank performance. This negative relation occurs under the misallocation of resources that is because banks of a high level of liquidity will tend to finance a risky project in order to earn the highest return but with a weak probability of success

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(Hakimi & Zaghdoudi, 2017). The negative relationship indicates that an increase in liquidity results to decrease in bank performance.

2.4.5 Bank Size

Bank size can be used to portray the effect of economies of scales in the banking industry (Sen *et al.*, 2015). Based upon the theory of economies of scale, having a bigger the size of the bank results the higher bank profitability. Thus, larger banks can have more resources to mobilise more funds for their depositors and have more capability in achieving the economies of scale with lower cost and hence increase the profit (Hadriche, 2015; Sen, *et al.*, 2015). However, the study of a bank size shows that the increasing in bank size leads the performance of the banks to increase (Milbourn, *et al.* 1999). According to Regehr and Sengupta (2016), the increase in bank size can build bank profitability by allowing banks to realise economies of scale. For instance, expanding size permits banks to spread fixed expenses over a more prominent resource base, in this way lessening their normal expenses (Regehr & Sengupta, 2016).

However, if the size of the banks increases, it will decrease the risk of enhancing operations over product offerings, segments, and areas (Mester, 2010). In the study conducted by Delis and Papanikolaou (2009), Siddiqui and Shoaib (2011) Wasiuzzaman and Gunasegavan (2013), Tariq, *et al.* (2013), and Eriki and Osifo (2015) found that bank size is positively and statistically significant with the bank performance that's why larger banks earn more profit compare to small banks. In

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addition, the positive effect shows evidence of economies of scale as proved by Karim, *et al.* (2010). On the other hand, Pratomo and Ismail (2007), Pasiouras and Kosmidou (2007), Ameur and Mhiri (2013), found that bank size negatively and significantly affects the bank performance which is due to the tendency of larger banks be unleveraged. Furthermore, the negative result is because of the bureaucratic reasons that larger banks will suffer (Pasiouras & Kosmidou, 2007).

2.5 Macroeconomic Variables

2.5.1 Gross Domestic Product

GDP is the most commonly used macroeconomic indicators to measure bank performance/ profitability. It reflects the health of the economic activities and output generated in the certain country (Sen, *et al.*, 2015). According to Sufian and Habibullah (2009), GDP is likely to influence several factors that relate to the supply and demand for deposits and loans (Sufian & Habibullah, 2009). Vong and Chan (2009) signifying that during good economy, people tend to have more capital on hand and deposit the excess fund in a bank or investment which in turn raise the lending activities of banks and then bring a greater profit to the bank. In addition, favorable economic conditions will not only have a positive effect on the supply and demand for banking services but will also have either positive or negative influence on bank profitability levels (Sufian & Habibullah, 2009).

In the study conducted by Damena (2011), Davydenko (2011), Saksonova and Solovjova (2011), Zeitun (2012), Dawood (2014), Almazar (2014), Hong (2015), and Sen, *et al.* (2015) found a positive and significant impact on GDP and bank performance. The authors state that when there are a growth in the economy the bank profitability increases. Vong and Chan added that in a strong economy the probability of facing the default risk is relatively lower and so demand of non-interest as well as interest activity increases rapidly. Thus, due to increased demand, the bank profit will increase.

However, on the study conducted by Rashid and Jabeen (2016), who analyse the determinants of conventional and Islamic Banks performance in Pakistan found that both bank performance has negatively affected by GDP. Other studies that support the negative relationship between GDP and bank performance are Scott and Arias, (2011), Sufian (2011), Khrawish (2011), Sharma and Ravichandran (2013), and Ganić, *et al.* (2015), among others.

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2.5.2 Inflation

Inflation reflects the general increases in the value of goods and services in a specific economy. The occurrences of high inflation in the economy, tend to reduce the consumer purchasing power whereby the rate of return on the bank asset trims down compared to the rate of its liabilities. The country inflation is very important indicators in the bank performance as it influences the rate of return on bank assets. As indicated by Zeitun (2012), the rate of inflation could be imperative macroeconomic factors that influence the bank performance in which the effect of inflation is relying upon how

rapidly increases the operating cost. Perry (1992) proposed that the impact of inflation on the bank performance is relying upon whether the inflation rate is anticipated or unanticipated. When the inflation is anticipated, meanings that the bank management is able to predict the changes in the level of the inflation rate and necessary precautions have been taken to overwhelm the losses incurred. Thus, the ability to predict the changes in the inflation, the bank will adjust its interest rate accordingly so that its revenues will increase more than its cost. This finding was empirically tested by Pasiouras and Kosmidou (2007), Ben-Khediri and Ben-Khedhiri (2009), Sufian and Habibullah, (2009), Wasiuzzaman and Tarmizi (2010), Abduh and Alias (2014), Hadriche (2015), and Abel and Roux (2016) and found a positive relationship and interpreted that a high level of inflation will bring higher costs and higher income.

Nevertheless, studies conducted by Santoni (1986), Saksonova and Solovjova (2011), Khrawish (2011), Alimi (2014), Umar, *et al.* (2014), Duraj and Moci (2015), Hong (2015), Sen, *et al.* (2015), and Moualh (2016) among others found that there is an adverse impact on inflation and bank performance. This is because of inflation spill over the effect detrimental to the overall economy, as reported by Umar, *et al.* (2014) and Ramadan, *et al.* (2011), negative results reflect the bank's failure to transfer the increasing cost to the customer due to the fixed contract entered.

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2.6 Summary of Chapter

The chapter presented a review of theories and empirical evidence of bank-specific and macroeconomic determinants of the conventional and Islamic bank performance in Malaysia. The literature review highlights that financial intermediation Theory that stress four impressive elements of banks as financial intermediaries' namely financial analyst, information specialist, financial provider and delegated monitor and payment. When the customer has more information than bank asymmetric information will exist which indicate that bank fail to play a role as an information specialist and financial analyst. Thus, the existence of asymmetric information reduces the bank performance. Drawing of this chapter, next chapter builds the relationship between bank-specific and macroeconomic factors on the conventional and Islamic bank performance, and further develop testable hypotheses.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the procedures and methods used in the study. In addition, it attempts to determine the parameter of the research methodology through describing procedures used in collecting data, explaining data analysis method and techniques used as well as the development of the study hypothesis. According to Sekaran (2000), in research methodology the research framework, the mechanism used for collecting data, sample selection, as well as tools used to analyse the data are discussed.

3.2 Research Framework

The research framework portrayed in Figure 3.1 is constructed based on literature review and research problems. The framework focuses on the relationship between bank-specific factors and macroeconomic factors with Islamic and conventional bank performance. Bank performance, which is proxies by ROA and ROE is the dependent variable, while bank-specific factors and macroeconomic factors are the independent variables. Bank-specific factors include capital adequacy, asset quality, operating efficiency, bank size and liquidity while macroeconomic variables are a gross domestic product and inflation. Therefore, the research framework of this study is as follows;

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INDIPENDENT VARIABLES **DEPENDENT VARIABLE**

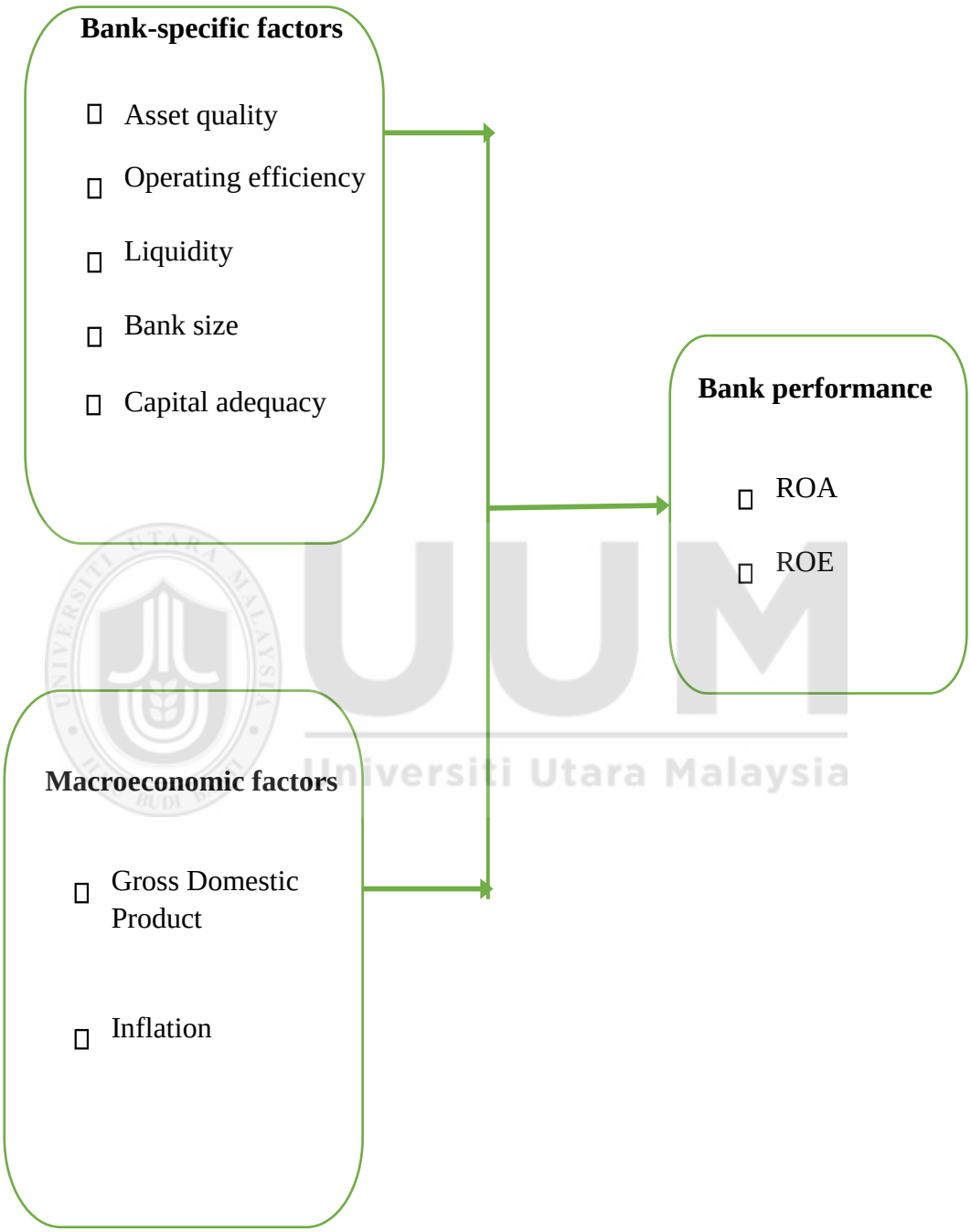

Figure 3.1
Conceptual Framework.

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3.2 Measurement of Variables

The study measured the bank performance using ROA and ROE. The Independent variables are divided into internal (bank-specific) factors and macroeconomic factors. The description of the dependent and independent variables are explained as follows;

3.2.1 Dependent Variables:

The dependent variable of this study is bank performance, which is measured by the traditional method approach using the ROA, and ROE. This study uses ROA and ROE because it is the most popular approach used by most researchers such as Bashir (2003); Athanasoglou, *et al. (*2008); Dietrich and Wanzenried (2011), Ongore and Kusa (2013), Erol, (2014), Nathan, *et al.* (2014), Maldonado (2014), Ibrahim (2015), Khediri, *et al.* (2015), Muhmad and Hashim (2015), Hadriche (2015), Rahman and Rejab (2015), Abel and Roux (2016), Moualh (2016), Olson and Zoubi (2011), and Ramlan and Adnan (2016).

ROA indicates profit earned per dollar of asset. Olson and Zoubi (2011), indicate that ROA reflects directly on both income and expense levels. Higher ROA demonstrates an ability of the bank's administration in changing over its asset into income and thus, showing better performance. ROA is chosen as the dependent variable and is measured using the ratio of net profit after tax to the total asset. ROE on the other hand, identifies management capability of banks for the use of its stakeholders' investment to generate income (Berger, 1995). The value of shareholders is normally small compared with other sources of bank funds. According to Hassan and Bashir (2003), the likelihood of a

lower return on assets by financial intermediaries leads numerous banks to make the use of huge financial leverage so as to increase ROE to the level of competition. In addition, Rose and Hudgins, (2013), confirm that the higher ROE result in a better managerial performance of the banks. The ratio used to calculate ROE is net profit after tax to total equity capital.

3.2.2 Bank-specific Factors

This study uses five banks-specific variables in order investigate which factor has significantly affected the bank performance (Islamic or conventional banks). The variables used are capital adequacy, asset quality, bank size, operational efficiency, and liquidity risk. The essence of using these factors is due to the theoretical framework i.e. CAMEL framework. However, apart from the CAMEL factors the study uses bank size because there are several studies such as Athanasoglou, *et al*, (2008), Sen, *et al.* (2015), and Rashid and Jabeen (2016) among others that use bank size as the bank-specific variable for evaluating bank performance. Therefore, each of bank-specific variables is explained as follows:-

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Capital Adequacy

It reflects the bank's strengths and solvency. Capital adequacy is the ultimate line of protection against any expected losses from, market risk, operational risk, credit risk or other risks (Elsiefy, 2013). Capital ratio is measured using the equity (capital plus reserve) to the total asset. Measuring capital adequacy using equity capital to a total asset ratio enables us to see how equity capital affects the bank performance. Among the studies that use the same ratios are Flamini, *et al.* (2009), Vong and Chan (2009),

Maldonado (2014), Ibrahim (2015), Muhmad and Hashim, (2015), Petria, *et al.* (2015), Suresh and Bardastani (2016), Merin (2016), Moualh (2016), and Ramlan and Adnan, (2016).

Asset Quality

Asset quality is an aspect of bank management that entails the evaluation of the firm's asset in order to facilitate the measurement of the level and size of credit risk associated with its operation and it mostly focuses on the loan which provides earning for a bank (Adeolu, 2014). Examining asset quality is crucial as most authors on bankruptcy, agreed that prior to a bank being declared as bankrupt, a substantial amount of non-performing loans must occur. This is because the bank asset quality is a sign for the bank's liquidation (Demirguc-Kunt, 1989, Alkassim, 2005).

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This study uses the ratio of total loans to a total asset as has been used in the study conducted by Aldamir (2014), Algazzar (2014), Ganić, *et al.* (2015), Hong (2015), Massah and Al-Sayed (2015), Muhmad and Hashim (2015), Ramlan and Adnan (2016), Merin (2016), and Moualh (2016). The benefit of using this ratio is that it measures the ability of banks in managing its lending activities. Also, this ratio utilised as a part of assessing the credit risk that related to a bank profit (Alkassim, 2005).

Operational Efficiency

This ratio is used to provide information on the variation of the banking cost to the banking system. Examining this ratio will have an impact to the management by taking a good action for managing the operating cost. In this study, the operating efficiency ratio is measured using the operating expenses to total asset ratio. Bourke (1989), Ganić, *et al.* (2015), Merin (2016), Khasawneh (2016), Abel and Roux (2016), and Rashid and Jabeen (2016) are among the studies that use this ratio in examining the bank performance

Liquidity

Liquidity refers to the ability to meet depositors' withdrawals maturing liabilities as well as meeting loan request without delay. Liquidity risk likewise leads towards having issues in generating funds and inability to deal with sudden variations in the source of financing. This study uses total deposits to total asset ratio to measure the liquidity. Among the studies that use this ratio are Maldonado (2014), Abel and Roux (2016), Suresh and Bardastani (2016), Moualh (2016), and Ramlan and Adnan (2016).

Bank size

Size is one of the most important questions underlying bank policy to know the size that optimises bank profitability. The study uses bank size as one among the independent variable because, Malaysia banks consist of various sizes as explained by Rahman (2012). Thus, this study want to know what the relationship between bank size and bank performance is. The essence of using a bank size is to capture the effect

of economies of scale in bank performance. In this study, bank size is measured using the natural logarithm of total asset. Among the studies that used this ratio are Zeitun (2012), Almazari (2014), Maldonado (2014), Massah and Al-Sayed (2015), Milhem and Istaiteyeh (2015), Petria, *et al.* (2015), Sen, *et al.* (2015), Abel and Roux (2016), Merin (2016), and Rashid and Jabeen (2016).

3.2.3 Macroeconomic factors

Gross Domestic product (GDP)

GDP is the summation of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It refers to the income generated by output and production in a country's economy during a period of time. When there is good economic condition people will have more cash on hand and deposit in bank for investment (Sen, *et al.*, 2015). The increase of the number of depositor cause banks to increase the lending activities and bank creates massive profit. For measuring the macroeconomic condition, GDP can be served as an indicator of the demand for banking services (San & Heng, 2013). This study uses Annual real GDP per capital as used in the study conducted by Petria, *et al.* (2015), Moualh (2016), and Rashid and Jabeen (2016).

Inflation

An annual inflation rate measures the overall percentage increase in the consumer price index (CPI) for all goods and services (Riaz & Mehar, 2013). The accurate forecasting of the inflation leads banks to react quickly to it and able to adjust the interest rate on

time. Since the banks are information specialists, banks will take advantage of it and earn greater profit. In this study, inflation is measured using the consumer price index (CPI). Among the studies that use consumer price index to measure inflation are Guru, *et al.* (2002), Mendes and Abreu (2003), Naceur (2003), Alexiou and Sofoklis (2009), (Flamini, *et al.* (2009), Sufian and Habibullah (2009), Vong and Chan (2009), Sanwari and Zakaria (2013), Vejzagic and Zarafat (2014), Hadriche (2015), Petria, *et al.* (2015), Sen, *et al.* (2015), Merin (2016), and Moualh (2016). Table 3.1 represents the summary of the variables to be used:-

Table 3.1
Definition, Notation, Measurement, and the Previous Studies on the Selected Variables

Variable	Notation and Measurement	Researchers
Dependent Variables		
Return on asset	$ROA = \frac{Net\ profit\ after\ tax}{Total\ asset}$	Dietrich and Wanzenried (2011), Ongore and Kusa (2013), Erol, (2014), Muhmad and Hashim (2015), Rahman and Rejab (2015), Abel and Roux (2016), Moualh (2016), Olson and Zoubi (2016), and Ramlan and Adnan (2016).
Return on equity	$ROE = \frac{Net\ profit\ after\ tax}{Total\ equity}$	
Independent variables: **Bank-specific factors**		
Capital Adequacy	$CAR = \frac{Equity}{Total\ asset}$	Flamini, *et al.* (2009), Petria, *et al.* (2015), Suresh and Bardastani (2016), Merin (2016), Moualh (2016), and Ramlan and Adnan, (2016).

Table 3.1 continue

Variables	Notation and Measurements	Researchers
Asset quality	$AQU = \frac{Total\ loans}{Total\ asset}$	Ganić, *et al.* (2015), Massah and Al-Sayed (2015), Muhmad and Hashim (2015), Ramlan and Adnan (2016), Merin (2016), and Moualh (2016).
Operating efficiency	$OPER = \frac{Operating\ expenses}{Total\ asset}$	Bourke (1989), Ganić, *et al.* (2015), Merin (2016), Khasawneh (2016), Abel and Roux (2016), and Rashid and Jabeen (2016)
Liquidity ratio	$LIQU = \frac{Total\ deposit}{Total\ asset}$	Maldonado (2014), Bardastani (2016), Moualh (2016), and Ramlan and Adnan (2016), and Sen et al (2015)
Bank size	$BSZ = \log(total\ asset)$	Zeitun, (2012), Almazari (2014), Milhem and Istaiteyeh (2015), Petria, *et al.* (2015), Sen, *et al.* (2015), Abel and Roux (2016), Merin (2016), and Rashid and Jabeen (2016)
Macroeconomic variables:		
Gross domestic product	$GDP = Annual\ GDP\ per\ capital$	Petria, *et al.* (2015), Moualh (2016), and Rashid & Jabeen (2016),

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Table 3.1 continue

Variables	Notation and Measurements	Researches
Inflation	$INFL = Consumer\ price\ \ index$ (%)	Mendes and Abreu (2003), Sanwari and Zakaria (2013); Vejzagic and Zarafat (2014), Hadriche (2015), Petria *et al.* (2015), Sen, *et al.* (2015), Merin (2016), and Moualh (2016)

3.3 Hypotheses Development

The study hypotheses are mostly based on financial intermediation theory and the research framework.

3.3.1 Capital Adequacy and Bank Performance

According to Golin and Delhaise (2013), capital adequacy ratio is measured by equity to a total asset, and it reflects the bank's strengths and solvency. Capital adequacy is the ultimate line of protection against any expected losses from, market risk, operational risk, credit risk or other risks (Elsiefy, 2013). Higher bank capital ratios reduce the cost of financial intermediation and increase bank profitability (Zheng, *et al.*, 2017). However, according to Berger (1995), the relationship of this variable to performance may fluctuate over the stages of the business cycle. Since capital refers to a number of own funds available to support a bank's business, thus, bank capital acts as a safety net in the case of adverse developments. Due to the Basel Accord on capital requirement, the changing of the capital regulation increases risk for shareholders. And according to Naceur, *et al.* (2006), banks increase the cost of

intimidation to make up a higher risk which in turns banks will earn a higher return. Similarly, Akhtar, *et al.* (2011), Zeitun (2012), Olalekan and Adeyinka (2013), and Bateni, *et al.* (2014) indicate the positive relationship between capital ratio and bank performance. Therefore, this study hypothesized the relationship between capital adequacy and bank performance as follows:-

H1a: Capital adequacy has a positive effect on conventional bank performance

H1b: Capital adequacy has a positive effect on Islamic bank performance

3.3.2 Asset Quality and Bank Performance

The banks largely depend on the quality of assets held by them, but actually, the quality of the assets depends on the financial health of the bank's borrowers (Baral, 2005). Demirguc-Kunt and Huizinga (1999), Karim, *et al.* (2010), and Antoine (2015) found a significant relationship between asset quality and bank performance. Bank as a financial specialist is able to structure a good policy in order to avoid default risk associated with the loan from borrowers (Ciancanelli & Gonzalez, 2000). Management of an asset quality is considered extremely important by the banking sector. That is the reason on why Basle Committee on Banking Supervision designed seven core principles out of twenty-five principles aiming to discuss the appropriate matters of asset quality and the management of the bank credit risk (Basle, 1997).

Furthermore, the establishment of these principles implies that asset quality is of general concern to financial supervisory authorities in every country as it reduces the credit risk (Adeolu, 2014). Hence the higher the asset quality ratio the higher the bank performance as because the quality of the loan or asset creates a greater earning to the

banks. Financial intermediation theory shows that banks which extend more loans as a percentage of deposits earn higher margins. Thus, the increase loans result to increase performance. The studies conducted by Guru *et al.* (2002), Karim *et al.* (2010), and Antonie (2015) signify a positive relation between asset quality and bank performance. Therefore, this study hypothesized a positive relationship between asset quality and bank performance as follows:-

H2a: Asset quality has a positive effect on conventional bank performance

H2b: Asset quality has a positive effect on Islamic bank performance

3.3.3 Operating Efficiency and Bank Performance

Operating efficiency is hypothesised to have a positive impact with the bank performance. As an information specialist banks are able to reduce the transaction cost amongst borrowers and lenders (Pagano, 2001). This turn to expand the complexity of financial product and hence improve performance. Cost efficiency leads to the reduction in monitoring cost and an increase in production (profitability) (Pettinger, 2012). Therefore, operating efficiency has a significant impact on the bank performance. Studies conducted by Vong and Chan (2009), Wasiuzzaman and Tarmizi (2010), and Sen, *et al.* (2015) signify that there is a positive impact on operational efficiency with banks performance. Thus, as improved expense management will increase efficiency and so profit will increase. Thus, this study hypothesized the relationship as follows:-

H3a: Operating efficiency has a positive effect on conventional bank performance

H3b: Operating efficiency has a positive effect on Islamic bank performance

3.3.4 Liquidity and Bank Performance

The little level of liquidity result to have a great failure of banking. Liquidity risk likewise leads towards having issues in generating funds and inability to deal with sudden variations in the source of financing. The role of financial intermediation is to provide insurance against liquidity shocks. The study conducted by Bourke (1989) and followed by Masruk, *et al.* (2011), indicate that the effects of liquidity and bank performance is positive. As a delegated monitor and financial provider, banks conduct the business and invest in a well productive investment with a reasonable risk that will create high liquidity and improve its performance (Ahmad, 2003). Therefore, the hypotheses of this variable are as follows:-

H4a: liquidity risk has a positive effect on conventional bank performance

H4b: Liquidity risk has a positive effect on Islamic bank performance

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3.3.5 Bank Size and Bank Performance

Generally, the effect of a growing size on profitability has been proved to be positive to a certain extent (Tafri, *et al.*,2009; Karim *et al.*, 2010; Rao, & Lakew, 2012; Taric, 2013; and Sen, *et al.*, 2015; among others). Srairi (2009), shows that when the size of the bank bigger that bank possesses a higher profitability. That is because when the size is bigger results in economies of scale and decrease the cost of collecting and processing information (Wasiuzzaman & Gunasegavan, 2013). On the other hand, large size increases economies of scope that cause greater loan product diversification and availability of capital markets which are not available to small banks (Wasiuzzaman & Gunasegavan, 2013). Thus, due to the economies of scale, the study

expects a positive effect on bank size for conventional or Islamic bank performance and their hypotheses are:-

H5a: Bank size has a positive effect on conventional bank performance

H5b: Bank size has a positive effect on Islamic bank performance

3.3.6 Gross Domestic Product and Bank Performance

Real GDP growth is an annual percentage growth rate of GDP at market prices based on constant local currency. GDP per capital is assumed to affect banking performance positively because higher GDP growth may lead to a greater demand for both interest and non-interest activities, thereby improving the profitability of banks. In the study conducted by Alexiou and Sofoklis (2009) shows that the GDP of well-developed countries is positive, but for developing countries, there is an inverse relationship between economic growth and bank performance.

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As a financial specialist and information specialist banks are able to determine which economic organisation is going to survive or which one will perish (Badjun, 2009). It is also able to know the types of investments and products to be made in order to boost the economy (King & Levine, 1993). A number of credits issued to the government (both central and local governments) and the credit issued to the private sectors and public sectors boost the country's economy (Badjun, 2009).

Thus, the increasing of loans leads to the increase GDP growth and at the same time to the increasing of bank profitability due to the income generated between the cost incurred and income received. Among the studies that support the positive effect are Kunt and Huizinga (1998), Bikker and Hu (2002), Athanasoglou, *et al.* (2008), Zeitun (2012), Obamuyi (2013), Vejzagic (2014), Almazar (2014), Dawood (2014), Sen, *et al.* (2015). Hence the study hypothesised the relationship between the GDP growth and bank performance as follows:-

H6a: Gross domestic product has a positive effect on conventional bank performance

H6b: Gross domestic product has a positive effect on Islamic bank performance

3.3.7 Inflation and Bank Performance

Inflation affects the real value of costs and revenues simply because if the inflation rate increase the purchasing power of buying goods and services decline, so meaning that a currency buys more today than it does tomorrow (Hamel, 2017). Thus, people tend to borrow money from the bank which leads to the increase loan profit and hence bank performance increase, meaning that a higher inflation rate means higher costs and higher income (Vong & Chan, 2009). In the studies conducted by Alexiou and Sofoklis (2009), Flamini, *et al.* (2009), Guru, *et al.* (2002), Mendes and Abreu (2003), Naceur (2003), Sanwari and Zakaria (2013), Sufian and Habibullah (2009), revealed a positive relationship between bank's performance and inflation. Therefore, this study hypothesised the relationship between inflation and bank performance as follows:-

H7a: Inflation has a positive effect on conventional bank performance

H7b: Inflation has a positive effect on Islamic bank performance

3.4 Population and Data Collection

Under this subsection research method, population and source of data, and method of data analysis are discussed.

3.4.1 Research Method

This study utilised quantitative data to investigate the bank performance because the information utilised is secondary data gathered from a published source in which the internal data that are gotten from the annual financial statements, Eikon, and Bank scope. However, the data for external factors are retrieved from World Bank data. The essence of using accounting data (financial ratios) is because accounting data is very useful and most regulators are used in assessing the financial health of the business (Agusman, *et al.* 2008).

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3.4. 2 Data and Source of Data

This study covers all Islamic and commercial banks in Malaysia for the year 2008 to 2015. The study excludes other categories of banks like investment banks because commercial banks and Islamic banks are the most important banks in Malaysia and a wide range of customer get the services and products from these two categories (Shamsudin, 2003; Srairi, 2009; Aris, 2010; and Rahman, 2012). The selected banks included both foreign and Islamic banks. Currently in Malaysia there are 16 Islamic banks and 28 commercial banks, but due to the problem of data availability, five of the commercial banks, namely China Construction Bank (Malaysia) Berhad, Mizunho Bank (Malaysia) Berhad, National Bank of Abu Dhabi Malaysia Berhad, Sumitomo Mitsui Banking Corporation Malaysia Berhad, and The Royal Bank of Scotland

Berhad are dropped. Thus, the problem of data availability has left the study to have 16 Islamic banks and 23 commercial banks and forms the sample of 39 banks (refer to Appendix I and II).

3.4.3 Method of Data Analysis

The study utilised a panel data. The reason of using panel data is because it eliminates the risk that may happen in time-series data and it likewise helps to distinguish the time impact that is not identified by cross-sectional and time-series data. Gujarati (2003) noted that, using a panel data for research increase the sample size that suitable for studies the dynamic changes and allowed the researcher to study the complex behavior.

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3.5 Regression Models

In order to test the hypothesis of the study, the multiple regression model is constructed to test the effect of bank-specific variables and macroeconomic variables on the bank performance.

3.6.1 Multiple Regression Model

This is a statistical tool that allows researchers to examine how multiple independent variables are related to a dependent variable. The model is used to predict the changes in the dependent variables (bank performance) in responses to the changes in the independent variables namely bank-specific and macroeconomic factors. Thus, the equation is measured as follows:

$$BP_{it} = \alpha + \beta_1 CAR_{it} + \beta_2 AQU_{it} + \beta_3 OPER_{it} + \beta_4 LIQU_{it} + \beta_5 BSZ_{it} + \beta_6 GDP_{it} + \beta_7 INFL_{it} + \varepsilon\varepsilon_{it} \quad (1)$$

Whereby:

BP= bank performance

i = bank

t = time period

α = intercept

β_i = regression coefficient

CAR= capital ratio

AQU= asset quality

OPER= operating efficiency

BSZ=bank size.

LIQU= liquidity risk.

GDP= gross domestic product

INFL= inflation rate

ε = error term.

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Hence, as this study uses two measures of bank performance, the equation models that to be tested are as follows:

$$ROA_{it} = \alpha + \beta_1 CAR_{it} + \beta_2 AQU_{it} + \beta_3 OPER_{it} + \beta_4 LIQU_{it} + \beta_5 BSZ_{it} + \beta_6 GDP_{it} + \beta_7 INFL_{it} + \varepsilon\varepsilon_{it} \quad (2)$$

$$ROE_{it} = \alpha + \beta_1 CAR_{it} + \beta_2 AQU_{it} + \beta_3 OPER_{it} + \beta_4 LIQU_{it} + \beta_5 BSZ_{it} + \beta_6 GDP_{it} + \beta_7 INFL_{it} + \varepsilon\varepsilon_{it} \quad (3)$$

3.6 Diagnostic Test

In order to conduct a regression analysis, initially, diagnostic tests were employed and explain in this section. Therefore, in order to conduct a diagnostic test the study tested normality, multicollinearity, heteroscedasticity, and auto-correlation test.

3.6.1 Normality Test

The aim of this test is to determine whether the data sampled drawn were from the normally distributed population or not. The normal distribution of the error terms reflects the correctness of the model specification. According to Hair, *et al.* (2006), normality test is highly important, especially in multivariate analysis. This study uses Kolmogorov-Smirnov test and Skewness and Kurtosis test in order to test the normality of the data.

3.6.2 Multicollinearity Test

It is the test that is used to check if there is a multicollinearity problem. This test measures the correlation between the independent variables. This test will be used to calculate the tolerance statistics and variance inflation factor (VIF) for detecting the multicollinearity in a model. Hair, *et al.* (2010) suggest that if an independent variable has a collinearity tolerance more than 0.1 and VIF less than 10, indicate that there is a non-existence of a multicollinearity problem.

3.6.3 Heteroscedasticity Test

The study used Breusch-Pagan-Godfrey in order to detect the existence of heteroscedasticity problem in the model. According to Gujarati (2003) the Breusch-Pagan-Godfrey test is appropriate for large sample test and it's not sensitive to an assumption that a distribution μi are not normally distributed. Therefore, according to Gujarati (2003) heteroscedasticity problem exists only when the result is not equal or constant.

3.6. 4 Auto-correlation Test

It discusses the correlation amongst members of the series for clarifications ordered in space or time (Gujarati, 2003). The Lagrange Multiplier (LM) test is used to detect an existence of auto- correlation in the model. Gujarati, (2003) and Hayashi (2000) signify the most useful test for detecting the problem of autocorrelation is LM test in a small and large sample. According to the authors, when autocorrelation problem exists, it is suggested to use AR (1) model in the regression analysis. AR (1) model is the one most broadly used and studied, and the most common technique for correcting

autocorrelation problems. Among the studies that use AR(1) are Rahman (2012), Ali (2016), Bhaumik and Piesse (2008), and Rahman, *et al.* (2009). Besides, in order to see regression results solve an autocorrelation problem will be verified by checking the Durbin-Watson statistics if are on the boundary or not. Thus, according to Asteriou and Hall (2011), Durbin-Watson of 2 implies that model is acceptable for decision making.

3.7 Panel Data Analysis

As this study utilizes panel data, an examination to choose the most suitable panel data model is conducted. According to Gujarati (2003) and Greene (2003), there are two most prominent panel data model to run, namely fixed effects model (FEM) and random effects model (REM). At that point, Hausman test is conducted so as to pick the most proper model for the study. The null hypothesis underlying the Hausman test is that random effects and fixed effects model estimators do not differ substantially. Thus, when the null hypothesis is rejected ($p<0.05$), meaning that random effect is not appropriate for the model and thus, the fixed effect model should be used.

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3.7.1 Fixed Effect Model

In this approach, the panel data model has an intercept which may be changed for each individual and time, where each unit of the cross-section are fixed to the time-series. According to Gujarati (2003), the term fixed effect itself refer to the time invariant in the

3.7.2 Random Effect Model

In this approach, the difference of overtime and individuals accommodated by error. Error in this approach is divided into three parts, namely individual components of error, time components of error and combined components of error. The approach contend that the firms included as sample are drawn from a much larger universe of such companies and that they have a common mean value for the intercept and the individual differences in the intercept values of each company are reflected in the error term (Gujarati, 2003). In addition, the most favored method used in this approach is Generalized Least Square (GLS) method (Gujarati, 2008).

3.10 Summary of Chapter

This chapter explains the research framework, data collection, methods used and hypotheses of the study. This study investigates the relationships between return on asset (ROA) and returns on equity (ROE) with a bank-specific and macroeconomic factors in determining banking performance using 23 commercial and 16Islamic banks in Malaysia and forms a sample size of 312 observations (8years x 39 banks). The study period covers 8 years, starting the year 2008 to 2015. Fourteen hypotheses are developed to test the direct relationship between the bank performance and its predictors. Hypotheses of the study are tested using standard multiple regression with fixed effect model. The standard multiple regressions are used to test the direct relationship between bank-specific and macroeconomic factors and bank performance.

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CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This chapter presents the findings on the bank-specific and macroeconomic determinants of bank performance in Malaysia. The first section (4.1) concentrates on the descriptive statistics and the (4.2) focuses on the normality test. While section 4.3 deals with the analysis of regression result, sections 4.4 presents the discussion of the findings.

4.1 Descriptive Statistics.

Descriptive statistics is a procedure of converting raw data into the simplest form that will ease the understanding and interpretation of data. This technique is valuable in a study because it is a preliminary approach that helps to enlighten and provide analytical information on each variable of the data. Table 4.1 and 4.2 present the descriptive statistical analysis of the dependent and independent variables of the study.

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Table 4.1
Descriptive Statistics for Conventional Banks

Variables	Observ.	Mean	Median	Std. Dev.	Minimum	Maximum
ROE	166	10.2750	10.9673	6.1380	-6.2970	34.0600
ROA	166	0.9795	1.0513	0.6873	-4.2728	5.5048
CAR	166	13.6272	9.5963	13.4391	5.1638	100.0000
AQU	166	48.8610	57.6170	21.7427	0.0000	75.2285
OPER	166	2.7756	2.8922	0.9537	0.3099	6.7443
LIQU	166	74.7151	80.7214	16.8909	0.0000	92.4080
BSZ	166	4.4123	4.6152	0.7908	1.3467	5.6923
GDP	166	9.5374	9.4149	1.8487	7.1286	13.1752
INFL	166	2.5300	2.0950	1.3251	0.8500	5.4500

Table 4.2
Descriptive Statistics for Islamic Banks

Variables	Observ.	Mean	Median	Std. Dev.	Minimum	Maximum
ROA	128	0.6861	0.7003	0.4459	-0.8634	1.7160
ROE	128	9.2624	9.4791	6.0159	-4.8614	29.3454
CAR	128	9.9191	7.5184	11.0445	3.1872	100.0000
AQU	128	59.9447	62.7421	14.4077	13.6920	146.7662
OPER	128	0.9285	0.7973	0.4538	0.1215	2.2512
LIQU	128	84.7228	88.1955	12.9715	5.6715	107.3105
BSZ	128	7.3374	7.2081	0.6431	6.5013	9.4629
GDP	128	9.5374	9.4149	1.8487	7.1286	13.1752
INFL	128	2.5300	2.0950	1.3251	0.8500	5.4500

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Table 4.1 and Table 4.2 summarise the dependent (ROA and ROE) and independent variables (CAR, AQU, BSZ, LIQU, OPER, GDP, and INFL) for conventional and Islamic banks. The mean value of ROA for the conventional banks is 0.9795 with the minimum of -4.2728 and a maximum of 5.5048 whereas the mean value of ROA for the Islamic banks is 0.6861 with the minimum and maximum of -0.8634 and 1.7160 respectively. This indicates that conventional banks' profitability is higher than that of Islamic banks as measured using ROA. The standard deviation of ROA for conventional banks is 0.6873 which is higher than that of Islamic banks which is 0.4459. This shows that the variation of profitability between conventional banks is greater than the variation of profitability between Islamic banks. Meaning that the conventional bank's profitability is highly fluctuated compared to the Islamic bank's profitability.

The mean value of return on equity for conventional banks is 10.2750 with a minimum value of -6.2970 and a maximum value of 34.0600 whereby, the mean ROE of Islamic banks is 9.2624 with the minimum and maximum ROE of -4.8614 and 29.3454 respectively. In addition, in measuring the ROE standard deviation for conventional and Islamic banks show that conventional standard deviation for ROE is 6.1380 which is lower that ROE standard deviation for Islamic banking which is 6.0159. Thus, results indicate that the profitability of conventional banks in Malaysia (using either ROA or ROE) is higher than Islamic bank profitability. The result is supported by the study conducted by and Masruki, *et al.* (2011), Wasiuzzaman and Gunasegavan (2013), Nathan, *et al.* (2014), Al-Mamun, *et al.* (2014), Sen, *et al.* (2015), who find that conventional banks are more profitable than Islamic banks in Malaysia.

By considering the bank-specific variables, capital ratio for conventional banks and Islamic bank is 13.6272 and 9.9191 respectively, which is much higher than the minimum requirement for capital adequacy under Basel guideline which is 8%. According to Rose and Hudgins (2010) and Goldstein and Turner (1996), total capital to risk-weighted assets exceeding 10% indicates that the bank is well capitalized. Thus, it is found that conventional banks are more capitalised throughout 2008 to 2015 compared to Islamic banks. On the other hand, the mean value of asset quality for conventional banks and Islamic banks are 48.8610 and 59.9447 respectively, with a minimum and maximum value of 0.0000 and 75.2285for conventional banks and 13.6920 and 1467662 for Islamic banks, which means that Islamic banks have a higher ratio in asset quality compared to conventional banks.

By looking at conventional operational efficiency (refer to Table 4.1), the mean value is 2.7756 and its range is between 0.3099 and 6.7443 whereby for Islamic banks, operational efficiency has the mean value of 0.9285 and range between 0.1215 and 2.2512. Furthermore, the mean value of liquidity for conventional banks is 74.7151 with a minimum value of 0.000 and a maximum value of 92.4080 while the mean value of Islamic banks is 84.7228 with a minimum value of 5.6715 and the maximum of 107.3105. According to Basel III, the minimum value of liquidity ratio after the financial crisis (2007-2008) to 2015 is 60%. So this result signifies that all banks have sound liquidity risk management. In addition, bank size has a mean value of 4.4123 for conventional banks and 7.3374 for Islamic banks, and range from 1.3467 to 5.6923 for conventional banks whereas the Islamic bank's bank size range from 6.5013 to 9.4629.

Moreover, concerning with macroeconomic variables, a mean value of GDP per capita for conventional and Islamic banks is 9.5374 with a minimum value of 7.1286 and the maximum value of 13.17520 for both conventional and Islamic banks. Furthermore, the mean value of the inflation rate is 2.5300 for conventional and Islamic banks, with a minimum and maximum value of 0.8500 and 5.4500 for both conventional and Islamic banks.

4.2 Normality Analysis

Table 4.3 shows the results of normality tests on the date of the study. Kolmogorov-Smirnov and Shapiro-Wilk to test the normality. Hence, when the p>0.05 meaning that the results is insignificant and the sample is normal, but when p<0.05 the result is significant and the distribution of the sample is not normal. Thus, the findings of the results are as follows:-

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Table 4.3
Normality Test Result

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ROA	.091	294	.000	.783	294	.000
ROE	.050	294	.071	.988	294	.013
CAR	.260	294	.000	.447	294	.000
AQU	.170	294	.000	.834	294	.000
OPER	.111	294	.000	.930	294	.000
LIQU	.151	294	.000	.951	294	.000
BSZ	.209	294	.000	.725	294	.000
GDP	.121	294	.000	.914	294	.000
INFL	.254	294	.000	.832	294	.000

The result in Table 4.3 shows that the p-value of ROE using Kolmogorov-Smirnov is greater than 0.05 (p=0.071) meaning that the result is insignificant and so the distribution of the sample is normal, but for other variables and for all variables using the Shapiro-Wilk the p-value is less than 0.05 which signify that there is a violation of normality assumption. Pallant (2007) indicates that when there is a large sample, the violation of normality should not be taken as a large concern that is because most of the multiple regression and general analysis of the results can hardly be affected by normality assumption. In addition, Hair, *et al.* (2006) and Pallant (2007) contends that, a sample size is large when observations are more than 100. Thus, the total sample size for this study is 294 observations and are considered a large sample and therefore, the violation of normality assumption is not a serious problem.

4.3 Multicollinearity Analysis

For the purpose of checking the problem of multicollinearity in the data, a variance inflation factor (VIF) Multicollinearity Diagnostic Test is used in the model. According to Hair, *et al.* (2006), multicollinearity problems exist when VIF values are above 10 (or a Tolerance value less than 0.10). The result of the multicollinearity test is presented below;

Table 4.4
Variance Inflation Factor (VIF)

Variable	Tolerance Value	VIF
BSZ	0.3450	2.9000
OPER	0.4517	2.2100
LIQU	0.5537	1.8100
AQU	0.6511	1.5400
CAR	0.6872	1.4600
GDP	0.9314	1.0700
INFL	0.9664	1.0300
Mean VIF		1.7200

Table 4.4 shows that all variables have VIF value less than 10 and tolerance value more than 0.1. The value of VIF ranges from 1.0300 to 2.9000 and VIF mean of 1.7200 whereby the tolerance value range from 0.3450 to 0.9664 independent variables. Hence, since the statistical results are within the limit (VIF value less than 10 and tolerance value is higher than 0.1) meaning that there is no issue of multicollinearity in the data (Hair, *et al.*, 2006; Pallant, 2007). But according to Pallant (2007) VIF that is more than 9.0 or tolerance value near to 0.1 should be taken as a warning sign and the correlation matrix should be checked. Thus, Table 4.5 and 4.6 present the correlation matrix for the model.

Table 4.5

Correlation Matrix for Conventional Banks

Probability	ROE	ROA	CAR	AQU	OPER	LIQU	BSZ	GDP	INFL
ROE	1								
ROA	0.5692	1							
	0.0000*								
CAR	-0.5131	-0.0636	1						
	0.0000*	0.4158							
AQU	0.5727	0.2730	-0.5276	1					
	0.0000*	0.0004*	0.0000*						
OPER	-0.0002	-0.1014	0.1446	0.2790	1				
	0.9977	0.1937	0.0631**	0.0003*					
LIQU	0.4704	0.0288	-0.7142	0.5318	0.1287	1			
	0.0000*	0.7128	0.0000*	0.0000*	0.0985***				
BSZ	0.6991	0.2017	-0.7139	0.6509	0.1022	0.5809	1		
	0.0000*	0.0092*	0.0000*	0.0000*	0.1903	0.0000*			
GDP	-0.1989	-0.1141	0.0498	-0.0091	0.0056	-0.1761	0.0044	1	
	0.0102**	0.1434	0.5242	0.9070	0.9427	0.0232**	0.9552		
INFL	0.0796	0.0136	0.0028	0.0851	0.2907	0.0099	0.0224	-0.0050	1
	0.3080	0.8614	0.9716	0.2755	0.0001*	0.8988	0.7745	0.9489	.....

* Correlation is significant at the 0.01 level (2-tailed)

** Correlation is significant at the 0.05level (2-tailed)

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Table 4.6

Correlation Matrix for Islamic Banks

Probability	ROE	ROA	CAR	AQU	OPER	LIQU	BSZ	GDP	INFL
ROE	1								
ROA	0.8235	1							
	0.0000*								
CAR	-0.3530	0.0060	1						
	0.0000*	0.9465							
AQU	0.1131	0.2373	0.3769	1					
	0.2035	0.0070*	0.0000*						
OPER	0.0914	0.2556	-0.0565	0.1302	1				
	0.3051	0.0036*	0.5268	0.1430					
LIQU	0.3445	0.2657	-0.1469	-0.0629	-0.0927	1			
	0.0001*	0.0024*	0.0980*	0.4808	0.2978				
BSZ	-0.0702	-0.1129	0.1644	-0.1046	-0.3316	-0.0668	1		
	0.4313	0.2045	0.0637***	0.2400	0.0001*	0.4539			
GDP	-0.0037	-0.0527	-0.0738	0.2815	-0.0626	-0.1609	0.1793	1	
	0.9674	0.5548	0.4077	0.0013**	0.4827	0.0696*	0.0429**		
INFL	-0.0676	-0.0825	-0.0647	-0.1337	-0.0841	-0.0943	-0.0053	-0.0797	1
	0.4487	0.3545	0.4683	0.1326	0.3450	0.2897	0.9530	0.3710	……

* Correlation is significant at the 0.01 level (2-tailed)

** Correlation is significant at the 0.05level (2-tailed)

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According to Pallant (2007), correlation analysis is used to identify the existence of multicollinearity among dependent variables which may affect their relationship with the dependent variables in the regression analysis. Table 4.5 shows that for conventional banks the highest correlation coefficient is between CAR and LIQU which is 0.7142 whereas for Islamic banks (refer to Table 4.6), the highest correlation is between CAR and AQU which is 0.3769. However, these values are below 0.90, the benchmark to identify multicollinearity. These results proved that there is no multicollinearity problem. The results supported by Pallant (2007) who noted that multicollinearity exist only when the correlation value is 0.9 or above.

4.4 Heteroscedasticity Analysis

Breusch-Pagan-Godfrey test, which is used to detect the existence of homoscedasticity problem shows a chi-square value of 30.93 and 17.1432 for both ROA and ROE with the p-value of 0.0000 and 0.0165 respectively. The results indicate that heteroscedasticity problem exists in the model because $p<0.05$. This problem is corrected by using a White's General Heteroscedasticity test. According to Gujarati (2003), White's General Heteroscedasticity test is appropriate for non-normal data because the test does not rely on the normality assumption.

4.5 Auto-correlation Analysis

The Lagrange Multiplier test shows that an auto - correlation problem exists in the model. Greene (2003), Gujarati (2003) and Wooldridge (2009), noted that the autocorrelation problem is tackled by incorporating AR (1) in the regression model. Gujarati (2003) and Wooldridge (2009) noted that AR(1) model is the most widely

used to correct the auto-correlation problems. Among the studies that use AR(1)model are Rahman Ibrahim and Mehra (2009), Delis and Pasiouras(2011), Rahman (2012), and Ali (2016). The result shows that d statistics for the two dependent variables regression tests and for both conventional and Islamic banks are found to be in between the lower bound (dL) and upper bound (dU) values of Durbin-Watson critical values. Thus, indicate that there is no autocorrelation problem in the models

4.6 Panel Data Analysis

The Hausman test result rejected the null hypothesis underlying the test which is, fixed effects model and random effects model estimators do not differ substantially for both ROA and ROE. According to Gujarati (2003), the rejection of the null hypothesis indicates that, for this study, a fixed effects model is more appropriate than the random effects model.

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4.7 Multiple regression Analysis

By taking into account the problems that exist in the data, such as homoscedasticity problem auto-correlations problem and normality problem, the regression analysis for the study is conducted by using GLS estimation. The GLS method is more appropriate for this study because, it helps to reduce the normality issue in the model. Gujarati (2003) shows that GLS is a transformed model of Ordinary Least square model (OLS). Furthermore GLS is more appropriate than OLS in the case of non-normal data to (Rahman, 2012). In addition, the study conducts a White's General Heteroscedasticity and AR(1) in order to tackle heteroscedasticity and autocorrelation problems, while the fixed effects model is used as it is found from the Hausman test that this is the most

appropriate model for ROA and for ROE. As bank performance is measured using ROE and ROA, multiple regression analysis is conducted on each of the dependent variable measures for Islamic and conventional banking separately. The results of the multiple regression analyses for ROA and ROE are presented in next subsections, while discussions and explanations of the results in relation to study theory and previous findings are presented in the following subsection.

4.7.1 The Regression Results of Bank-specific and Macroeconomic Factors on ROA

Table 4.7 and 4.8 present the results of multiple regression on bank-specific and macroeconomic factors with ROA for conventional and Islamic bank. The beta coefficient shows the contribution of each variable to the dependent variable. Also, the p-value which shows the significance of a variable are also presented in the table.

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Table 4.7

Regression Analysis of the Independent Variables on ROA for Conventional Banks

Variable	Expected result	Beta	t-Statistic	Prob.
C		-1.0558	-0.8960	0.3722
CAR	+	0.0191	1.4334	0.1545
AQU	+	0.0145	7.4806	0.0000*
OPER	+	-0.1281	-3.5883	0.0005*
LIQU	+	0.0108	4.0844	0.0001*
BSZ	+	0.2032	0.7735	0.4409
GDP	+	-0.0391	-2.5791	0.0112**
INFL	+	0.0303	2.5289	0.0128**
AR(1)		0.0237	0.5100	0.6111
R^2	0.7899			
Adjusted R^2	0.7337			
F-statistic	14.0392			
Prob. (F-statistic)	0.0000			
Durbin-Watson stat	1.6427			
N	143			

Note: * $p < 0.01$, ** $p < 0.05$

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Table 4.8

Regression Analysis of the Independent Variable on ROA for Islamic Bank

Variable	Expected result	Beta	t-Statistic	Prob.
C		-2.5266	-2.3168	0.0228
CAR	+	-0.0008	-0.6691	0.5052
AQU	+	0.0052	2.7923	0.0064*
OPER	+	0.2803	4.1845	0.0001*
LIQU	+	-0.0005	-0.3100	0.7573
BSZ	+	0.4294	2.3443	0.0213**
GDP	+	-0.0426	-1.8852	0.0627
INFL	+	-0.0228	-0.9447	0.3474
AR(1)		-0.0561	-1.0196	0.3107
R^2	0.6922			
Adjusted R^2	0.6118			
F-statistic	8.6050			
Prob. (F-statistic)	0.0000			
Durbin-Watson stat	2.0909			
N	112			

Note: * $p < 0.01$, ** $p < 0.05$

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Table 4.7 and 4.8 show an overall significant result of the F-statistics of 8.6050, and 14.0392 for conventional and Islamic banks with the probability f-statistics of 0.000 for conventional and Islamic banks signifying an association between the pool of independent variables (both Islamic and conventional banks) and the model used is appropriate. The adjusted R^2 for conventional banks is 0.7337, while the Islamic banks is 0.6118; which means that the model consisting of the independent variables explains 73 and 61 percent of the variation in the ROA for conventional and Islamic banks respectively.

Furthermore, for conventional banks results Table 4.7 shows that AQU, OPER, and LIQU, are found to be significant at the 1 percent level whereby GDP and INFL are found to be significant at the 5 percent level, but the results found that CAR and BSZ are insignificant to ROA. This indicates that CAR and BSZ have the insignificant impact on explaining conventional bank performance. Among the variables that have significant results show that OPER and GDP have a negative relationship with ROA while the remaining independent variables (AQU, LIQU, and INFL) have a positive relationship with ROA. The negative result indicates that when OPER decrease the performance of conventional banks increases by 0.1281 which is opposite to the financial intermediation theory on cost efficiency. Also, in terms of GDP, the negative results indicate that when GDP fall the conventional bank performance increase.

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On the other hand, by looking at Islamic bank results, Table 4.8 indicates that AQU and OPER are significant at the 1 percent level whereby BSZ and GDP are significant at 5percent. The results also show that there is no significant relationship between CAR, LIQU, INFL and GDP to ROA which means that the effect of CAR, LIQU, INFL and GDP to the Islamic bank performance are insignificant. In addition, OPER seems to have higher beta value, 0.2803; signifying that, its contribution to Islamic banking model is strong compared to other variables. Nevertheless, Durbin-Watson statistics of 1.6427 and 2.0909 for conventional and Islamic banks respectively is within the boundary and according to Asteriou and Hall (2011), the range of Durbin-Watson to 2 is acceptable for decision making.

4.7.2 The Regression Results of Bank-specific and Macroeconomic Factors on ROE

Table 4.9 and 4.10 show the results of multiple regression of bank-specific and macroeconomic factors on ROE. The same set of independent variables as in Table 4.8 and 4.9 are used in these regressions.

Table 4.9
Regression Analysis of the Independent Variables on ROE for Conventional Banks

Variables	Expected result	Beta	t-Statistic	Prob.
C		-24.2113	-4.9257	0.0000
CAR	+	-0.1425	-1.9018	0.0598
AQU	+	0.0837	3.1812	0.0019*
OPER	+	-1.5803	-18.5209	0.0000*
LIQU	+	0.0646	3.8446	0.0002*
BSZ	+	8.6454	7.2564	0.0000*
GDP	+	-0.7518	-9.5656	0.0000*
INFL	+	0.1954	0.9803	0.3290
AR(1)		-0.0387	-0.7942	0.4288
R^2	0.9292			
Adjusted R^2	0.9103			
F-statistic	49.0078			
Prob. (F-statistic)	0.0000			
Durbin-Watson stat	1.6393			
N	143			

Note:*significant at 1percent level, ** significant at 5 percent level

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Table 4.10
Regression Analysis of the Independent Variables on ROE for Islamic Banks

Variable	Expected result	Beta	t-Statistic	Prob.
C		-72.5999	-5.0777	0.0000
CAR	+	-0.1658	-20.3139	0.0000*
AQU	+	0.0518	2.4818	0.015*
OPER	+	1.6369	2.4100	0.0180**
LIQU	+	-0.0181	-1.0715	0.2869
BSZ	+	12.1744	5.1016	0.0000*
GDP	+	-0.8312	-3.2797	0.0015*
INFL	+	-0.3960	-1.8831	0.0630
AR(1)		-0.0676	-2.0388	0.0445
R^2	0.8245			
Adjusted R^2	0.7786			
F-statistic	17.9737			
Prob.(F-statistic)	0.0000			
Durbin-Watson stat	1.9443			
N	112			

Note: * significant at 1 percent level, ** significant at 5 percent level

Based on Table 4.9 and 4.10 above, the F-statistics are 49.0078 and 17.9737 for conventional and Islamic banks respectively. This model has a probability of f-statistics of 0.0000 for both conventional and Islamic banks which indicated that overall there is a significant relationship between the independent variables selected and the model. The adjusted R^2 value for ROE is 0.9103 and 0.7786 for conventional and Islamic banks respectively. These results indicate that the model comprises of the independent variables explains 91 percent of variation for conventional banks in the ROE and 78 percent of variation for Islamic banks in the model. Furthermore, for

conventional banks, Table 4.9 reveals that AQU, OPER, LIQU, BSZ, and GDP, are significant at the 1 percent level, whereby CAR and INFL are insignificant to ROE. This meaning that INFL and CAR have insignificant effects on the performance of conventional banks. Also, the results show that among the independent variables CAR, OPER and GDP have a negative relationship with ROE, while the remaining variables have a positive relationship with ROE (for conventional banks). The negative beta coefficient that CAR, OPER, and GDP decreased the performance of conventional banks. On the other hand, Islamic banks CAR, AQU, BSZ and GDP, are found to be significant at the 1 percent level while OPER found to be significant at the 5 percent level. The results further show that LIQU and INFL are insignificant to ROE, which indicates that there is no significant impact between LIQU and INFL to bank performance.

Table 4.8 and 4.10 show that LIQU and INFL are insignificant in explaining Islamic bank performance using either ROA or ROE. CAR and GDP have the negative sign which indicates that increase of CAR and the rising of GDP results in the decrease of Islamic bank performance during the time of the study. Furthermore, the results indicate that BSZ has the highest beta coefficient value which is 8.6454 for conventional banks and 12.1744 for Islamic banks, which signifying that the contribution to the model for both conventional and Islamic banks is strong. The Durbin-Watson statistics of 1.6393 and 1.9443 for conventional and Islamic banks respectively are within the boundary and hence support that the model is acceptable for decision making (Asteriou & Hall, 2011). The results show that the insignificant of one model (ROA) is inconsistent with another model (ROE).

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Table 4.11
Summary of Multiple Regression Results of Bank–specific and Macroeconomic Determinants on Bank Performance in Malaysia

Ind. variables	Expect. sign	Conventional bank		Islamic banks	
		ROA	**ROE**	**ROA**	**ROE**
CAR	+	insignificant	insignificant	insignificant	significant(-)
AQU	+	significant(+)	significant(+)	significant(+)	significant(+)
OPER	+	significant(-)	significant(-)	significant(+)	significant(+)
LIQU	+	significant(+)	significant(+)	insignificant	insignificant
BSZ	+	insignificant	significant(+)	Significant(+)	significant(+)
GDP	+	significant(-)	significant(-)	insignificant	significant(-)
INFL	+	significant(+)	insignificant	insignificant	insignificant

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4.8 Results Analysis and Discussion

In this section, the results of each independent variable (bank-specific and macroeconomic variables) and its impact on profitability are discussed and linked to the previous findings on bank performance. This discussion is based on the results as presented in Table 4.7, 4.8, 4.9, and 4.10 for conventional and Islamic banks using ROA and ROE.

4.8.1 Capital Adequacy (CAR) and Bank Performance

The impact of CAR which is proxy by the ratio of total equity to a total asset is statistically insignificant at all level of significance for the sample of conventional banks (ROA and ROE) and Islamic banks (ROA) (refer to Table 4.7, 4.8 and 4.9). Thus, having insignificant results between CAR and performance measures for both samples indicates that increase or decrease of CAR has no effect on the performance of conventional (ROA and ROE) and Islamic banks (ROA). As for the ROE, CAR is found to be negative and statistically significant to the Islamic bank performance at 1 percent level of significance. Table 4.10 indicates that, the Beta coefficient of -0.1658; meaning that a unit increase in CAR results in 0.1658 unit reduction in Islamic bank profitability (ROE).

These negative and significant results support those of Wasiuzzaman and Tarmizi (2010), and Sen, *at el.* (2015) who signify that banks that are not well-capitalized generates higher profits than banks that are well- capitalised. Thus, bank takes only take safe investment and at a reasonable risk. As indicated by Wasiuzzaman and Tarmizi (2010) a negative relations between CAR and ROE and Islamic bank performance implied that a well- capitalized banks perceived to be safer and less risky. Hence, the projected profit expected to be lower as low risk generates low return. Therefore, the results contradict to the study hypothesis and previous studies such as Olalekan and Adeyinka (2013), Ongore and Kusa (2013), Aldamir (2014), and Sen, *et al.* (2015). However, the study support the previous studies conducted by Dietrich and Wanzenried (2011), Algazar (2014), Bateni (2014), and Sen, *et al.* (2015).

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4.8.2 Asset Quality (AQU) and Bank Performance

The results obtained from testing asset quality (AQU) using the ratio of total loans to a total asset is found that AQU ratio is positive and significantly related to all sample (conventional and Islamic) and for all model (ROA and ROE). This indicates that asset quality affects both Islamic and conventional bank performance. Findings are consistent with the studies such as Dermirguc and Huizinga (1999), and Guru *et al.* (2002), Karim, *et al.* 2010, and Antonie (2015). The positive and significant results can be due to the good lending procedures and guidelines that are implemented in a bank for the purposes to improve loan management (Osayameh, 1986).

Antonie (2015), taken into consideration factors considered in managing the loan such as credit quality, sufficient collateral documentation, compliance with applicable laws and regulation. These factors help the manager to understand the type (quality) of asset the customers need and avoid error associated with the product they sell, this enhanced bank performance. In addition, the positive and significant results indicated that both banks are focused more in lending activities. Thus, banks that monitor and evaluate the credit loans tend to be more profitable than banks that are not focusing on controlling credit activities. Banks are more concerned on loans because it's among the riskiest part and failure on the managing the loans might threaten their liquidity position and lead to distress (Adeolu, 2014).

Therefore, for conventional and Islamic banks the results supported the hypothesis and previous studies conducted by Demirguc-Kunt and Huizinga (1999), Guru, *et al.* (2002), Karim, *et al.* (2010), and Antonie (2015). On the other hand, the results

contradict with the result found by Wasiuzzaman and Tarmizi (2010), Khalid (2012), Teng, *et al.* (2012), Algazzar (2014) which reported that asset quality and profitability are negatively correlated in the banking industry.

4.8.3 Operational Efficiency (OPER) and Bank Performance

The study found that OPER possesses negative impact on ROA for conventional banks which is statistically significant at 1percent level. Table 4.7 shows that the beta coefficient of - 0.1281 indicates that a unit increase in OPER brings about conventional bank profitability to decrease by 0.1281 unit, when other variables remain constant. Sen, *et al.* (2015) noted that the higher the ratio of the OPER creates the lower profitability. On the other hand, OPER in Islamic banks found to be positive and statistically significant to the bank performance. Holding other variable constant Table 4.8 shows that the beta coefficient of 0.2803 indicates that 1 unit increase in OPER brings about Islamic bank profitability to increase by 0.2803 unit. Conversely, considering ROE as an indicator of conventional bank performance, results show that there is a negative significant effect between OPER and conventional bank performance.

The beta coefficient of -1.5803 indicates that increase in OPER by a unit brings about the conventional bank to decrease by 1.5803, holding other variables constant. According to Almazari (2014) the negative relationship between OPER and profitability indicating that there is a poor expense management that result in poor profitability. In contrast, the result from Islamic banks with ROE show that there is

positive significant between OPER and Islamic bank performance. Thus, a beta coefficient of 1.6369 indicates that a unit increase in OPER, results the Islamic bank performance increase by 1.6369, holding other variable constant. Therefore, for conventional banks the results contradict to the study hypothesis and the previous studies such as Sufian and Chong (2008), Olweny and Shipho (2011), Almumani (2013), Dawood (2014), and Almazari (2014). For Islamic banks the result support the hypothesis and the previous studies such as Bashir (2003), Vong and Chan (2009), Al-Tamimi (2010), and Wasiuzzaman and Tarmizi (2010).

4.8.4 Liquidity (LIQU) and Bank Performance

In this study, liquidity was measured using the total deposit to a total asset ratio. The results found that liquidity is positively and significantly related to banks performance for conventional banks when it's measured by using ROA (refer to Table 4.7). The positive results may be due to the depositors remain to invest their cash in the banks due to the expectation of receiving a higher return on its investments. In Table 4.7, the beta coefficient of 0.0108, holding other variables constant, indicates that a 1 unit increase in liquidity, the performance of conventional banks increase by 0.0108 (measured by ROA). In addition, the results show that LIQU has no effect on the Islamic bank's performance when it is measured using (ROA). On the other hand, the relationship between LIQU and ROE for conventional banks seems to be positive and statistically significant (p-value=0.0002), while it is insignificant to the Islamic bank performance (p-value=0.2869).

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The result in Table 4.9 shows that the beta coefficient of 0.0646 holding other variables constant, indicates that a 1 unit increase in LIQU, the performance of conventional banks increase by 0.0646. The positive value of liquidity signifies that the higher the risk taken by the banks, the higher the return generated (Bourke, 1989). The positive and significant at 1percent level (Refer to Table 4.7 and 4.9) value indicates that the tendency for the customer to deposit money to the banks raise the conventional bank's performance. Therefore, for conventional banks, the result support the hypothesis and the previous studies such as Pasiouras and Kosmidou (2007), Wasiuzzamn and Tarmiz (2010), and Zeitun (2012). However, for Islamic bank performance, the results contradict with the study hypothesis, but consistent with the previous studies such as Guru, *et al.* (2002), Faizulayev (2011), Alper and Abar (2011), Ongore, *et al.* (2013), and Algazar (2014).

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4.8.5 Bank Size (BSZ) and Performance

The impact of BSZ on the performance of conventional banks as measured by ROA, reveals that BSZ is insignificantly related to the bank performance (p-value = 0.4409) which means that BSZ does not affect the conventional bank performance. The results for Islamic banks found to have a positive impact between BSZ on the bank performance (ROA) as anticipated. Based on Table 4.8 the beta coefficient of 0.4294 indicates that a 1 unit increase in BSZ brings about 0.4294 unit increase in Islamic bank performance, holding other variables constant.

On the other hand, Table 4.9 and 4.10 show that BSZ has a positive impact on ROE for conventional as well as for Islamic bank performance at a 1 percent level of significance. When other variables remain constant, the coefficient of 8.6454 and 12.1744 (refer to Table 4.9 and 4.10) indicate that increase in BSZ by 1 unit brings about 8.6454 and 12.1744 unit increase in conventional and Islamic bank performance respectively. Having a positive result for conventional banks (ROE) and Islamic banks (ROA and ROE) implies that, large conventional and Islamic banks tend to have greater ability to diversify. And make the use of the economies of scale than those of smaller size, as reported by Muda *et al.* (2013).

In addition, Chua (2013), reported that large conventional banks are expected to gain higher profit than small conventional banks simply because large banks have an opportunity to enjoy lower and cheaper processing cost. Therefore, the results for conventional banks (ROE) and Islamic banks (ROA and ROE), support the study hypothesis and the previous studies conducted by Tafri, *et al.* (2009), Karim, *et al.* (2010), Ali, *et al.* (2011), Wasiuzzaman and Gunasegavan (2013), Muda, *et al.* (2013), Gul, *et al.* (2011), Tariq (2013), and Sen *et al.* (2015). Conversely, for conventional bank performance (ROA) the result contradicts to the study hypothesis, but are in line with the study conducted by Goddard *et al.* (2004), Akhtar (2011), Dawood (2014), and Rashid and Jabeen (2016).

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4.8.6 Gross Domestic Product (GDP) and Bank Performance

The result found that there is a negative and significant effect at 1 percent and 5 percent significant levels between GDP and the conventional bank's performance (ROA and ROE). The findings show a negative relation to the Islamic bank performance (ROE) and insignificant impact on the Islamic bank performance (ROA). From Table 4.7, and 4.9 the beta coefficient of negative relationship indicates that increase in GDP results in decreasing of the conventional bank performance, holding other variables constant. According to Alexiou and Sofoklis (2009), banks in developing countries have an inverse relationship on the GDP. Therefore, the results contradict the study hypothesis and previous studies such as Sen, *et al.* (2015), Petria, *et al.* (2015), Moualh (2016). However, the study support those of Alexiou and Sofoklis (2009), Ongore (2009), Flamin (2009), Khrawish (2011), Sufian (2011), and Kanwal and Nadeem (2013).

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4.8.7 Inflation (INFL) and Bank Performance

The result of inflation shows a positive and statistically significant at the 5 percent level of significance for conventional banks (measured by ROA). As in Table 4.7, holding other variables remain the same; the beta coefficient of 0.0303 implies that a 1 unit increase in INFL brings about 0.0303 unit increase in conventional bank performance. The significant results indicate that bank management of conventional banks is able to forecasting the trends of inflation correctly during the study period. According to Pasiouras and Kosmidou (2007), be able to forecast the trend gives managers the opportunity to adjust the interest rate accordingly and achieve higher

performance. On the other hand, the results of inflation for Islamic banks (refer to Table 4.8) using ROA are statistically insignificant as p-value is 0.3474.

By looking at the ROE, findings show that the relationship of the INFL to the conventional and Islamic bank performance is insignificant (refer Table 4.9 and 4.10). This means that there is no impact to the conventional bank performance when INFL rise or fall. Therefore, the results contradict with the study hypothesis for both conventional and Islamic bank performance, but similar to the previous studies such as Naceur (2003), Pasiouras and Kosmidou (2007) and Sanwari and Zakaria (2013). However, the study hypothesis is supported only on conventional bank performance measured using ROA which is similar to the previous studies conducted by, Naceur (2003), Pasiouras and Kosmidou (2007), Athanasoglou, *et al.* (2008), Zeitun (2012), Sanwari and Zakaria (2013), Tabari, *et al.* (2013), Dietrich and Wanzenried (2014), Sen, *et al.* (2015), Ibrahim (2015), and Duraj and Moci (2015).

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Table 4.12
Summary of Hypothesis Testing Results of Bank-specific and Macroeconomic Determinant on ROA and ROE

Hypothesis	ROA	ROE
H1a: Capital adequacy has a positive effect on conventional banks performance	Hypothesis is not supported	Hypothesis is not supported
H1b: Capital adequacy has a positive effect on Islamic bank performance	Hypothesis is not supported	Hypothesis is not supported
H2a: Asset quality has a positive effect on conventional bank performance	Hypothesis is supported	Hypothesis is supported
H2b: Asset quality has a positive effect on Islamic bank performance	Hypothesis is supported	Hypothesis is supported
H3a: Operating efficiency has a positive effect on conventional bank performance	Hypothesis is not supported	Hypothesis is not supported
H3b: Operating efficiency has a positive effect on Islamic bank performance	Hypothesis is supported	Hypothesis is supported
H4a: Liquidity has a positive effect on conventional bank performance	Hypothesis is supported	Hypothesis is supported
H4b: Liquidity has a positive effect on Islamic bank performance	Hypothesis is not supported	Hypothesis is not supported
H5a: Bank size has a positive effect on conventional bank performance	Hypothesis is not supported	Hypothesis is supported
H5b: Bank size has a positive effect on Islamic bank performance	Hypothesis is supported	Hypothesis is supported
H6a: Gross Domestic Product has a positive effect on conventional bank performance	Hypothesis is not supported	Hypothesis is not supported
H6b: Gross Domestic Product has a positive effect on Islamic bank performance	Hypothesis is not supported	Hypothesis is not supported

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Table 4.12 continue

Hypothesis	ROA	ROE
H7a: Inflation rate has a positive effect on conventional bank performance	Hypothesis is supported	Hypothesis is not supported
H7b: Inflation rate has a positive effect on Islamic bank performance	Hypothesis is not supported	Hypothesis is not supported

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CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter offers an overall conclusion of the study on the bank-specific and macroeconomic determinants of bank performance. This chapter begins with the summary of the major research findings and conclusion, followed by the policy implication of the findings. Finally, limitations of the study, as well as recommendation for further research and improvement are underlined.

5.1 Summary of Research Findings and Conclusion

This study examines the bank-specific and macroeconomic determinant for conventional and Islamic bank performance in Malaysia. Capital adequacy, operating efficiency, liquidity, asset quality, and bank size are the bank-specific factors undertaken whereby, gross domestic product and inflation were used as macroeconomic factors. The performance was measured using Return on asset (ROA) and Return on equity (ROE). The study used an unbalanced panel data sample of 39 banks operated in Malaysia which is 23 from conventional banks and 16 Islamic banks, from 2008 to 2015. Data were obtained from respective bank's website, database, and World Bank data.

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In terms of bank-specific factors, the study found that conventional banks performance is positively and significantly affected by AQU, BSZ and LIQU for both ROA and ROE. Nevertheless, AQU, OPER, and BSZ found to be positively and statistically significantly affect the Islamic bank performance using both ROA and ROE. The positive effect of the findings indicates that a 1 unit increase on these variables result in the performance of bank to increase and vice versa. On the other hand, for conventional banks, the study found a negative and significant relationship between OPER and bank performance (both ROA and ROE). Whereas there is a significantly negative relationship between Islamic bank performance (ROE) and CAR. The negative relation indicates that a well- capitalised bank is able to take safe investment which is less risk and so generates a lower return.

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Similarly, the macroeconomic variables, namely GDP found to have a significant negative impact on conventional bank performance using both ROA and ROE. And for Islamic bank results found a negative and statistically significant only using ROE. The negative effect on GDP indicates that the performance of Malaysia bank is decreased when GDP growth increase. For this case support the study of Alexiou and Sofoklis (2009) that an economic condition for those of developing countries has a tendency of performance to decrease when the GDP increase. On the contrary, INFL found to have a positive and significant to the performance of conventional banks only when using ROA and no impact to the Islamic bank performance. The result above indicates that there are differences in the direction of the effect of the selected variables to the conventional and Islamic bank performance (Refer to OPER in Table 4.7, 4.8, 4.9, and 4.10).

In addition, variable LIQU and INFL found to be significant to the conventional banks, but insignificant to Islamic banks and the variable CAR (measured using ROE) found to be significant to the Islamic bank performance but insignificant to the conventional bank performance. This indicates that factor that affects conventional banks is not necessary to affect Islamic banks and proved by Hadriche (2015), Ismail (2015), Sen, *et al.* (2015), and Bardastani (2016) among others who reported that conventional banks and Islamic banks differ in the factors affecting their performance. And according to Sen, *et al.* (2015), Hadriche (2015) having a different policy strategy might be the reason for these differences.

5.2 Implication of the Study

This study is designed to provide evidence and knowledge for depositor, borrowers, investor, regulators and those who are interested in examining the determinants of bank performance for conventional and Islamic banks. It is very important for bank managers to pay particular attention, especially in looking at the bank-specific factors in order to make sure the optimum utilisation of bank resources as well as enhance better risk management process aiming to increase performance. Bank manager need to improve the credit policy, procedure as well as be able to maintain better customer relationship with banks. Also, bank managers should make sure that they provide the loans to their customers based on the features needed as because a customer is the key players in the banking business since the asset quality which is the measurement of loans found to be significant to both banks.

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The finding would of very important for Islamic banks as it emerged on the market, so it enables them to know the variables that hinder the Islamic bank performance. Furthermore, due to the contribution of the banking sector to the economic growth, the study of macroeconomic factors on bank performance is very important. Thus, any policy implications achieved from the findings can influence the economic growth. Lastly, the study findings have important implication for regulators who prescribe a mechanism of financial assistance to banks.

5.3 Limitation of the Study

The time - fame constraint is the major limitation that limits to produce a comprehensive research analysis. In this vein, the study went deep to review existing literature and analyse the available data. On the other hand, the study uses ratio analysis obtained from bank scope and annual accounting reports from the respective banks, but using only ratios create difficulties to reveal exactly the factors affect bank performance. The study did not cover investment and International Islamic banks, thus, the results cannot generalised the Malaysia banking system. Furthermore, the study did not cover industry factors such as concentration which measures the bank performance in relation to the industry risk.

5.4 Recommendation

In order to get better results and increase the degree of freedom as well to have a more symmetrical distribution of data it is recommended further studies that will measure bank performance to take a longer time period example 10 years and more. On the contrary, in order to evaluate the performance that will represent the actual population of the banking sector in Malaysia, further studies recommended to include investment banks and International Islamic banks in the sample. Moreover, for the purpose of increasing knowledge on the effect of bank performance, further studies are encouraged to use many factors and employed different methodology. Furthermore, future studies are recommended to focus on different countries or across countries.

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APPENDIX I.

LIST OF SELECTED ISLAMIC BANKS

No.	Name	Ownership
1	Affin Islamic Bank Berhad	L
2	Al Rajhi Banking & Investment Corporation (Malaysia) Berhad	F
3	Alliance Islamic Bank Berhad	L
4	AmBank Islamic Berhad	L
5	Asian Finance Bank Berhad	F
6	Bank Islam Malaysia Berhad	L
7	Bank Muamalat Malaysia Berhad	L
8	CIMB Islamic Bank Berhad	L
9	HSBC Amanah Malaysia Berhad	F
10	Hong Leong Islamic Bank Berhad	L
11	Kuwait Finance House (Malaysia) Berhad	F
12	Maybank Islamic Berhad	L
13	OCBC Al-Amin Bank Berhad	F
14	Public Islamic Bank Berhad	L
15	RHB Islamic Bank Berhad	L
16	Standard Chartered Saadiq Berhad	F

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APPENDIX II.

LIST OF SELECTED COMMERCIAL BANKS

No.	Name	Ownership
1	Affin Bank Berhad	L
2	Alliance Bank Malaysia Berhad	L
3	AmBank (M) Berhad	L
4	BNP Paribas Malaysia Berhad	F
5	Bangkok Bank Berhad	F
6	Bank of America Malaysia Berhad	F
7	Bank of China (Malaysia) Berhad	F
8	Bank of Tokyo-Mitsubishi UFJ (Malaysia) Berhad	F
9	CIMB Bank Berhad	L
10	Citibank Berhad	F
11	Deutsche Bank (Malaysia) Berhad	F
12	HSBC Bank Malaysia Berhad	F
13	Hong Leong Bank Berhad	L
14	India International Bank (Malaysia) Berhad	F
15	Industrial and Commercial Bank of China (Malaysia) Berhad	F
16	J.P. Morgan Chase Bank Berhad	F
17	Malayan Banking Berhad	L
18	OCBC Bank (Malaysia) Berhad	F
19	Public Bank Berhad	L
20	RHB Bank Berhad	L
21	Standard Chartered Bank Malaysia Berhad	F
22	The Bank of Nova Scotia Berhad	F
23	United Overseas Bank (Malaysia) Bhd.	F

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